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## **DELINEATION WORKPLAN**

### **COG – SPRUCE GOOSE FED COM #2H (Leak Date: 1/17/17)**

#### **RP # 2RP-4082**

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This delineation workplan and remediation proposal addresses the release associated with RP # 2 RP-4082.

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 6 inches.***








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.

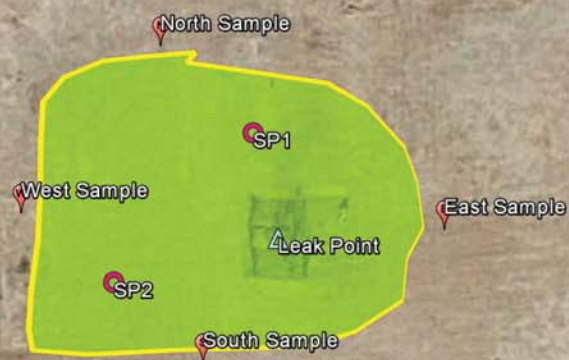
All excavated materials will be disposed of at an NMOCD-approved disposal facility.

# COG, Spruce Goose Fed Com #2H

Leak Date: 01/17/2017  
Eddy County, NM  
API# 30-015-43878  
RP#2RP-4082

## Legend

-  East Sample
-  Sample Points, Hand Auger
-  Leak Point
-  North Sample
-  South Sample
-  Spill Area, 6 Inch Excavation
-  West Sample



Google Earth

© 2016 Google



100 ft

COG, Spruce Goose Fed Com #2H

Sample points, Hand Auger

SP1, GPS POINT: N 32.67966 W-103.81560

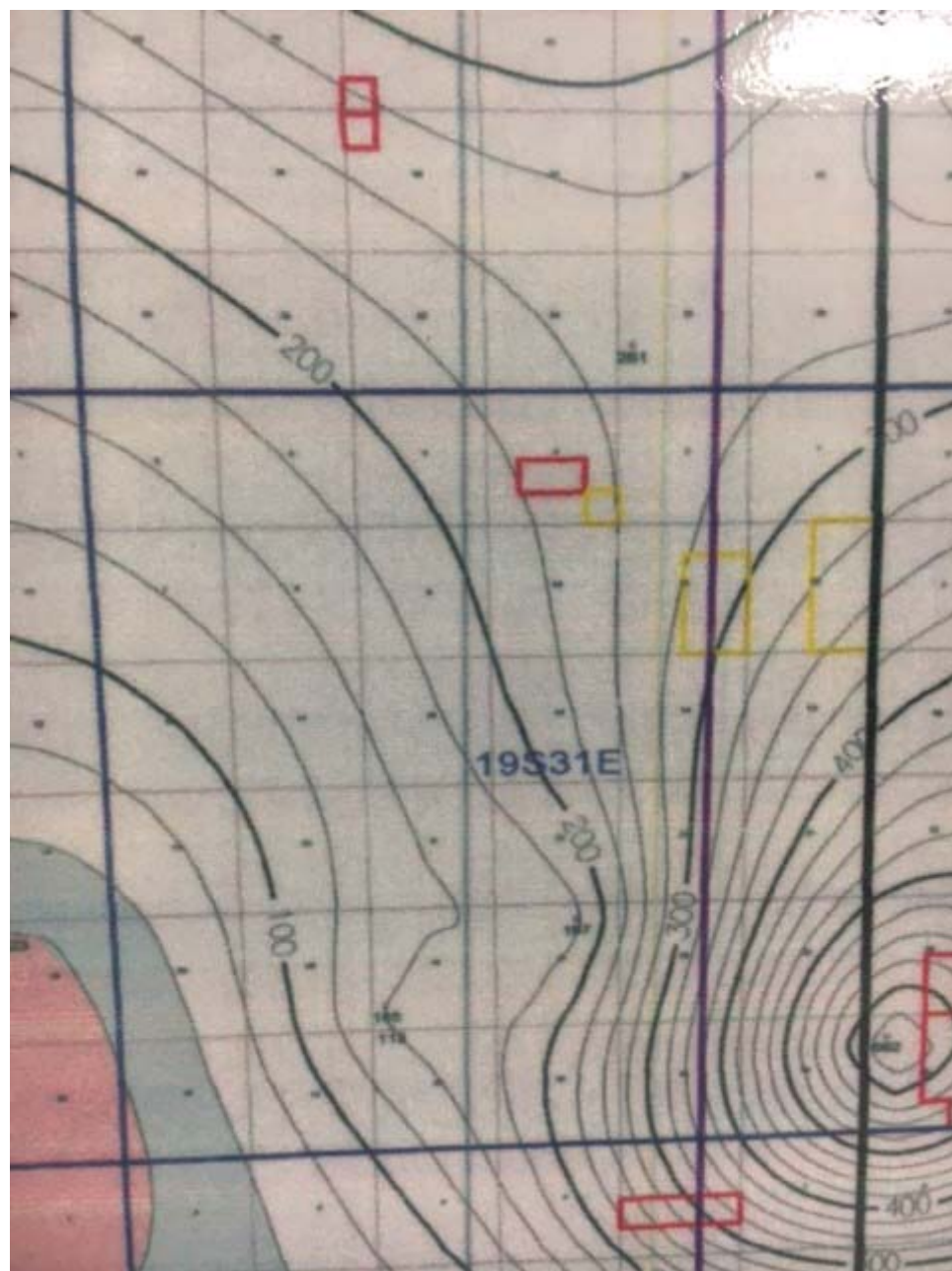
SP2, GPS POINT: N 32.67957 W-103.81571

NORTH SAMPLE, GPS POINT: N 32.67972 W-103.81567

SOUTH SAMPLE, GPS POINT: N 32.67952 W-103.81564

EAST SAMPLE, GPS POINT: N 32.67960 W-103.81546

WEST SAMPLE, GPS POINT: N 32.67961 W-103.81578





# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

### UTMNAD83 Radius Search (in meters):

**Easting (X):** 610962

**Northing (Y):** 3616484

**Radius:** 1700

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

3/24/17 8:06 AM

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

Public Land Survey System (PLSS)

Q64:

Q16:

NE

Q4:

NE

Sec:

12

Tws:

19S

Rng:

31E

State Plane Coordinate System - NAD27

X:

0

ft

Y:

0

ft

Zone:

State Plane Coordinate System - NAD83

X:

0

ft

Y:

0

ft

Zone:

Degrees/Minutes/Seconds

Longitude (X):

Degrees:

0

°

Minutes:

0

'

Seconds:

0

"

Latitude (Y):

Degrees:

0

°

Minutes:

0

'

Seconds:

0

"

UTM - NAD27

Easting (X):

0

mtrs

Northing (Y):

0

mtrs

Zone:

SUBMIT

All Conversion Results are displayed as NAD 1983 UTM Zone 13

Easting (X):

610962.0

mtrs

Northing (Y):

3616484.0

mtrs

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



# Groundwater Plot

## COG Spruce Goose Fed Com #2H

County  
Eddy

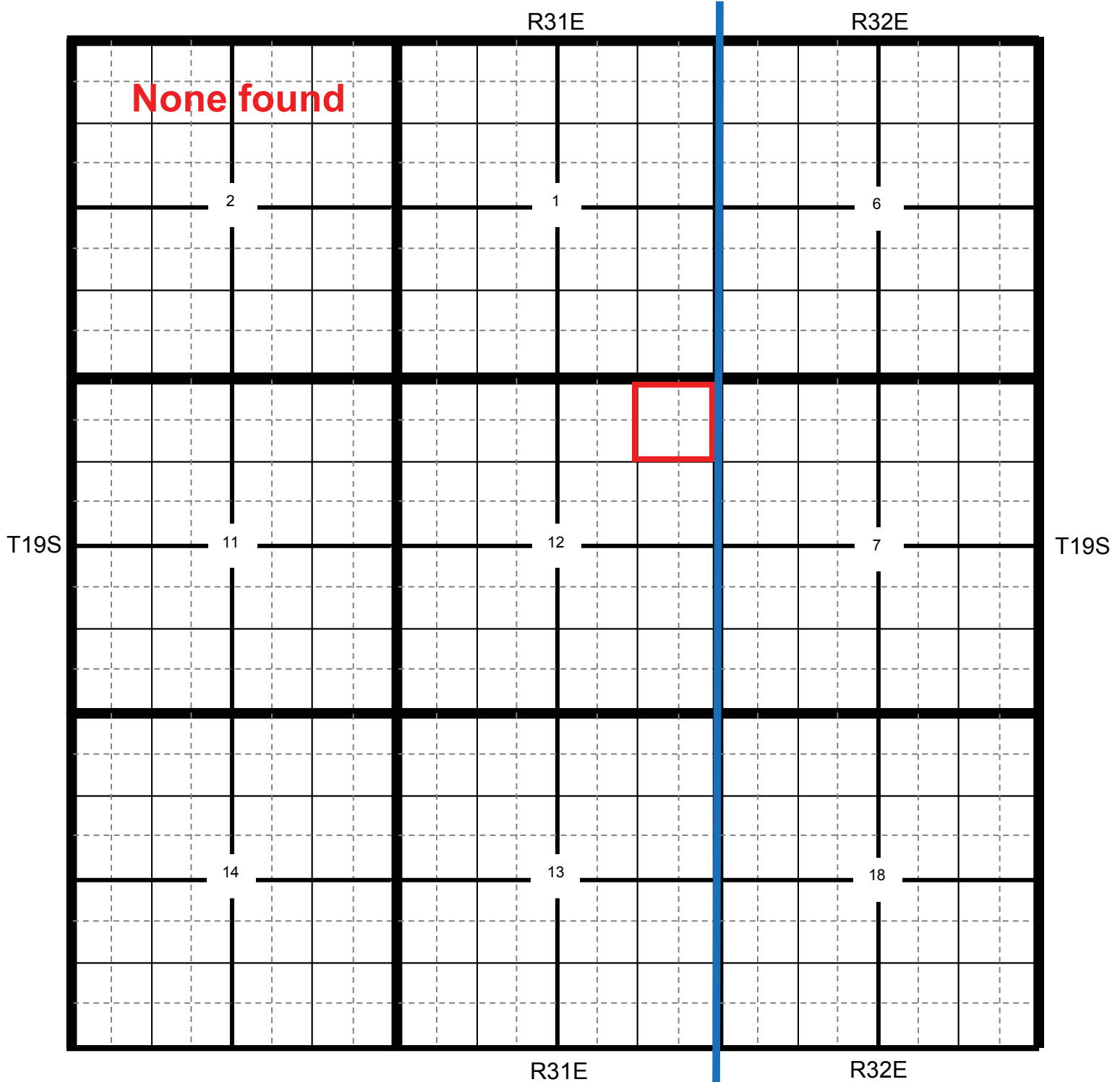
Unit Letter  
A

Section  
12

Township  
19S

Range  
31E

Trend Map 325'



★ Location

● OCD

● USGS

● SEO

● All Databases

## COG Spruce Goose Fed Com #2H

**County**  
Eddy

**Unit Letter**  
A

**Section**  
12

**Township**  
19

**Range**  
31

Trend Map 325'

1

2

NW/NW <b>None found</b>	NE/NW	NW/NE	NE/NE
Unit Letter D	Unit Letter C	Unit Letter B	Unit Letter A
SW/NW	SE/NW	SW/NE	SE/NE
Unit Letter E	Unit Letter F	Unit Letter G	Unit Letter H
NW/SW	NE/SW	NW/SE	NE/SE
Unit Letter L	Unit Letter K	Unit Letter J	Unit Letter I
SW/SW	SE/SW	SW/SE	SE/SE
Unit Letter M	Unit Letter N	Unit Letter O	Unit Letter P

3

4

📍 Location

● OCD

● USGS

● SEO

● All Databases

**Laboratory Analytical Results Summary**  
**Spruce Goose Fed Com #2H**

		Sample	SP1 @ 1'	SP1 @ 2'	SP1 @ 3'
Analyte	Method	Date	2/10/17	2/10/17	2/10/17
			mg/Kg	mg/Kg	mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Toluene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150	<0.150	<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300	<0.300	<0.300
<b>Chloride</b>	SM4500Cl-B		<b>944</b>	<b>368</b>	<16.0
<b>GRO</b>	TPH 8015M		<10.0	<10.0	<10.0
<b>DRO</b>	TPH 8015M		<b>14.3</b>	<10.0	<10.0

		Sample	SP2 @ 1'	SP2 @ 2'	SP2 @ 3'
Analyte	Method	Date	2/10/17	2/10/17	2/10/17
			mg/Kg	mg/Kg	mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Toluene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050	<0.050	<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150	<0.150	<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300	<0.300	<0.300
<b>Chloride</b>	SM4500Cl-B		<b>848</b>	<b>368</b>	<16.0
<b>GRO</b>	TPH 8015M		<10.0	<10.0	<10.0
<b>DRO</b>	TPH 8015M		<10.0	<10.0	<10.0

		Sample	NORTH
Analyte	Method	Date	2/10/17
			mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050
<b>Toluene</b>	BTEX 8021B		<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300
<b>Chloride</b>	SM4500Cl-B		<16.0
<b>GRO</b>	TPH 8015M		<10.0
<b>DRO</b>	TPH 8015M		<10.0

		Sample	SOUTH
Analyte	Method	Date	2/10/17
			mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050
<b>Toluene</b>	BTEX 8021B		<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300
<b>Chloride</b>	SM4500Cl-B		<b>32</b>
<b>GRO</b>	TPH 8015M		<10.0
<b>DRO</b>	TPH 8015M		<10.0

		Sample	EAST
Analyte	Method	Date	2/10/17
			mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050
<b>Toluene</b>	BTEX 8021B		<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300
<b>Chloride</b>	SM4500Cl-B		<b>32</b>
<b>GRO</b>	TPH 8015M		<10.0
<b>DRO</b>	TPH 8015M		<10.0

		Sample	WEST
Analyte	Method	Date	2/10/17
			mg/Kg
<b>Benzene</b>	BTEX 8021B		<0.050
<b>Toluene</b>	BTEX 8021B		<0.050
<b>Ethylbenzene</b>	BTEX 8021B		<0.050
<b>Total Xylenes</b>	BTEX 8021B		<0.150
<b>Total BTEX</b>	BTEX 8021B		<0.300
<b>Chloride</b>	SM4500Cl-B		<b>32</b>
<b>GRO</b>	TPH 8015M		<10.0
<b>DRO</b>	TPH 8015M		<10.0

February 17, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: SPRUCE GOOSE FED COM #2H/3H

Enclosed are the results of analyses for samples received by the laboratory on 02/13/17 11:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 1 @ 1' (H700360-01)**

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	02/16/2017	ND	2.00	100	2.00	0.676	
Toluene*	<0.050	0.050	02/16/2017	ND	1.88	94.1	2.00	1.00	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.89	94.3	2.00	0.545	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.38	89.7	6.00	0.496	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	944	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	14.3	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 77.0 % 35-147

Surrogate: 1-Chlorooctadecane 93.5 % 28-171

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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 1 @ 2' (H700360-02)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/16/2017	ND	2.00	100	2.00	0.676	
Toluene*	<0.050	0.050	02/16/2017	ND	1.88	94.1	2.00	1.00	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.89	94.3	2.00	0.545	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.38	89.7	6.00	0.496	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 84.8 % 35-147

Surrogate: 1-Chlorooctadecane 106 % 28-171

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\*=Accredited Analyte

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

Received:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 1 @ 3' (H700360-03)**

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	02/16/2017	ND	2.00	100	2.00	0.676	
Toluene*	<0.050	0.050	02/16/2017	ND	1.88	94.1	2.00	1.00	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.89	94.3	2.00	0.545	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.38	89.7	6.00	0.496	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.6-140

Chloride, SM4500CI-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	02/16/2017	ND	416	104	400	7.41		

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 85.0 % 35-147

Surrogate: 1-Chlorooctadecane 107 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Fax To: (575) 397-0397

Received:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 2 @ 1' (H700360-04)**

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	02/16/2017	ND	2.00	100	2.00	0.676		
Toluene*	<0.050	0.050	02/16/2017	ND	1.88	94.1	2.00	1.00		
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.89	94.3	2.00	0.545		
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.38	89.7	6.00	0.496		
Total BTEx	<0.300	0.300	02/16/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	848	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 67.9 % 35-147

Surrogate: 1-Chlorooctadecane 83.6 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Received:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 2 @ 2' (H700360-05)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 76.1 % 35-147

Surrogate: 1-Chlorooctadecane 94.9 % 28-171

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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SP 2 @ 3' (H700360-06)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.6-140

Chloride, SM4500CI-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	02/16/2017	ND	416	104	400	7.41		

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 85.1 % 35-147

Surrogate: 1-Chlorooctadecane 103 % 28-171

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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: NORTH (H700360-07)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 73.6-140

Chloride, SM4500CI-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	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 79.4 % 35-147

Surrogate: 1-Chlorooctadecane 93.7 % 28-171

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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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: SOUTH (H700360-08)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 77.2 % 35-147

Surrogate: 1-Chlorooctadecane 90.7 % 28-171

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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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: EAST (H700360-09)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 69.8 % 35-147

Surrogate: 1-Chlorooctadecane 83.7 % 28-171

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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:	02/13/2017	Sampling Date:	02/10/2017
Reported:	02/17/2017	Sampling Type:	Soil
Project Name:	SPRUCE GOOSE FED COM #2H/3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - 126		

**Sample ID: WEST (H700360-10)**

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	02/16/2017	ND	1.97	98.7	2.00	0.452	
Toluene*	<0.050	0.050	02/16/2017	ND	1.85	92.7	2.00	0.785	
Ethylbenzene*	<0.050	0.050	02/16/2017	ND	1.87	93.5	2.00	0.656	
Total Xylenes*	<0.150	0.150	02/16/2017	ND	5.32	88.6	6.00	0.697	
Total BTX	<0.300	0.300	02/16/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	02/16/2017	ND	416	104	400	7.41	

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	02/15/2017	ND	181	90.7	200	0.745	
DRO >C10-C28	<10.0	10.0	02/15/2017	ND	198	98.8	200	2.04	

Surrogate: 1-Chlorooctane 73.8 % 35-147

Surrogate: 1-Chlorooctadecane 86.8 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

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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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



# CARDINAL LABORATORIES

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> BBC International, Inc.		<b>BILL TO</b>	
<b>Project Manager:</b> Cliff Brunson		<b>P.O. #:</b>	
<b>Address:</b> P.O. Box 805		<b>Company:</b>	
<b>City:</b> Hobbs		<b>Attn:</b>	
<b>State:</b> NM <b>zip:</b> 88241		<b>Address:</b>	
<b>Phone #:</b> 575-397-6388		<b>City:</b>	
<b>Fax #:</b> 575-397-0397		<b>State:</b>	
<b>Project #:</b>		<b>Zip:</b>	
<b>Project Name:</b> Spruce Goose 24/34		<b>Phone #:</b>	
<b>Project Location:</b> 126 PH		<b>Fax #:</b>	
<b>Sampler Name:</b>		<b>FOR LAB USE ONLY</b>	
<b>Lab I.D.</b> H100359		<b>Sample I.D.</b>	
<b>SPICE 1-</b>		<b>(G)RAB OR (C)OMP.</b>	
<b>SPICE 2-</b>		<b># CONTAINERS</b>	
<b>SPICE 3-</b>		<b>GROUNDWATER</b>	
<b>SPICE 4-</b>		<b>WASTEWATER</b>	
<b>SPICE 5-</b>		<b>SOIL</b>	
<b>SPICE 6-</b>		<b>OIL</b>	
<b>SPICE 7-</b>		<b>SLUDGE</b>	
<b>SPICE 8-</b>		<b>OTHER :</b>	
<b>SPICE 9-</b>		<b>ACID/BASE:</b>	
<b>SPICE 10-</b>		<b>ICE / COOL</b>	
<b>SPICE 11-</b>		<b>OTHER :</b>	
<b>SPICE 12-</b>		<b>DATE</b>	
<b>SPICE 13-</b>		<b>TIME</b>	
<b>SPICE 14-</b>		<b>TPH</b>	
<b>SPICE 15-</b>		<b>BTEX</b>	
<b>SPICE 16-</b>		<b>CL-</b>	
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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

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

Form C-141  
Revised August 8, 2011

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	Contact:	Robert McNeill
Address:	600 West Illinois Avenue, Midland TX 79701	Telephone No.	432-683-7443
Facility Name:	Spruce Goose Federal Com # 2H	Facility Type:	Well Head

Surface Owner:	Federal	Mineral Owner:		API No.	30-015-43878
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	12	19S	31E	985	North	390	East	Eddy

Latitude 32.67957815 Longitude -103.815567

**NATURE OF RELEASE**

Type of Release:	Oil and Produced Water	Volume of Release:	3 bbls Oil & 6 bbls PW	Volume Recovered:	2 bbls Oil & 1 bbls PW
Source of Release:	Pressure Valve	Date and Hour of Occurrence:	January 17, 2017 9:00 am	Date and Hour of Discovery:	January 17, 2017 9:00 am
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.\*

Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by a when a back pressure valve was damaged by sand causing a pin hole. The back pressure valve was 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 subsequent to remediation by third party responsible for the release to verify remediation is complete.

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: <i>Rebecca Haskell</i>	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Rebecca Haskell	Approved by Environmental Specialist:		
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:	
E-mail Address: <a href="mailto:rhaskell@concho.com">rhaskell@concho.com</a>	Conditions of Approval:		Attached <input type="checkbox"/>
Date: January 17, 2017 Phone: 432-683-7443			

\* Attach Additional Sheets If Necessary