



DELINEATION WORKPLAN

OXY – RIVERBEND FEDERAL 8 SWD (Leak Date: 07/06/17)

RP # 2RP- 4292

This delineation workplan and remediation proposal addresses the release associated with RP # 2RP-4292.

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:

OXY will excavate the spill area as depicted on the following site diagram. The leak area near SP1, SP2, and SP11 (green shade on diagram) will be require zero remediation. The leak area near SP3 (pink shade on diagram) will be excavated to a depth of 6 inches. The leak area near SP4 and SP8 (blue shade on diagram) will be excavated to a depth of 2 feet. The leak area near SP5 (purple shade on diagram) will be excavated to a depth of 1 foot. The leak area near SP6, SP7, SP9, and SP10 (orange shade on diagram) will be excavated to a depth of 4 feet with a liner placed in 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.

Oxy, Riverbend Federal 8 SWD

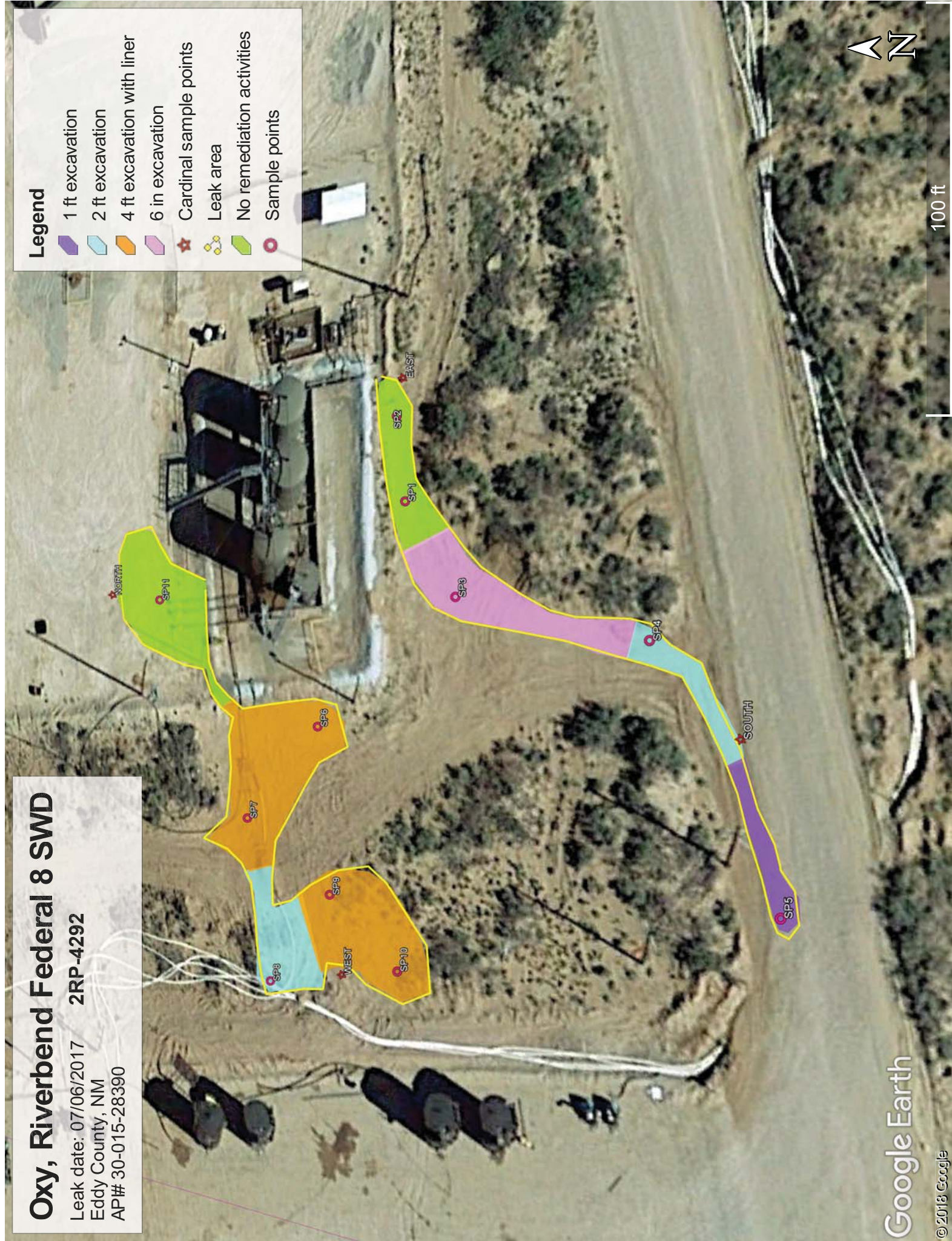
Leak date: 07/06/2017 2RP-4292

Eddy County, NM

AP# 30-015-28390

Legend

- 1 ft excavation
- 2 ft excavation
- 4 ft excavation with liner
- 6 in excavation
- Cardinal sample points
- Leak area
- No remediation activities
- Sample points



Oxy, Riverbend Federal 8 SWD

Sample points

SP1, N 32.20855 W-103.96298

SP2, N 32.20856 W-103.96290

SP3, N 32.20851 W-103.96308

SP4, N 32.20834 W-103.96312

SP5, N 32.20824 W-103.96335

SP6, N 32.20865 W-103.96321

SP7, N 32.20873 W-103.96331

SP8, N 32.20871 W-103.96348

SP9, N 32.20864 W-103.96338

SP10, N 32.20857 W-103.96344

SP11, N 32.20883 W-103.96308

NORTH, N 32.20889 W-103.96307

SOUTH, N 32.20827 W-103.96320

EAST, N 32.20856 W-103.96286

WEST, N 32.20863 W-103.96346

Oxy, Riverbend Federal 8 SWD Battery

U/L D, Section 23, T24S, R29E

Groundwater: 100'-125'





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): 597864

Northing (Y): 3564006

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.

7/13/17 2:24 PM

WATER COLUMN/ AVERAGE
DEPTH TO WATER

Public Land Survey System (PLSS)

☐

Q64:

Q16:

NW

Q4:

NW

Sec:

23

Tws:

24S

Rng:

29E

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):

597864.0

mtrs

Northing (Y):

3564006.0

mtrs

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

		Sample	SP1 @ SURFACE	SP1 @ 5'	SP1 @ 10'
		Date	8/14/17	8/14/17	8/14/17
Analyte	Method		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	SM4500C-B		<16.0	16	16
GRO	TPH 8015M		<10.0	n/a	n/a
GRO	TPH 8015M		<10.0	n/a	n/a
EXT GRO	TPH 8015M		<10.0	n/a	n/a

	Sample	SP2 @ SURFACE	SP2 @ 5'	SP2 @ 10'
	Analyte	Date	mg/kg	mg/kg
	Method			
Chloride	SM4500C-B		16	<16.0

		Sample	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 6'	SP3 @ 11'
	Analyte	Date	8/14/17	8/14/17	8/14/17	8/14/17
		Method	mg/kg	mg/kg	mg/kg	mg/kg
			5520	96	49	16
	Chloride	SM4500Cl-B				

		Sample	SP4 @ 1'	SP4 @ 2'	SP4 @ 3'	SP4 @ 8'	SP4 @ 13'
Analyte	Method	Date	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	SM4500C1-B		176	1470	16	16	32
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

	Analyte	Method	Sample	SP5 @ 1'	SP5 @ 2'	SP5 @ 3'	SP5 @ 8'	SP5 @ 13'
			Date	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		1260	176	16	<16.0	48
	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	SP6 @ 1'	SP6 2 5'	SP6 @ 8'	SP6 @ 11'	SP6 @ 16'	SP6 @ 18'
Analyte	Method	Date	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Chloride	SM4500Cl-B		5600	4080	1920	80	96	96

		Sample	SP7 @ 1'	SP7 @ 4'	SP7 @ 7'	SP7 @ 8'	SP7 @ 13'	SP7 @ 18'
	Analyte	Method	Date					
	Benzene	BTEX 8021B		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
	Toluene	BTEX 8021B		n/a	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		<0.050	n/a	n/a	n/a	n/a
	Total BTEX	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
	Chloride	SM4500C-B		<0.300	n/a	n/a	n/a	n/a
	GRO	TPH 8015M		2160	4960	2920	112	96
	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	SP8 @ 1'	SP8 @ 2'	SP8 @ 3'	SP8 @ 8'	SP8 @ 13'
	Anal/lye	Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500C:LB		656	656	32	16	32

		Sample	SP9 @ 1'	SP9 @ 4'	SP9 @ 6'	SP9 @ 7'	SP9 @ 12'	SP9 @ 17'
Analyte	Method	Date						
Chloride	SM4500ClB		mg/kg 96	mg/kg 1760	mg/kg 2080	mg/kg 128	mg/kg 144	mg/kg 144

		Sample	SP10 @ 1'	SP10 @ 4'	SP10 @ 6'	SP10 @ 7'	SP10 @ 12'	SP10 @ 17'
Analyte	Method	Date	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		5440	2760	1800	80	112	96
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	SP11 @ 1'	SP11 @ 3'	SP11 @ 8'	SP11 @ 13'
Analyte	Method	Date	mg/kg	mg/kg	mg/kg	8/15/17
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a
Chloride	SM4500C-B		112	112	16	16
GRO	TPH 8015M		<10.0	n/a	n/a	n/a
EXT	TPH 8015M		<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a

CARDINAL POINTS		Sample				
Analyte	Method	Date	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Chloride	SM4500C-B		mg/Kg 32	mg/Kg 32	mg/Kg 32	mg/Kg <16.0

August 25, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: RIVERBEND FED #8 SWD

Enclosed are the results of analyses for samples received by the laboratory on 08/18/17 9:30.

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.

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: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/14/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP1 @ SURFACE (H702200-01)

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	08/22/2017	ND	2.02	101	2.00	1.51	
Toluene*	<0.050	0.050	08/22/2017	ND	1.85	92.5	2.00	1.80	
Ethylbenzene*	<0.050	0.050	08/22/2017	ND	1.92	95.8	2.00	2.27	
Total Xylenes*	<0.150	0.150	08/22/2017	ND	5.74	95.7	6.00	1.64	
Total BTX	<0.300	0.300	08/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 72-148

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	08/22/2017	ND	432	108	400	3.64	

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	08/21/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/21/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/21/2017	ND					

Surrogate: 1-Chlorooctane 77.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.6 % 34.7-157

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: 08/18/2017
 Reported: 08/25/2017
 Project Name: RIVERBEND FED #8 SWD
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY, NM

 Sampling Date: 08/14/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP1 @ 5 (H702200-02)

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	08/22/2017	ND	432	108	400	3.64		

Sample ID: SP1 @ 10 (H702200-03)

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	08/22/2017	ND	432	108	400	3.64	

Sample ID: SP2 @ SURFACE (H702200-04)

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	08/22/2017	ND	432	108	400	3.64	

Sample ID: SP2 @ 5 (H702200-05)

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	08/22/2017	ND	432	108	400	3.64		

Sample ID: SP2 @ 10 (H702200-06)

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	08/22/2017	ND	432	108	400	3.64		

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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:	08/18/2017	Sampling Date:	08/14/2017
Reported:	08/25/2017	Sampling Type:	Soil
Project Name:	RIVERBEND FED #8 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP3 @ SURFACE (H702200-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5520	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP3 @ 1 (H702200-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP3 @ 6 (H702200-09)

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	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP3 @ 11 (H702200-10)

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	08/22/2017	ND	432	108	400	0.00	

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Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/14/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP4 @ 1 (H702200-11)

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	08/22/2017	ND	2.02	101	2.00	1.51	
Toluene*	<0.050	0.050	08/22/2017	ND	1.85	92.5	2.00	1.80	
Ethylbenzene*	<0.050	0.050	08/22/2017	ND	1.92	95.8	2.00	2.27	
Total Xylenes*	<0.150	0.150	08/22/2017	ND	5.74	95.7	6.00	1.64	
Total BTX	<0.300	0.300	08/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	08/22/2017	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	08/21/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/21/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/21/2017	ND					

Surrogate: 1-Chlorooctane 89.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.8 % 34.7-157

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Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/14/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP4 @ 2 (H702200-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1470	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP4 @ 3 (H702200-13)

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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP4 @ 8 (H702200-14)

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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP4 @ 13 (H702200-15)

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	08/22/2017	ND	432	108	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/14/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP5 @ 1 (H702200-16)

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	08/22/2017	ND	2.02	101	2.00	1.51		
Toluene*	<0.050	0.050	08/22/2017	ND	1.85	92.5	2.00	1.80		
Ethylbenzene*	<0.050	0.050	08/22/2017	ND	1.92	95.8	2.00	2.27		
Total Xylenes*	<0.150	0.150	08/22/2017	ND	5.74	95.7	6.00	1.64		
Total BTX	<0.300	0.300	08/22/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1260	16.0	08/22/2017	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	08/21/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/21/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/21/2017	ND					

Surrogate: 1-Chlorooctane 84.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.9 % 34.7-157

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/14/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP5 @ 2 (H702200-17)

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	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP5 @ 3 (H702200-18)

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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP5 @ 8 (H702200-19)

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	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP5 @ 13 (H702200-20)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP6 @ 1 (H702200-21)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	08/22/2017	ND	432	108	400	0.00	

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP6 @ 3 (H702200-22)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5600	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP6 @ 5 (H702200-23)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4080	16.0	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP6 @ 8 (H702200-24)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1920	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP6 @ 11 (H702200-25)

Chloride, SM4500CI-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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP6 @ 16 (H702200-26)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/22/2017	ND	432	108	400	0.00	

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Analytical Results For:

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP6 @ 18 (H702200-27)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	08/22/2017	ND	432	108	400	0.00		

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP7 @ 1 (H702200-28)

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	08/23/2017	ND	2.20	110	2.00	2.22	
Toluene*	<0.050	0.050	08/23/2017	ND	2.02	101	2.00	1.45	
Ethylbenzene*	<0.050	0.050	08/23/2017	ND	2.07	104	2.00	1.10	
Total Xylenes*	<0.150	0.150	08/23/2017	ND	6.18	103	6.00	0.950	
Total BTEx	<0.300	0.300	08/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2160	16.0	08/22/2017	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	08/21/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/21/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/21/2017	ND					

Surrogate: 1-Chlorooctane 89.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.8 % 34.7-157

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

Received:	08/18/2017	Sampling Date:	08/15/2017
Reported:	08/25/2017	Sampling Type:	Soil
Project Name:	RIVERBEND FED #8 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP7 @ 4 (H702200-29)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4960	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP7 @ 7 (H702200-30)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2920	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP7 @ 8 (H702200-31)

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	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP7 @ 13 (H702200-32)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP7 @ 18 (H702200-33)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	08/22/2017	ND	432	108	400	0.00		

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Analytical Results For:

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

Received:	08/18/2017	Sampling Date:	08/15/2017
Reported:	08/25/2017	Sampling Type:	Soil
Project Name:	RIVERBEND FED #8 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP8 @ 1 (H702200-34)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP8 @ 2 (H702200-35)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP8 @ 3 (H702200-36)

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	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP8 @ 8 (H702200-37)

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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP8 @ 13 (H702200-38)

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	08/22/2017	ND	432	108	400	0.00		

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP9 @ 1 (H702200-39)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP9 @ 4 (H702200-40)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1760	16.0	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP9 @ 6 (H702200-41)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2080	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP9 @ 7 (H702200-42)

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	08/22/2017	ND	432	108	400	0.00	

Sample ID: SP9 @ 12 (H702200-43)

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	08/22/2017	ND	432	108	400	0.00	

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP9 @ 17 (H702200-44)

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	08/22/2017	ND	432	108	400	0.00		

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP10 @ 1 (H702200-45)

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	08/23/2017	ND	2.20	110	2.00	2.22	
Toluene*	<0.050	0.050	08/23/2017	ND	2.02	101	2.00	1.45	
Ethylbenzene*	<0.050	0.050	08/23/2017	ND	2.07	104	2.00	1.10	
Total Xylenes*	<0.150	0.150	08/23/2017	ND	6.18	103	6.00	0.950	
Total BTX	<0.300	0.300	08/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5440	16.0	08/22/2017	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	08/22/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/22/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/22/2017	ND					

Surrogate: 1-Chlorooctane 88.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 90.7 % 34.7-157

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: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP10 @ 4 (H702200-46)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2760	16.0	08/22/2017	ND	432	108	400	0.00		

Sample ID: SP10 @ 6 (H702200-47)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	08/22/2017	ND	416	104	400	0.00	

Sample ID: SP10 @ 7 (H702200-48)

Chloride, SM4500CI-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	08/22/2017	ND	416	104	400	0.00		

Sample ID: SP10 @ 12 (H702200-49)

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	08/22/2017	ND	416	104	400	0.00	

Sample ID: SP10 @ 17 (H702200-50)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/22/2017	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 08/18/2017
Reported: 08/25/2017
Project Name: RIVERBEND FED #8 SWD
Project Number: NONE GIVEN
Project Location: EDDY COUNTY, NM

Sampling Date: 08/15/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP11 @ 1 (H702200-51)

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	08/23/2017	ND	2.20	110	2.00	2.22	
Toluene*	<0.050	0.050	08/23/2017	ND	2.02	101	2.00	1.45	
Ethylbenzene*	<0.050	0.050	08/23/2017	ND	2.07	104	2.00	1.10	
Total Xylenes*	<0.150	0.150	08/23/2017	ND	6.18	103	6.00	0.950	
Total BTX	<0.300	0.300	08/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

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	08/22/2017	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	08/22/2017	ND	177	88.5	200	2.45	
DRO >C10-C28	<10.0	10.0	08/22/2017	ND	176	87.8	200	4.19	
EXT DRO >C28-C36	<10.0	10.0	08/22/2017	ND					

Surrogate: 1-Chlorooctane 83.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.6 % 34.7-157

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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:	08/18/2017	Sampling Date:	08/15/2017
Reported:	08/25/2017	Sampling Type:	Soil
Project Name:	RIVERBEND FED #8 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP11 @ 3 (H702200-52)

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	08/22/2017	ND	416	104	400	0.00	

Sample ID: SP11 @ 8 (H702200-53)

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	08/22/2017	ND	416	104	400	0.00	

Sample ID: SP11 @ 13 (H702200-54)

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	08/22/2017	ND	416	104	400	0.00	

Sample ID: NORTH @ SURFACE (H702200-55)

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	08/22/2017	ND	416	104	400	0.00	

Sample ID: EAST @ SURFACE (H702200-56)

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	08/22/2017	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	08/18/2017	Sampling Date:	08/15/2017
Reported:	08/25/2017	Sampling Type:	Soil
Project Name:	RIVERBEND FED #8 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: WEST @ SURFACE (H702200-57)

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	08/22/2017	ND	416	104	400	0.00		

Sample ID: SOUTH @ SURFACE (H702200-58)

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	08/22/2017	ND	416	104	400	0.00		

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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.
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



Celey D. Keene, Lab Director/Quality Manager

ORDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC International, Inc.		P.O. #:		BILL TO		ANALYSIS REQUEST					
Project Manager: Cliff Brunson		Company: Oxy									
Address: P.O. Box 805		Attn: Wade Dietrich									
City: Hobbs		Address:									
State: NM Zip: 88241		City:									
Phone #: 575-397-6388		State:									
Fax #: 575-397-0397		Zip:									
Project #:		Phone #:									
Project Name: Water bend Fed # 8 SWB		Fax #:									
Project Location: Eddy County, NM											
Sample Name: Jeff Ornelas											

FOR LAB USE ONLY		MATRIX		PRESERV	SAMPLING																		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	CI	BTex	TPH Ext						
H702200	SP1 @ 5 ft	G	1			✓							8-14	9:05am	✓	✓	✓						
	SP1 @ 5	G	1			✓								9:11am	✓								
	SP1 @ 10	G	1			✓								9:30am	✓								
	SP2 @ 5 ft	G	1			✓								9:40am	✓								
	SP2 @ 5	G	1			✓								9:49am	✓								
	SP2 @ 10	G	1			✓								10:20am	✓								
	SP3 @ 5 ft	G	1			✓								10:30am	✓								
	SP3 @ 1	G	1			✓								10:40am	✓								
	SP3 @ 6	G	1			✓								10:45am	✓								
	SP3 @ 11	G	1			✓								10:51am	✓								

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Relinquished By: <i>Jeff Ornelas</i>	Date: 8/15/14	Received By: <i>HE</i>
Relinquished By: <i>Jeff Ornelas</i>	Date: 8/16/14	Received By: <i>HE</i>
Time: 2:30	Time: 2:30	

Delivered By: (Circle One) <i>#75 1.65c 1.4c</i>	Sample Condition Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CHECKED BY: <i>HE</i> (Initials)
Sampler - UPS - Bus - Other:		

Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
REMARKS:	

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

(505) 393-2326 FAX (505) 393-2476									
BILL TO ANALYSIS REQUEST									
Company Name: BBC International, Inc.					P.O. #:				
Project Manager: Cliff Brunson					Company: Oxy				
Address: P.O. Box 805					Attn: Wade Dittich				
City: Hobbs					State: NM Zip: 88241				
Phone #: 575-397-6388					Fax #: 575-397-0397				
Project #:					Project Owner: Oxy				
Project Name: Riverhead Fed # 8 SWD					City:				
Project Location: Eddy County, NM					State: Zip:				
Sample Name: Jeff Onstas					Phone #:				
FOR LAB USE ONLY					Fax #:				
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	PRESERV	SAMPLING	DATE	TIME	C
H700001	SPY @ 1	G	1	GROUNDWATER			8-14	10:54am	< BTex
11	SPY @ 2	G	1	WASTEWATER				11:11am	<
12	SPY @ 3	G	1	SOIL				11:15am	<
13	SPY @ 8	G	1	OIL				11:33am	<
14	SPY @ 13	G	1	SLUDGE				11:49am	<
15	SPY @ 1	G	1	OTHER :				1:01pm	<
16	SPY @ 1	G	1	ACID/BASE:				1:11pm	<
17	SPY @ 2	G	1	ICE / COOL				1:15pm	<
18	SPY @ 3	G	1	OTHER :				1:34pm	<
19	SPY @ 8	G	1					2:07pm	<
20	SPY @ 13	G	1						

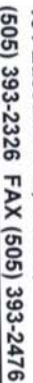
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Relinquished By: [Signature]	Date: 8/5/17	Received By: [Signature]	Date: 8/18/17
Relinquished By: [Signature]	Date: 8/18/17	Received By: [Signature]	Date: 8/18/17
Delivered By: (Circle One) #15 1.65°C	Time: 9:52	Sample Condition <input checked="" type="checkbox"/> Cool <input type="checkbox"/> Intact	CHECKED BY: Haley Curshaw (Initials)
Sampler - UPS - Bus - Other: #15 1.4°C		<input type="checkbox"/> Yes <input type="checkbox"/> No	HE

REMARKS:

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:



50T V

Page 24 of 27

Corrected $+25^{\circ}\text{C}$

ORDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



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

leaf

Page 27 of 27

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

Corrected: 25°C

NM OIL CONSERVATION

ARTESIA DISTRICT

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

JUL 12 2017

Form C-141
Revised April 3, 2017

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

RECEIVED Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

NAB1719857700

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	OXY USA INC <u>1161096</u>	Contact	WADE DITTRICH
Address	PO BOX 4294; HOUSTON, TX 77210	Telephone No.	575-390-2828
Facility Name	RIVERBEND FEDERAL #8 SWD	Facility Type	BATTERY

Surface Owner	FEDERAL	Mineral Owner	FEDERAL	API No.	30-015-28390
---------------	---------	---------------	---------	---------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	23	24S	29E	460	NORTH	330	WEST	EDDY

Latitude_ 32.208710_ Longitude_-103.962730_ NAD83

NATURE OF RELEASE

Type of Release	PRODCUED WATER	Volume of Release	500 bbls	Volume Recovered	0 bbls TBD
Source of Release	3 INCH POLY WATER TRANSFER LINE BURST	Date and Hour of Occurrence	07/06/2017	Date and Hour of Discovery	
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	CRYSTAL WEAVER-NMOCD; MIKE BRATCHER-NMOCD; SHELLY TUCKER-BLM		
By Whom?	WADE DITTRICH	Date and Hour	7-6-2017 @ 6:54 PM	<u>*e-mail: 5:54AM</u>	
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.*

Leak was caused by a 3 inch poly water transfer line that burst. The line has been replaced and returned to service.

Describe Area Affected and Cleanup Action Taken.*

150x150, 110x40, 30x50 Leak is in containment and off location (measurements are subject to change with GPS tracking). Remediation will be completed in accordance with a remediation plan approved by the NMOCD and BLM.

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.

OIL CONSERVATION DIVISION

Signature: Waide Ditttrich

Printed Name: WADE DITTRICH

Title: ENVIRONMENTAL COORDINATOR

E-mail Address: waide_ditttrich@oxy.com

Date: Phone: 575-390-2828

Approved by Environmental Specialist: Crystal Weaver

Approval Date: 7/17/17

Expiration Date: N/A

Conditions of Approval:

see attached

Attached ☒

* Attach Additional Sheets If Necessary

2RD 4223

7/14/17
AB

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **7/12/17** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4292 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 II office in Artesia on or before 8/12/17. 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; C₆ thru C₃₆), 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; C₆ thru C₃₆), 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

Weaver, Crystal, EMNRD

From: Wade_Dittrich@oxy.com
Sent: Wednesday, July 12, 2017 9:14 AM
To: Weaver, Crystal, EMNRD; Bratcher, Mike, EMNRD
Cc: stucker@blm.gov
Subject: Riverbend Fed. #8 SWD
Attachments: Scanned from a Xerox Multifunction Device001.pdf

All,

Please take a look at this C141 and let me know if you have any questions. Thank you.

Wade Dittrich
Environmental Coordinator
Oxy Permian-New Mexico
575.390.2828 cell
Wade_Dittrich@Oxy.com

Weaver, Crystal, EMNRD

From: Wade_Dittrich@oxy.com
Sent: Thursday, July 6, 2017 5:54 PM
To: Weaver, Crystal, EMNRD; Bratcher, Mike, EMNRD
Cc: stucker@blm.gov; Jennifer_Smith@oxy.com; cbrunson@bbcinational.com;
kswinney@bbcinational.com; kathy@bbcinational.com;
jgilkey@bbcinational.com; Frank_Barnett@oxy.com
Subject: Riverbend Fed. 8 SWD

All,
This is to inform you that Oxy Permian had a **Reportable** release in Eddy County at the RIVERBEND FED. 8 SWD on 7/6/2017.

- **Release Location:** Legal –Sec.23-T245-R29E, API: 30-015-28390
- **Release Volume:** 0 bbls of Oil and 500 bbls of Produced Water.
- **Recovered:** TBD bbls recovered
- **Cause of Release:** 3 INCH POLY WATER TRANSFER LINE BURST
- **Approximate Area impacted by release:** 150x150, 110x40, 30x50 Leak is in containment and off location (measurements are subject to change with GPS tracking)
- **GPS Coordinates and Driving Direction:** 32.208710,-103.962730, FROM MALAGA NM GO EAST ON MCDONALD ROAD CROSS THE PECOS RIVER CONTINUING ON 2 MILES AND AT THE T IN ROAD TURN LEFT AT NEXT CROSS ROAD TURN RIGHT GOING .5 MILE TO THE LOCATION

Please let me know if you have any questions.

Wade Dittrich
Environmental Coordinator
Oxy Permian-New Mexico
575.390.2828 cell
Wade_Dittrich@Oxy.com