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Soil Assessment and Remediation Work Plan

State BW Com#1 * 30-015-23996 * 2RP-3379

Talon Project No. 700794.189.01

Prepared For:

Devon Energy Production
6488 Seven Rivers Hwy
Artesia, New Mexico 88210

Prepared By:

Kimberly M. Wilson
Talon/LPE
408 West Texas
Artesia, New Mexico 88210

October 25, 2016

Mr. Mike Bratcher
NMOCD District 2
811 S. 1st Street
Artesia, NM 88210

Subject: **Soil Assessment and Remediation Work Plan**
State BW Com #1
API # 30-015-323996 * 2RP-3379

Dear Mr. Bratcher,

Devon Energy (Devon) has contracted Talon/LPE (Talon) to perform soil assessment and remediation services at the above referenced location. The results of our soil assessment and proposed remediation activities consist of the following.

Incident Date

November 3, 2015

Site Information

The State BW Com #1 is located approximately twenty (20) miles southeast of Artesia, New Mexico. The legal location for this site is Unit Letter H of Section 27, Township 18 South, and Range 28 East in Eddy County, New Mexico. More specifically the latitude and longitude for the location are 32.720956 North and -104.157078 West. See site plan in [Appendix I](#).

According to the soil survey provided by the United States Department of Agriculture Natural Resources Conservation Service (NRCS), the soil in this area is made up of Simona gravelly fine sandy loam with 0 to 3 percent slopes. The local surface and shallow geology, Quaternary Age sedimentary deposits, is comprised of alluvium and eolian sands underlain by gravelly fine sandy loam and hard caliches. Drainage courses in this area are normally dry.

Ground Water and Site Ranking

According to the Chevron Texaco Groundwater Trend Map, has the ground water in this area is approximately 175-feet below ground surface (BGS). See [Appendix II](#). Therefore the ranking for this site is a **0** based on the following:

Depth to ground water	>100'
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

Based upon the site ranking of **0**, NMOCD Recommended Remedial Action Levels (RRAL) are 50 mg/kg for BTEX, 10 mg/kg for Benzene, 5,000 mg/kg for TPH and 1,000 mg/kg for total chlorides.

Incident Description

A hole in the tank caused 165 barrels of oil to be released in the unlined containment around the facility. The tank was isolated and repaired. A vac truck was called to the location and recovered 48 barrels of oil. All fluid was contained inside the diked containment. A site plan is presented in [Appendix I](#) which illustrates the impacted area.

On June 7, 2016 Talon mobilized personnel to begin the site assessment and soil sampling activities for the construction of a work plan. Grab soil samples were collected utilizing a hand auger where refusal was encountered. Laboratory results are presented below in [Table 1](#).

Laboratory Results

See [Appendix III](#) for complete report of laboratory results.

June 16, 2016

Table 1

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	0'	9.16	--	561	19100
	0.5'	20.6	--	1080	15400
S-2	0'	1.89	--	95.6	9070

Conclusion

It was determined during assessment and sampling activities that a rock shelf was encountered at a depth of 0.5-feet deep.

Based on the depth to groundwater, it is unlikely that the impacts identified from this release will not pose a threat to groundwater.

Proposed Remedial Actions

- The hydrocarbon impacted soil within the unlined containment will be excavated to the best extent reasonable, feasible and as safely as possible around the tanks and steel flow lines in the battery and with regard to the structural integrity of the equipment within the battery.
- All contaminated soil will be transported to Lea Land, LLC, a NMOCD approved disposal facility.

- The impacted areas will be treated with high nitrogen fertilizer and mircoblaze (a bioremediation agent). Confirmation samples will be collected after 60 to 90 days to verify effectiveness of treatment. Multiple applications may be needed depending on the analytical results.
- Upon NMOCD and BLM approval of the confirmation samples, the excavated area will be backfilled with new caliche. Once the backfill activities are complete the work areas will be compacted.
- A final closure report documenting all remedial actions will be provided to the NMOCD Artesia Office along with a Final C-141 Form.

Should you have any questions or if further information is required, please do not hesitate to contact our office at (575)-746-8768

Respectfully submitted,

TALON/LPE



Kimberly M. Wilson
Project Manager




David J. Adkins
District Manager

Attachments:

- Appendix I Site Plan
- Appendix II Groundwater Data & Initial C-141
- Appendix III Laboratory Results

APPENDIX I

SITE MAP

 State BW #1

 S-1

 S-2

 N

60 ft

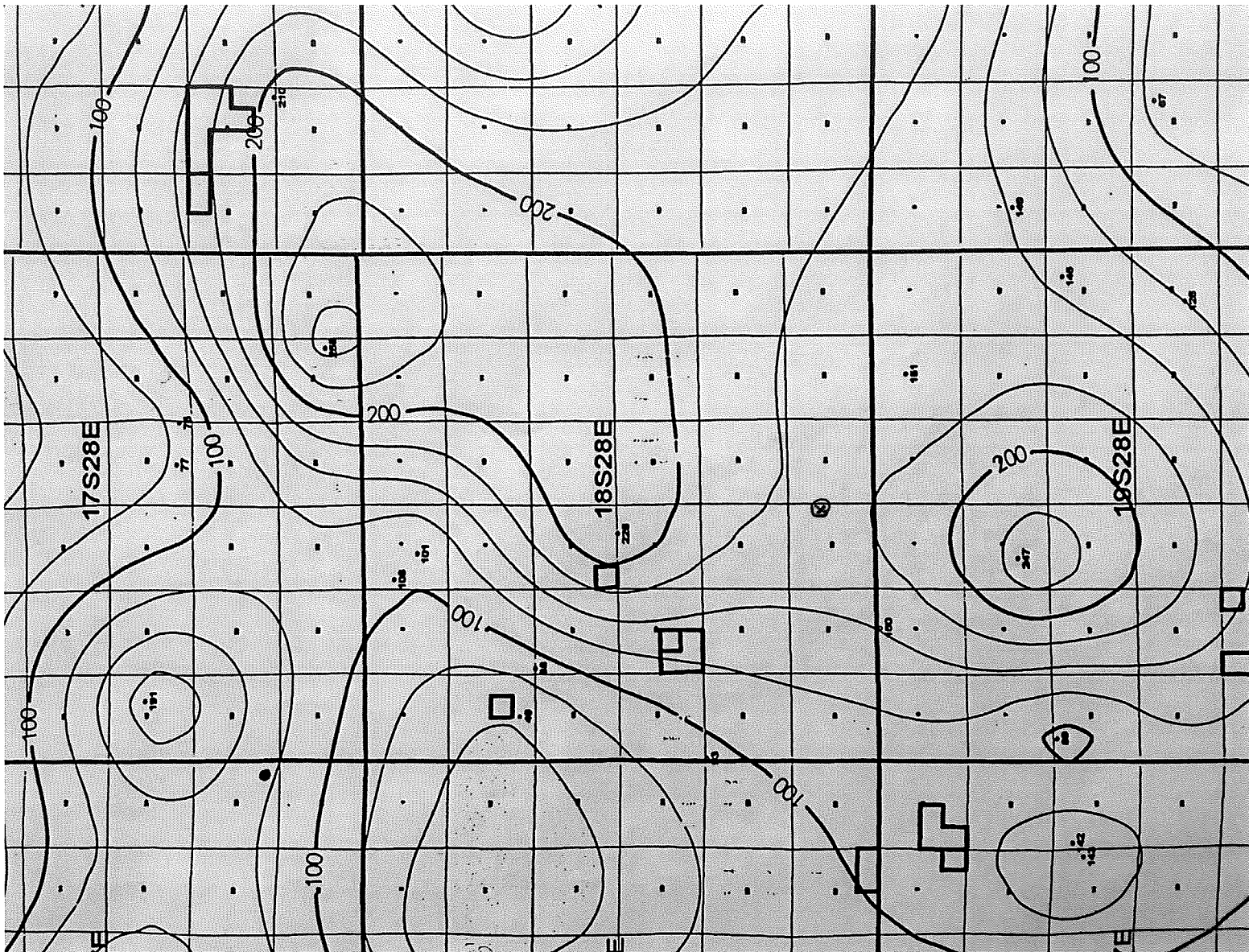
APPENDIX II
GROUNDWATER DATA
INITIAL C-141

Trend map

Robbie <robbiederosier@yahoo.com>

Tue 11/29/2016 12:00 PM

To: Kimberly M. Wilson <kwilson@talonlpe.com>;



Thanks,
Robbie

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	Devon Energy Production	Contact	Mike McMahan Assistant Foreman
Address	6488 Seven Rivers Hwy Artesia, NM 88220	Telephone No.	575.706.4165
Facility Name	State BW Com 1	Facility Type	Gas
Surface Owner State	Mineral Owner State	API No. 30-015-23996	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	27	18S	28E	1980	FNL	660	FEL	EDDY

Latitude: 32.720956

Longitude: -104.157078

NATURE OF RELEASE

Type of Release	Spill Oil	Volume of Release	165 BBL	Volume Recovered	48 BBL
Source of Release	Hole in tank	Date and Hour of Occurrence	11/03/15 at 4:35 pm	Date and Hour of Discovery	11/03/15 at 4:35 pm
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Jim Amos BLM Mike Bratcher OCD		
By Whom?	Mike McMahan	Date and Hour	11/03/15 5:00 pm		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	N/A		

If a Watercourse was Impacted, Describe Fully.* N/ A

Describe Cause of Problem and Remedial Action Taken.*

A hole in the water tank caused a leak in the dirt dike containment. This tank was already isolated so production was being routed to another tank. A vacuum truck was called out for recovery.

Describe Area Affected and Cleanup Action Taken.*

A 165 BBL oil spill accorded on a 4 X 30 area in a dirt dike containment 48 BBL was recovered. An environmental company will be called out for remediation.

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>Jeanette Barron</i>	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Jeanette Barron	Approved by Environmental Specialist:		
Title: Field Admin Support	Approval Date:	Expiration Date:	
E-mail Address: Jeanette.barron@dvn.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 11-6-15	Phone: 575.748.1813		

* Attach Additional Sheets If Necessary

APPENDIX III

LABORATORY RESULTS



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 16, 2016

KIMBERLY WILSON

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: STATE BW #1

Enclosed are the results of analyses for samples received by the laboratory on 06/10/16 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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:

 TALON LPE
 KIMBERLY WILSON
 408 W. TEXAS AVE.
 ARTESIA NM, 88210
 Fax To: (575) 745-8905

 Received: 06/10/2016
 Reported: 06/16/2016
 Project Name: STATE BW #1
 Project Number: 700794.189.01
 Project Location: EDDY COUNTY, NM

 Sampling Date: 06/07/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: S-1 0' (H601279-01)

BTEX 8260B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	06/13/2016	ND	2.08	104	2.00	0.133	
Toluene*	<0.500	0.500	06/13/2016	ND	1.98	99.1	2.00	1.88	
Ethylbenzene*	0.551	0.500	06/13/2016	ND	1.95	97.3	2.00	1.78	
Total Xylenes*	8.61	1.50	06/13/2016	ND	6.50	108	6.00	2.32	
Total BTEX	9.16	3.00	06/13/2016	ND					

Surrogate: Dibromofluoromethane 107 % 90.4-111

Surrogate: Toluene-d8 92.1 % 85.3-114

Surrogate: 4-Bromofluorobenzene 120 % 80.1-121

TPH 8015M		mg/kg		Analyzed By: CK						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	561	50.0	06/10/2016	ND	208	104	200	3.15		
DRO >C10-C28	19100	50.0	06/10/2016	ND	220	110	200	4.21		

Surrogate: 1-Chlorooctane 285 % 35-147

Surrogate: 1-Chlorooctadecane 497 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TALON LPE
 KIMBERLY WILSON
 408 W. TEXAS AVE.
 ARTESIA NM, 88210
 Fax To: (575) 745-8905

 Received: 06/10/2016
 Reported: 06/16/2016
 Project Name: STATE BW #1
 Project Number: 700794.189.01
 Project Location: EDDY COUNTY, NM

 Sampling Date: 06/07/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: S-1 0.5' REFUSAL (H601279-02)

BTX 8260B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<1.00	1.00	06/13/2016	ND	2.08	104	2.00	0.133	
Toluene*	<1.00	1.00	06/13/2016	ND	1.98	99.1	2.00	1.88	
Ethylbenzene*	1.20	1.00	06/13/2016	ND	1.95	97.3	2.00	1.78	
Total Xylenes*	19.4	3.00	06/13/2016	ND	6.50	108	6.00	2.32	
Total BTEX	20.6	6.00	06/13/2016	ND					

Surrogate: Dibromofluoromethane 107 % 90.4-111

Surrogate: Toluene-d8 91.8 % 85.3-114

Surrogate: 4-Bromofluorobenzene 114 % 80.1-121

TPH 8015M		mg/kg		Analyzed By: CK				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1080	50.0	06/10/2016	ND	208	104	200	3.15	
DRO >C10-C28	15400	50.0	06/10/2016	ND	220	110	200	4.21	


Surrogate: 1-Chlorooctane 346 % 35-147

Surrogate: 1-Chlorooctadecane 446 % 28-171

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TALON LPE
KIMBERLY WILSON
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received: 06/10/2016
Reported: 06/16/2016
Project Name: STATE BW #1
Project Number: 700794.189.01
Project Location: EDDY COUNTY, NM

Sampling Date: 06/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: S-2 0' REFUSAL (H601279-03)

BTX 8260B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	06/13/2016	ND	2.08	104	2.00	0.133	
Toluene*	<0.100	0.100	06/13/2016	ND	1.98	99.1	2.00	1.88	
Ethylbenzene*	0.109	0.100	06/13/2016	ND	1.95	97.3	2.00	1.78	
Total Xylenes*	1.78	0.300	06/13/2016	ND	6.50	108	6.00	2.32	
Total BTEX	1.89	0.600	06/13/2016	ND					

Surrogate: Dibromofluoromethane 103 % 90.4-111

Surrogate: Toluene-d8 93.4 % 85.3-114

Surrogate: 4-Bromofluorobenzene 121 % 80.1-121

TPH 8015M		mg/kg		Analyzed By: CK						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	95.6	50.0	06/10/2016	ND	208	104	200	3.15		
DRO >C10-C28	9070	50.0	06/10/2016	ND	220	110	200	4.21		

Surrogate: 1-Chlorooctane 117 % 35-147

Surrogate: 1-Chlorooctadecane 261 % 28-171

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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.
- 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



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† Cardinal cannot accept verbal changes. Please see #10