



August 28, 2015

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

AMARILLO
921 North Bivins
Amarillo, Texas 79107
Phone 806.467.0607
Fax 806.467.0622

ARTESIA
408 West Texas Ave.
Artesia, New Mexico 88210
Phone 575.746.8768
Fax 575.746.8905

HOBBS
318 East Taylor Street
Hobbs, New Mexico 88240
Phone 575.393.4261
Fax 575.393.4658

MIDLAND
2901 State Hwy 349
Midland, Texas 79706
Phone 432.522.2133
Fax 432.522.2180

OKLAHOMA CITY
7700 North Hudson Avenue
Suite 10
Oklahoma City, Oklahoma 73116
Phone 405.486.7030
Fax 806.467.0622

SAN ANTONIO
11 Commercial Place
Schertz, Texas 78154
Phone 210.265.8025
Fax 210.568.2191

Subject: **Soil Assessment and Remediation Work Plan**
Devon Energy
Hackberry 16 SWD No. 1
API # 30-015-41783, 2RP-3145 & 2RP-3146

Dear Mr. Bratcher,

Devon Energy has contracted Talon/LPE (Talon) to perform soil assessment and remediation services at the referenced Hackberry 16 SWD No. 1. The results of our soil assessment and proposed remediation activities consist of the following:

Incident Date

The dates of the releases are July 15th and July 16th, 2015.

Background Information

The Hackberry 16 SWD No. 1 is located approximately forty-four (44) miles southeast of Artesia, New Mexico. The legal location for the site is Section 16, Township 19 South and Range 31 East in Eddy County, New Mexico. More specifically the latitude and longitude for the location are 32.653260 North and 103.890311 West. See site map attached in [Appendix I](#).

According to the soil survey provided by the United States Department of Agriculture Natural Resources Conservation Service, the soil in this area is made up of Kermit-Berino fine sands with 0 to 3 percent slopes. Per the New Mexico Bureau of Geology and Mineral Resources, the local surface and shallow geology is Holocene to middle Pleistocene in age and is comprised of loamy alluvium and eolian sands which include silty soils underlain by clay loam and hard caliches. Drainage courses in this area are normally dry. The New Mexico State Engineer web site indicates the nearest ground water data to be in S19-T19S-R31E. The ground water in the area is reported to be a depth of 180-feet below ground surface (bgs). The referenced groundwater data is presented in Appendix II.

The ranking for this site is **0** based on the as following:

ENVIRONMENTAL CONSULTING	Depth to ground water	>100'
ENGINEERING	Wellhead Protection Area	>1000'
DRILLING	Distance to surface water body	>1000'
CONSTRUCTION		
SPILL MANAGEMENT		
GENERAL CONTRACTING		

Incident Description

The lay flat transfer line malfunctioned causing 75-100 barrels of treated water to be released into the pasture flowing along the 2-track road. No fluids were recovered. The following day the lay flat line came apart and released 150 barrels of treated water within the same impacted area. A vac truck was called to the location and recovered 70 barrels of fluids. The impacted area was initially reported to be approximately 895-feet by 100-feet wide varied. The initial C-141 reports are attached. Talon mobilized personnel to conduct initial site assessment and soil sampling activities utilizing a hand auger. Further vertical delineation sampling was performed by a backhoe within the impacted area. Talon personnel measured the release at 850-feet along the lease road by 15-feet wide, with additional impacts in the pasture resulting from overspray as shown on the attached site plan. Laboratory results from the sampling events are summarized in the table below and the full lab results are presented in the [Appendix III](#).

Laboratory Results

July 27, 2015

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	0'	<0.300	7360	<10	<10
	1'	<0.300	6000	<10	<10
	2'	--	144	--	--
	3'	--	480	--	--
	4'	--	32	--	--
S-2	0'	<0.300	8660	<10	<10
	1'	<0.300	1310	<10	<10
	2'	--	8260	--	--
	3'	--	6000	--	--
	4'	--	3920	--	--
S-3	0'	<0.300	12300	<10	<10
	1'	<0.300	9730	<10	<10
	2'	--	12900	--	--
	3'	--	12500	--	--
	4'	--	9330	--	--
S-4	0'	<0.300	6660	<10	<10
	1'	<0.300	7860	<10	<10
	2'	--	4480	--	--
	3'	--	64	--	--
	4'	--	32	--	--
S-5	0'	<0.300	4360	<10	<10
	1'	<0.300	16800	<10	<10
	2'	--	<16	--	--
	3'	--	144	--	--
S-6	0'	<0.300	2080	<10	<10
	1'	<0.300	4590	<10	<10
	2'	--	7680	--	--
	3'	--	8960	--	--
	4'	--	1620	--	--
S-7	0'	<0.300	6660	<10	<10
	1'	<0.300	3200	<10	<10
	2'	--	2480	--	--

S-7	3'	--	2600	--	--
	4'	--	2040	--	-

--Analyte Not Tested

August 6, 2015

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-7	4.5'	--	8660	--	--
	5'	--	7200	--	--
	6'	--	6660	--	--
	7'	--	10100	--	--
	8'	--	6260	--	--
	9'	--	48	--	--
BG	3'	--	<16	--	--
	4'	--	<16	--	--

--Analyte Not Tested

BG Background

August 26, 2015

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-8	0'	--	1540	--	--
	1'	--	1170	--	--
	3'	--	624	--	--
	4'	--	688	--	--
	6'	--	128	--	--
	8'	--	576	--	--
S-9	0'	--	784	--	--
	1'	--	176	--	--
	2'	--	<16	--	--
	3'	--	32	--	--
S-10	0'	--	26000	--	--
	1'	--	<16	--	--
	2'	--	32	--	--
	3'	--	144	--	--
S-11	0'	--	<16	--	--
	1'	--	<16	--	--
	2'	--	<16	--	--
	3'	--	<16	--	--
S-12	0'	-	3680	--	--
	1'	--	2440	--	--
	3'	--	1650	--	--
	4'	--	128	--	--
	6'	--	32	--	--
	8'	--	96	--	--

--Analyte Not Tested

Based upon the site ranking of 0, NMOCD Recommended Remedial Action Levels (RRAL's) are 50 mg/kg for BTEX, 10 mg for Benzene, and 5,000 mg/kg for TPH. The chloride standard is considered to be 1,000 mg/kg.

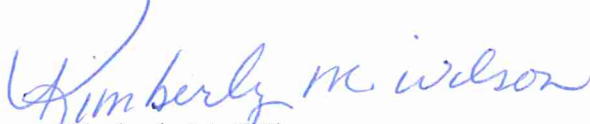
Proposed Remedial Action

- The impacted area in the vicinity of sample locations S-1, S-5 and S-8 will be excavated to a depth of 2-feet deep.
- The impacted area in the vicinity of S-10 will be excavated to a depth of 1-foot deep.
- The impacted soil in the area of S-4 will be removed to a 2.5-foot depth and the impacted soil in the vicinity of S-12 will be excavated to a depth of 3.5-feet deep.
- The remaining impacted areas will be removed to a depth of 4-feet below land surface, which include S-2 and S-3 along the lease road and between S-6 and S-7 in the pasture.
- A 20 mil liner will be installed where proposed on the site plan in the 4-foot deep excavation areas.
- The impacted soil around the pipelines will be hand-excavated until the liner can be safely installed below the DCP and Frontier lines.
- All excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- The excavation will be backfilled with clean top soil obtained from a local borrow pit, re-contoured to match the surrounding terrain and seeded with the recommended BLM seed mixture for the area.

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

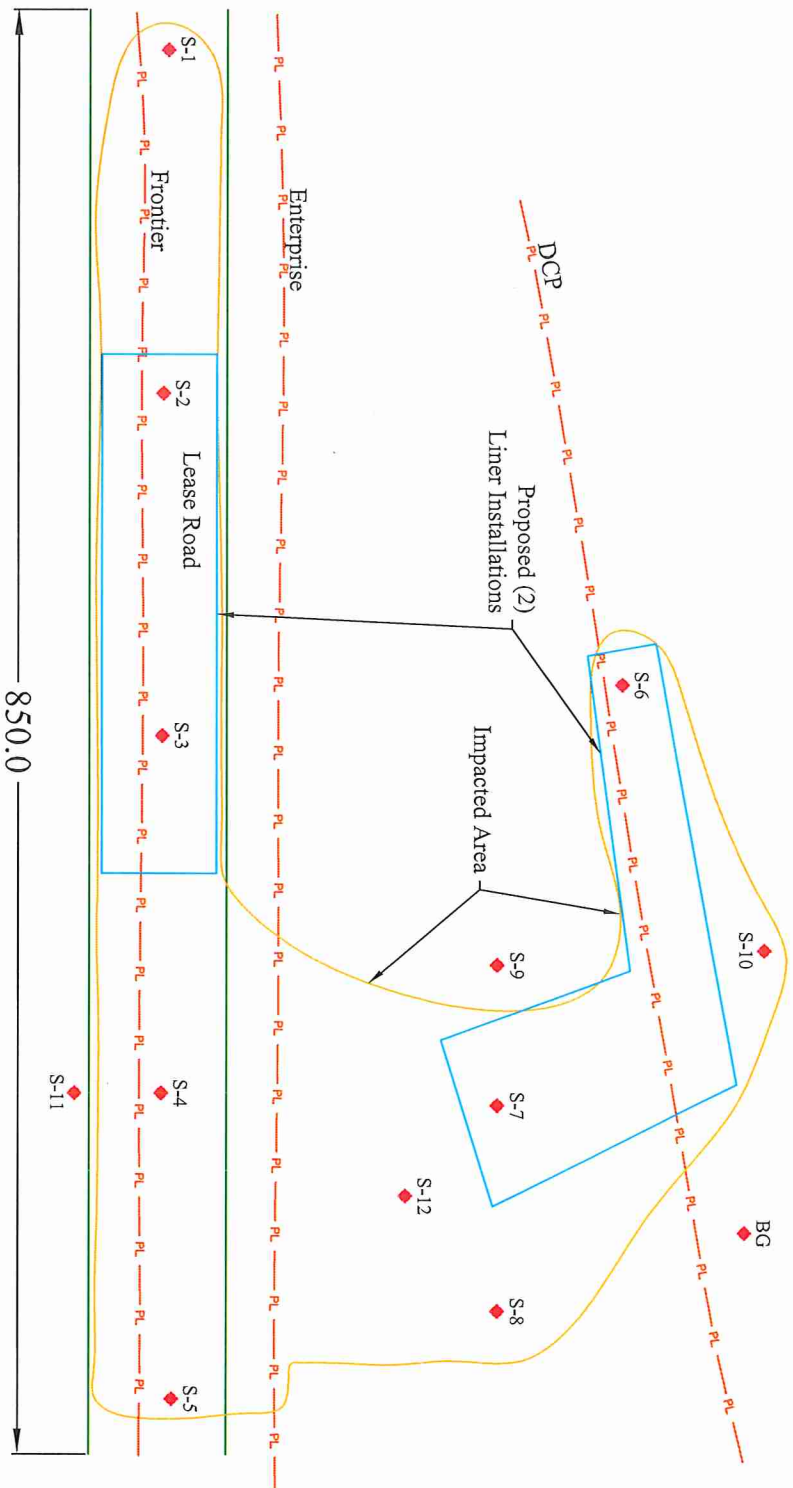
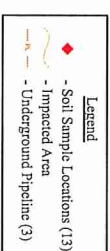
APPENDIX I

SITE MAP

Pasture
Lands



NTS
Scale in Feet



Pasture
Lands



Date: 08/28/2015
Scale: NTS
Drawn By: TJS

Hackberry 16 SWD #1
Devon Energy Corporation
Eddy County, New Mexico
Figure 1 - Site Plan

APPENDIX II
GROUNDWATER DATA
INITIAL C-141



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00829			LE	2	4	16	19S	31E		606165	3614009*	1401	120		
CP 00725			ED	1	3	3	28	19S	31E	604906	3610473*	3018	231		
CP 00873			ED	1	1	19	19S	31E		601772	3613147*	3110	340	180	160
CP 00722			ED	4	3	3	28	19S	31E	605106	3610273*	3227	204		
CP 00723			ED	2	1	1	33	19S	31E	605111	3610071*	3428	139		

Average Depth to Water: **180 feet**

Minimum Depth: **180 feet**

Maximum Depth: **180 feet**

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 604863

Northing (Y): 3613491

Radius: 5000

*UTM location was derived from PLSS - see Help

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.

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

NAB1520434154 **OPERATOR** ☒ Initial Report ☐ Final Report

Name of Company: Devon Energy Production Co LP (6137)	Contact: Brian Kuh
Address: PO Box 250 Artesia, NM 88211	Telephone No. 575- 616-1540
Facility Name: Hackberry 16 SWD 1	Facility Type: Off well location in pasture

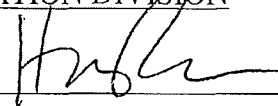
Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-41783
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LOCATION OF RELEASE

Unit Letter M	Section 16	Township 19S	Range 31E	Feet from the 330	North/South Line South	Feet from the 280	East/West Line West	County Eddy
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Latitude: **32.653269** Longitude: **103.889203**

NATURE OF RELEASE

Type of Release: Treated Water	Volume of Release: 75-100 bbls	Volume Recovered: 0 bbl
Source of Release: Ruptured Water Transfer Lines	Date and Hour of Occurrence 7/15/15, 3:50 PM	Date and Hour of Discovery 7/15/15, 4:00 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD-Mike Bratcher BLM-Jeff Robertson	
By Whom? Brian Kuh, Devon Foreman	Date and Hour: 7/16/15, 6:30 AM	7/16/15, 6:25 AM
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	
If a Watercourse was Impacted, Describe Fully.* NA		
Describe Cause of Problem and Remedial Action Taken.* Rock Water Energy was in the process of transferring treated water from the Hackberry 16 SWD 1 to the Strawberry 7 Fed Com 11H frac location when the lay flat transfer line shredded apart near the coupling causing approximately 75-100 barrels of treated water to release in the pasture. The area was approximately 22,000 square feet, 524 feet x 151 feet laying along the 2-track and flowing North of the 2-track.		
Describe Area Affected and Cleanup Action Taken.* A vacuum truck was not able to reach the spill location due to the unsafe and impassable terrain. Talon was commissioned to inspect the spill area and submit a remediation plan for approval.		
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:	OIL CONSERVATION DIVISION	
Printed Name: Denise Menoud	Approved by Environmental Specialist: 	
Title: Field Admin Support	Approval Date: 7/23/15	Expiration Date: NIA
E-mail Address: Denise.Menoud@dmn.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines	
Date: 7/20/2015 Phone: 575-746-5544	SUBMIT REMEDIATION PROPOSAL NO	

* Attach Additional Sheets If Necessary

LATER THAN: **8/24/15**

2RP-3145

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

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

Form C-141
Revised August 8, 2011

Release Notification and Corrective Action

0AB1520435108

Name of Company: Devon Energy Production Co LP (6137)		Contact: Jeff Heath	
Address: PO Box 250 Artesia, NM 88211		Telephone No. 575- 513-2274	
Facility Name: Hackberry 16 SWD 1		Facility Type: Off well location in pasture	

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-41783
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LOCATION OF RELEASE

Unit Letter M	Section 16	Township 19S	Range 31E	Feet from the 330	North/South Line South	Feet from the 280	East/West Line West	County Eddy
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Latitude: 32.653260 Longitude: 103.890311

NATURE OF RELEASE

Type of Release: Treated Water	Volume of Release: 150 bbls	Volume Recovered: 70 bbl
Source of Release: Water Transfer Lines came apart	Date and Hour of Occurrence: 7/16/15, 2:40 PM	Date and Hour of Discovery: 7/16/15, 2:40 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD-Mike Bratcher BLM-Jim Amos	
By Whom? Brian Kuh, Devon Foreman	Date and Hour: 7/16/15, 5:30 PM	7/16/15, 5:30 PM
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. NA	

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 21 2015

RECEIVED

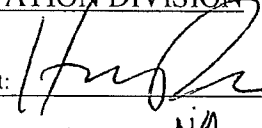
Describe Cause of Problem and Remedial Action Taken.*

Rock Water Energy was in the process of transferring treated water from the Hackberry 16 SWD 1 to the Strawberry 7 Fed Com 11H frac location when the lay flat transfer line came apart causing approximately 150 barrels of treated water to release in the pasture. Approximately 70 barrels were recovered using a polyline to reach the spill area. The area was approximately 895 feet x 100 feet varied, laying along the 2-track.

Describe Area Affected and Cleanup Action Taken.*

A temporary polyline was placed along the 2-track with one end at the spill and the other connected to a vacuum truck approximately 200 feet away from the spill. The vacuum truck was able to recover 70 barrels of treated water. Talon was commissioned to inspect the spill area and submit a remediation plan for approval.

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:	OIL CONSERVATION DIVISION	
Printed Name: Denise Menoud	Approved by Environmental Specialist: 	
Title: Field Admin Support	Approval Date: 7/23/15	Expiration Date: NA
E-mail Address: Denise.Menoud@dmn.com	Conditions of Approval:	
Date: 7/20/2015 Phone: 575-746-5544	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO. <u>8/24/15</u>	

Attached ☐

* Attach Additional Sheets If Necessary

LATER THAN: 8/24/15

2RP. 3146