Devon Energy Production Co LP
Laguna Salado South 1

Work Plan

Unit Letter F, Section 22, T23S, R29E
Eddy County, New Mexico

30-015-26407

May 2, 2017

Prepared for:

Devon Energy Production Co., LP
6488 Seven Rivers Hwy
Artesia, New Mexico 88211

By:

Safety & Environmental Solutions, Inc.
703 East Clinton Street
Hobbs, New Mexico 88240
(575) 397-0510

TABLE OF CONTENTS

I. Company Contacts

Representative	Company	Telephone	E-mail
Mike Shoemaker	Devon Energy Prod.	575-746-5566	Mike.shoemaker@dvn.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Devon Energy to perform site remediation on the Laguna Salado South 1, concerning a twenty one (21) bbl. release of produced water. This site is situated in Eddy County, Section 22, Township 23S, and Range 29E.

According to the C-141: A water transfer line between the Laguna Salado South 1 and the Remuda Basin SWD was struck by a rancher's backhoe. The transfer pumps were immediately shut down and the pipeline was isolated on both ends. Approximately 21bbls of produced water was released due to the line strike. The release traveled in a West direction along the lease road in approximately a 4' to 24' wide by 1135' long area. It also traveled down a sandy two track road in a southwest direction in an approximately 12' wide by 107' long area. A vacuum truck was called and recovered approximately 10bbls. Safety & Environmental Solutions was contacted for remediation.

III. Surface and Ground Water

The New Mexico Office of the State Engineer records indicates the average depth to groundwater for the area to be 31' bgs.

IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), and 5,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	**X**
	50 feet to 99 feet	10 points	
	>100 feet	0 points	
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	**X**
Distance to Surface Water:			
(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	**X**
RANKING SCORE (TOTAL POINTS)			**20**

V. Work Performed

On March 21, 2017, SESI was onsite to install auger holes to determine vertical extent of contamination. Auger hole one was installed near the release point and the refusal was met at five feet. Soil samples were obtained at one foot depths and field tested for Chlorides. The soil sample results at one foot was 12,600 ppm and the five foot soil sample result was 1330 ppm for Chlorides. Auger hole two was installed to three feet. The one foot soil sample result was 640 ppm and three foot result was less than 80 ppm. Auger hole three was then installed to two feet. The one foot soil sample result was 176 ppm and two foot sample was less than 124 ppm. All soil samples were properly preserved. Auger hole four will be installed during the next site visit.

On March 22, 2017, SESI was onsite to continue installing auger holes to determine vertical extent. Auger hole four was installed to the depth of two feet. Soil samples were obtained at surface and one foot intervals and field tested for Chlorides. All soil samples were less than 124 ppm for Chlorides. The release area and sample points were mapped using the Juno 3B and site photos of the release area were taken. All soil samples were properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for Chlorides (Method SM4500Cl-B). The results are presented in the following table:

Devon Energy – Laguna Salado Soil Sample Results: Cardinal Laboratories 3/28/17	
SAMPLE ID	**CHLORIDES**
AH-1 @ 1ft	12600
AH-1 @ 2ft	1570
AH-1 @ 3ft	3400
AH-1 @ 4ft	1500
AH-5 @ 5ft	1330
AH-2 Surface	6700
AH-2 @ 1ft	640
AH-2 @ 2ft	192
AH-2 @ 3ft	80.0
AH-3 Surface	8400
AH-3 @ 1ft	176
AH-3 @ 2ft	80.0
AH-4 @ Surface	17600
AH-4 @ 1ft	32.0
AH-4 @ 2ft	80.0

VI. Action Plan

Based on the sampling results listed above the following action plan is proposed:
We propose to excavate to the depth of 3 feet around AH-1. This area is the source of the leak and the existing water line is immediately under this area. We prefer not to risk rupturing the line a second time by disturbing the ground around it. Please note the substantial reduction in the concentration of chloride contamination from 12,000 ppm at the 1’ sample to 3400 ppm at 3’ sample.

Confirmation soil samples will be taken on the sides and bottom of the excavation to ensure horizontal extent of contamination was excavated and to document the level of Chloride contamination left in place. Excavation will be backfilled with uncontaminated soil and all contaminated soil will be transported to an NMOCD approved facility. We are also requesting no action required at the remaining sample points due to the fact that Chloride concentration levels reduce rapidly immediately under the surface. Upon completion of all approved remediation activity, all necessary closure documentation will be submitted to Devon Energy.

VII. Figures & Appendices

Figure 1 – Vicinity Map
Figure 2 – Site Plan
Appendix A – C-141
Appendix B – Groundwater
Appendix C – Analytical Results
Appendix D – Photo Documentation

Figure 1
Vicinity Map

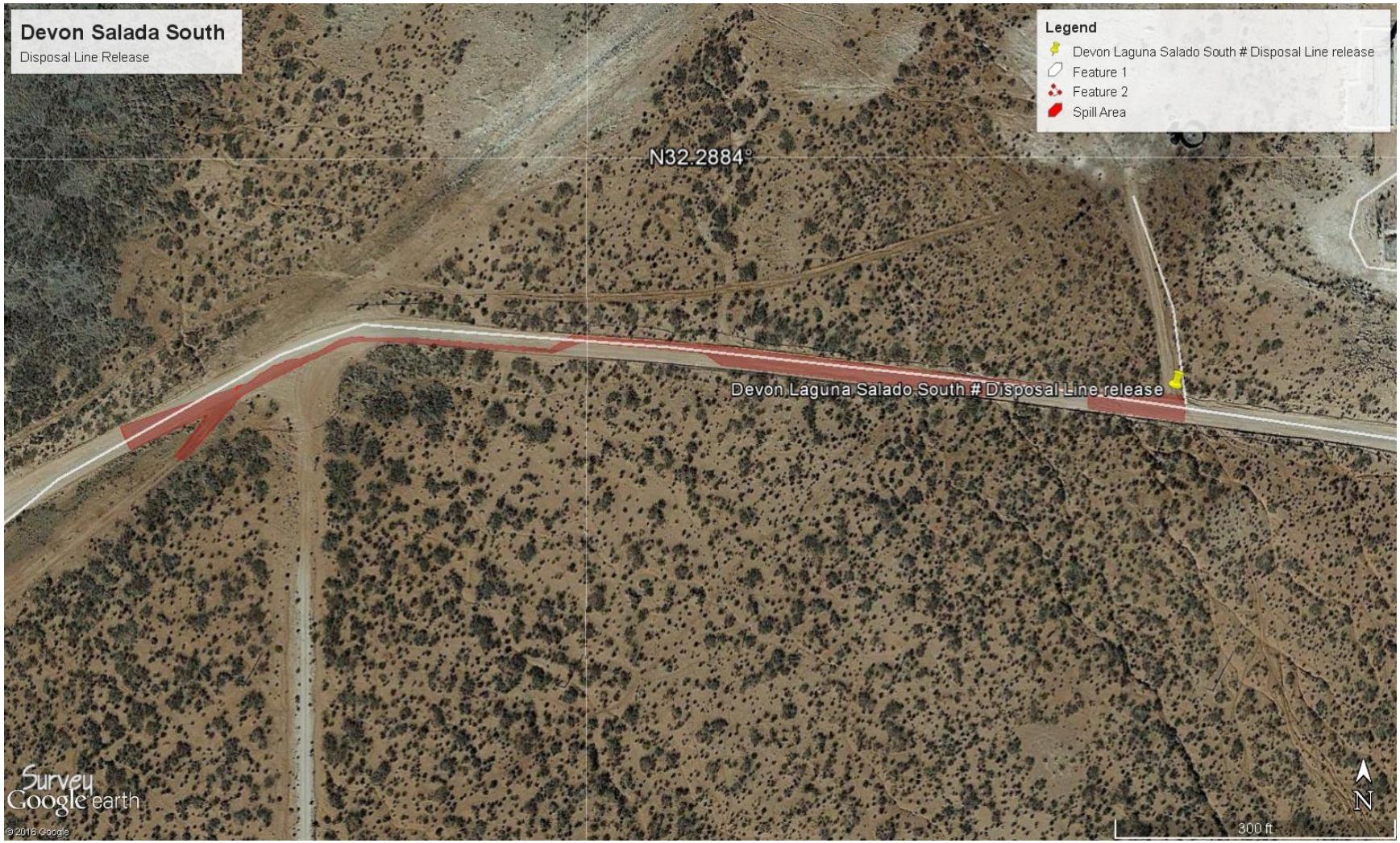
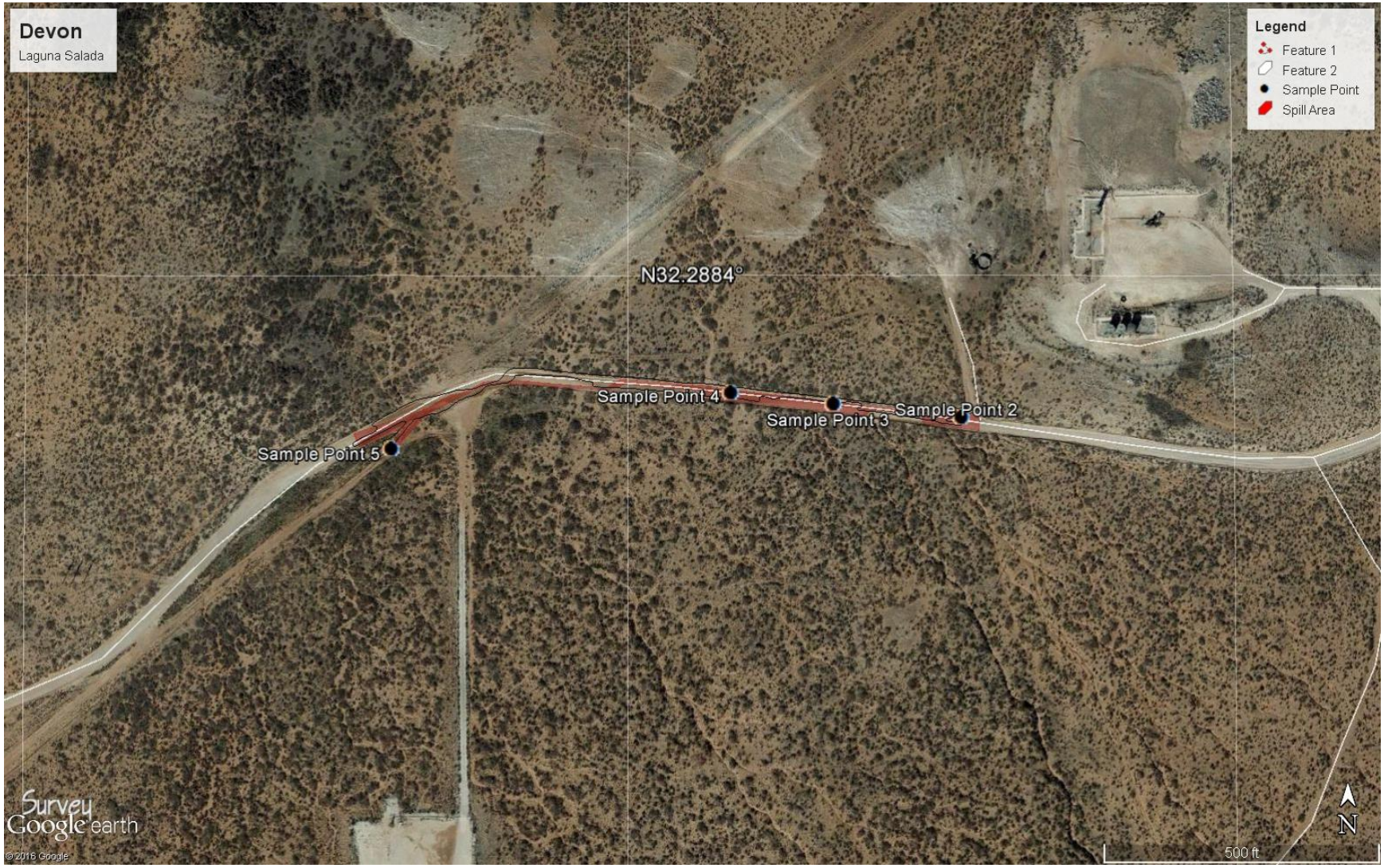

Devon Salada South
Disposal Line Release
Legend
Devon Laguna Salado South # Disposal Line release
Feature 1
Feature 2
Spill Area
N32.2884°
Devon Laguna Salado South # Disposal Line release
Survey
Google earth
© 2016 Google
N
300 ft

Figure 2
Site Plan


Devon
Laguna Salada
Legend
Feature 1
Feature 2
Sample Point
Spill Area
N32.2884°
Sample Point 4
Sample Point 3
Sample Point 2
Sample Point 5
Survey
Google earth
© 2016 Google
500 ft
N

Appendix A
C-141

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 02 2017
RECEIVED

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

nAB1703851902

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company 6137	**Contact** Wesley Ryan, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	**Telephone No.** 575-390-5436
Facility Name Laguna Salado South 1	**Facility Type** Gas

Surface Owner Federal	**Mineral Owner** Federal	**API No** 30-015-26407

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	22	23S	29E	2030	North	1980	West	Eddy

Latitude: ~~32.2922534~~ 32.287758 **Longitude:** ~~-103.974860+~~ -103.937149

NATURE OF RELEASE

Type of Release Produced Water	**Volume of Release** 21bbls	**Volume Recovered** 10bbls
Source of Release Transfer line	**Date and Hour of Occurrence** January 26, 2017 @ 6:00PM	**Date and Hour of Discovery** January 26, 2017 @ 6:00PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** Shelly Tucker, BLM Mike Bratcher, OCD	
By Whom? Wesley Ryan, Production Foreman	**Date and Hour** Shelly Tucker, BLM January 27, 2017 @1:14 PM Mike Bratcher, OCD January 27, 2017 @ 9:25 AM	
Was a Watercourse Reached? ☐ Yes ☒ 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.*
Water transfer line between the Laguna Salado South 1 and the Remuda Basin SWD 1 was struck by a rancher's backhoe. The transfer pumps were immediately shut down and the pipeline was isolated on both ends.

Describe Area Affected and Cleanup Action Taken.*
Approximately 21bbls produced water was released due to the line strike. The release traveled in a West direction along the lease road in approximately a 4'to 24' wide by 1135' long area, it also traveled down a sandy two track road in a Southwest direction in an approximately a 12' wide by 107' long area. A vacuum truck was called and recovered approximately 10bbls. Environmental agency will be contacted 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: Sheila Fisher	**OIL CONSERVATION DIVISION** Signed By [signature]
Printed Name: Sheila Fisher	Approved by Environmental Specialist:
Title: **Field Admin Support**	Approval Date: 2/7/17 Expiration Date: N/A
E-mail Address: **Sheila.fisher@dvn.com**	Conditions of Approval: See attached ☐ Attached
Date: 1/31/17 Phone: **575.748.1829**	

* Attach Additional Sheets If Necessary

2RP-4102

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/2/17 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4103 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 2 office in ARTESIA on or before 3/17/17. 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; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), 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

Bratcher, Mike, EMNRD

From:	Fisher, Sheila <Sheila.Fisher@dvn.com>
Sent:	Thursday, February 2, 2017 4:14 PM
To:	Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD; Amber Groves (agroves@slo.state.nm.us)
Cc:	Fulks, Brett; Shoemaker, Mike; Ryan, Wesley
Subject:	Laguna Salado South 1_21bbls PW_1.26.17
Attachments:	Laguna Salado South 1_21bbls PW_Initial C-141_1.26.17.doc; Laguna Salado South 1_21bbls PW_GIS Image_1.26.17.pdf

Good Afternoon,

Attached please find the Initial C-141 and GIS Image for the 21bbl produced water release on the lease road from the transfer line coming from the Laguna Salado South 1 to the Remuda Basin SWD 1 on 1.26.17.

If you have any questions please feel free to contact me.

Thank you,

Sheila Fisher
Field Admin Support
Production
B-Schedule

Devon Energy Corporation
PO Box 250
Artesia, NM 88211
575 748 1829 Direct

devon

Weaver, Crystal, EMNRD

From: Fulks, Brett <Brett.Fulks@dvn.com>
Sent: Wednesday, March 1, 2017 3:01 PM
To: Weaver, Crystal, EMNRD
Cc: Shoemaker, Mike; Bratcher, Mike, EMNRD
Subject: Re: [EXTERNAL] RE: Meeting and Contact information

Crystal,

Below is the GPS coordinates requested for the Laguna, again I apologize for the delay. Will you be in the office tomorrow when Mike and I are there?

32.287758 N. 103.937149 W

Sent from my iPhone

On Mar 1, 2017, at 8:29 AM, Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us> wrote:

> Hello Mike Shoemaker,
>
> My name is Crystal, I work with Mike Bratcher, I am the other Environmental Regulator in District II Artesia. I was out on site at Cotton Draw Unit #181 this last Monday 2/27/17 with Kimberly and Robbie from Talon.
>
> Anyways, I am hoping since you are going to be the guy we deal with from here on, regarding Devon, that you could help me out with something. I have called and left messages for Brett Fulks and sent him a follow up email letting him know that I need some corrections on logistical information from initial reporting on C-141's, from you all, before I could finish processing them.
>
> I sent him this on 2/23/17...
>
> *Hey Brett,*
>
> *I left you a voice mail yesterday regarding the Todd 36 State #1 release. I had a few questions on site location logistics. I was waiting to hear back from you on it before I sent out the initial approval with the COA's on it just in case I needed to make any changes to the original documents. I am also waiting to send out on the initial approval of the Laguna Salado South 1 (DOR 1/26/17) that we talked about over the phone that was needing updated coordinates.*
>
> *Just following up if you could get back to me at your earliest convenience that would be great.*
>
> *Thank you kindly,*

Crystal Weaver
Environmental Specialist
OCD – Artesia District II
811 S. 1st Street

Artesia, NM 88210
Office: 575-748-1283 ext. 101
Cell: 575-840-5963
Fax: 575-748-9720

Could you please help me out with this.

Thank you,

Crystal Weaver
Environmental Specialist
OCD – Artesia District II
811 S. 1st Street
Artesia, NM 88210
Office: 575-748-1283 ext. 101
Cell: 575-840-5963
Fax: 575-748-9720

From: Bratcher, Mike, EMNRD
Sent: Tuesday, February 28, 2017 11:45 AM
To: Shoemaker, Mike <Mike.Shoemaker@dvn.com>
Cc: Fulks, Brett <Brett.Fulks@dvn.com>; David J. Adkins (dadkins@talonlpe.com) <dadkins@talonlpe.com>; Kimberly M. Wilson (kwilson@talonlpe.com) <kwilson@talonlpe.com>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>
Subject: RE: Meeting and Contact information

Mike,

Thursday would probably work best on my end.

Thank you,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia NM 88210
575-748-1283 Ext 108
mike.bratcher@state.nm.us

From: Shoemaker, Mike [mailto:Mike.Shoemaker@dvn.com]
Sent: Monday, February 27, 2017 1:36 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Cc: Fulks, Brett <Brett.Fulks@dvn.com>; David J. Adkins (dadkins@talonlpe.com)

<dadkins@talonlpe.com>; Kimberly M. Wilson (kwilson@talonlpe.com) <kwilson@talonlpe.com>
Subject: Meeting and Contact information

Mike,
I just wanted to quickly reach out and introduce myself and provide you with my contact information which is provided below. I am Mike Shoemaker and I am now working with Brett Fulks here at Devon. Moving forward I will be working to take over the spills reporting and remediation work as Brett begins to focus more on the air programs. With that being said I was wondering if you might have some time to sit down this week to discuss the Cotton Draw Unit #181 with myself, Brett, and Talon LPE (David and Kimberly). I am going to propose a few times where our schedules are most but also realize that some of them are short notice for you so if they do not work please propose an alternate time and will will get together to see if we can make it work on our side. In turn, would any of the following times work for you?

- Tuesday 02/28 – Anytime between 1 p.m. and 4 p.m.-Short notice but would be the best option for Brett and I
- Wednesday 03/01- Anytime between 9:00 a.m. and 11:30 a.m. – I know that Talon has training going on this day so it may not be a great option all together
- Thursday -03/02- Anytime between 10:00 a.m. and noon

Will look forward to hearing back from you.

Thanks,

Mike Shoemaker
EHS Representative

Devon Energy Corporation
6488 Seven Rivers Highway
Artesia, New Mexico 88210
575-746-5566 Office
575-513-5035 Mobile

<image003.jpg>

Appendix B
Groundwater

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 00571		C	ED	1	3	3	30	23S	29E	591241	3570957*	90	38	52
C 00571 CLW241602	O		ED	3	3	3	30	23S	29E	591241	3570757*	89	38	51
C 01217 S			ED	4	1	4	16	23S	29E	595413	3574403*	350		
C 01627		C	ED	1	4	4	28	23S	29E	595649	3570959*	170		
C 02182		C	ED			4	30	23S	29E	592328	3571048*	75	30	45
C 02608			ED	3	1	4	17	23S	29E	593598	3574387*	400		
C 02613			ED	4	4	2	20	23S	29E	594203	3573176*	400		
C 02704		C	ED			1	19	23S	29E	591531	3573493*	174		
C 02705		C	ED			2	17	23S	29E	593902	3575093*	68	28	40
C 02706		C	ED			4	18	23S	29E	592302	3574291*	17	10	7
C 02707		C	ED			2	28	23S	29E	595535	3571868*	40	18	22
C 02715			ED	4	1	3	15	23S	29E	596221	3574411*	400		
C 02716			ED	4	4	4	16	23S	29E	595818	3574002*	400		
C 02717			ED	4	2	4	16	23S	29E	595817	3574407*	400		
C 02718			ED	4	4	2	16	23S	29E	595816	3574812*	400		
C 02720			ED		2	1	21	23S	29E	594911	3573690*	150		
C 02721			ED		2	3	21	23S	29E	594915	3572879*	150		
C 02792			ED		4	3	04	23S	29E	594868	3577336*	200		
C 02793			ED		4	3	04	23S	29E	594868	3577336*	100		
C 02794			ED		4	3	10	23S	29E	596518	3575731*	100		
C 02795			ED		4	3	10	23S	29E	596518	3575731*	200		
C 02797			ED		2	3	22	23S	29E	596540	3572895*	200		
C 02804			ED		2	1	08	23S	29E	593262	3576905*	100		
C 02805			ED		2	1	08	23S	29E	593262	3576905*	100		
C 02806			ED		1	1	09	23S	29E	594473	3576927*	100		
C 02807			ED		1	1	09	23S	29E	594473	3576927*	100		

***UTM location was derived from PLSS - see Help**

(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-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02808		ED		2	3	16	23S	29E	594909	3574501*	100		
C 02809		ED		2	3	16	23S	29E	594909	3574501*	100		
C 03057 EXPLORE		ED	4	1	1	21	23S	29E	594605	3573586*	150		
C 03058 EXPLORE		ED	4	1	1	16	23S	29E	594605	3575206*	150		
C 03059 EXPLORE		ED	4	1	3	17	23S	29E	592993	3574378*		65	
C 03587 POD1	CUB	ED	1	4	3	29	23S	29E	593338	3570754	99	44	55
C 03587 POD2	CUB	ED	1	2	4	19	23S	29E	592213	3572706	77	16	61

Average Depth to Water: **31 feet**

Minimum Depth: **10 feet**

Maximum Depth: **65 feet**

Record Count: 33

PLSS Search:

Township: 23S **Range:** 29E

***UTM location was derived from PLSS - see Help**

Appendix C – Analytical Results

CARDINAL Laboratories

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

March 28, 2017

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: DEV-17-001

Enclosed are the results of analyses for samples received by the laboratory on 03/24/17 8:15.

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	03/24/2017	Sampling Date:	03/21/2017
Reported:	03/28/2017	Sampling Type:	Soil
Project Name:	DEV-17-001	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: AH- 1 1' (H700780-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**12600**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 1 2' (H700780-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1570**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 1 3' (H700780-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3400**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 1 4' (H700780-04)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1500**	16.0	03/27/2017	ND	448	112	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

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Received:	03/24/2017	Sampling Date:	03/21/2017
Reported:	03/28/2017	Sampling Type:	Soil
Project Name:	DEV-17-001	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: AH- 1 5' (H700780-05)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1330**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 2 SURFACE (H700780-06)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6700**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 2 1' (H700780-07)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**640**	16.0	03/27/2017	ND	448	112	400	0.00	

Sample ID: AH- 2 2' (H700780-08)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	03/27/2017	ND	432	108	400	3.77	

Sample ID: AH- 2 3' (H700780-09)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	03/27/2017	ND	432	108	400	3.77	

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Received:	03/24/2017	Sampling Date:	03/21/2017
Reported:	03/28/2017	Sampling Type:	Soil
Project Name:	DEV-17-001	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: AH- 3 SURFACE (H700780-10)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**8400**	16.0	03/27/2017	ND	432	108	400	3.77	

Sample ID: AH- 3 1' (H700780-11)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	03/27/2017	ND	432	108	400	3.77	

Sample ID: AH- 3 2' (H700780-12)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	03/27/2017	ND	432	108	400	3.77	

Sample ID: AH- 4 SURFACE (H700780-13)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**17600**	16.0	03/27/2017	ND	432	108	400	3.77	

Sample ID: AH- 4 1' (H700780-14)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	03/27/2017	ND	432	108	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

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Received:	03/24/2017	Sampling Date:	03/22/2017
Reported:	03/28/2017	Sampling Type:	Soil
Project Name:	DEV-17-001	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: AH- 4 2' (H700780-15)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	03/27/2017	ND	432	108	400	3.77	

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Notes and Definitions

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 of 2

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Safety and Environmental Solutions
Project Manager:	Bob Allen
Address:	703 East Clinton, PO Box 1613
City:	Hobbs State: NM Zip: 88240
Phone #:	575 397-0510 Fax #: 575 393-4388
Project #:	DEV-17-~~001~~ 003 Project Owner:
Project Name:	
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

Cl Chloride

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	
H200780													03/21	1125	X
1	AH-1 1ft	G	1			X								1145	
2	AH-1 2ft	G	1			X								1200	
3	AH-1 3ft	G	1			X								1220	
4	AH-1 4ft	G	1			X								1245	
5	AH-1 5ft	G	1			X								1315	
6	AH-2 Surface	G	1			X								1320	
7	AH-2 1ft	G	1			X								1345	
8	AH-2 2ft	G	1			X							03/21	1405	X
9	AH-2 3ft	G	1			X									

Relinquished By:	Date: 03/24/17	Received By:	Dara Martin
Relinquished By: Dara Martin	Time: 8:00	Received By: Tamara Oldaker	
Delivered By: (Circle One)	Date: 3/24/17	Sample Condition: Cool ☐ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TO-HS
Sampler - UPS - Bus - Other:	Time: 815a 17.5c		

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

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2 of 2

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Safety and Environmental Solutions
Project Manager:	Bob Allen
Address:	703 East Clinton, PO Box 1613
City:	Hobbs State: NM Zip: 88240
Phone #:	575 397-0510 Fax #: 575 393-4388
Project #:	DEV-17-001 Project Owner:
Project Name:	
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

Chlorides

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	
#700780															
10	AH-3 Surface	G	1			X							03/21	1420	X
11	AH-3 1ft	G	1			X							03/21	1455	
12	AH-3 2ft	G	1			X							03/21	1520	
13	AH-4 Surface	G	1			X							03/22	0900	
14	AH-4 1ft	G	1			X							03/22	0905	
15	AH-4 2ft.	G	1			X							03/22	0925	X

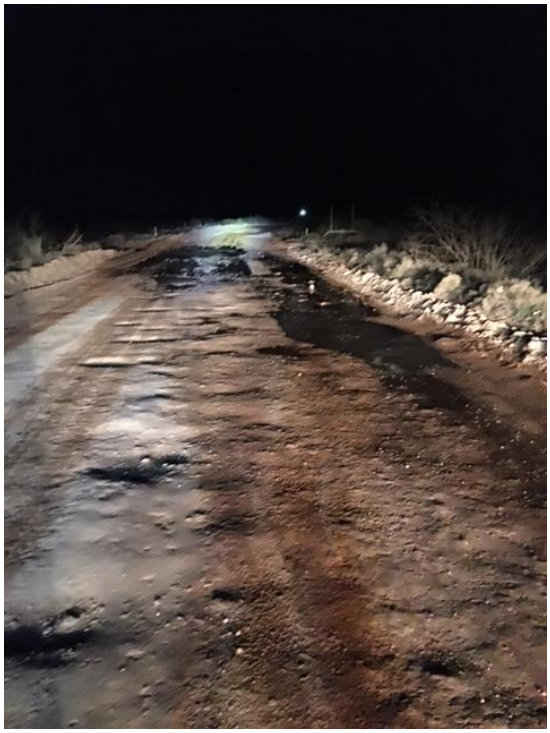
Relinquished By:	Date:	Received By: Hara Martin	
	Time:		
Relinquished By: Hara Martin	Date: 3/24/17	Received By: Tamara Oldaker	
	Time: 815a		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	17.5c	Sample Condition: Cool ☐ Yes ☑ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TO HS

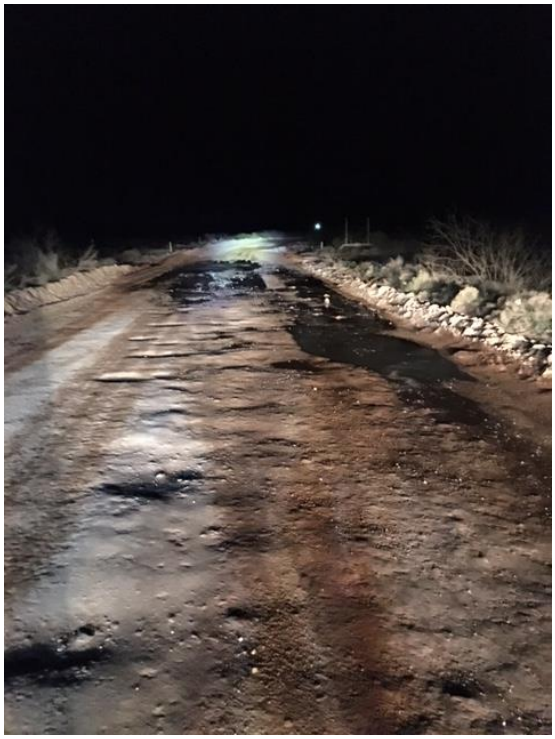
Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Appendix D
Site Photographs

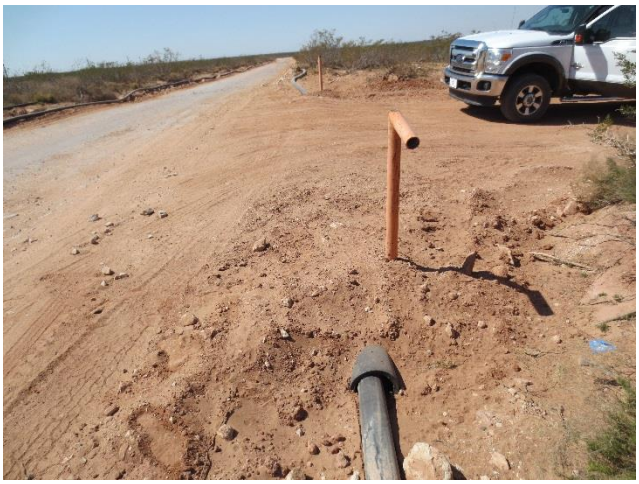
Devon Laguna Salada

South Disposal Line Release

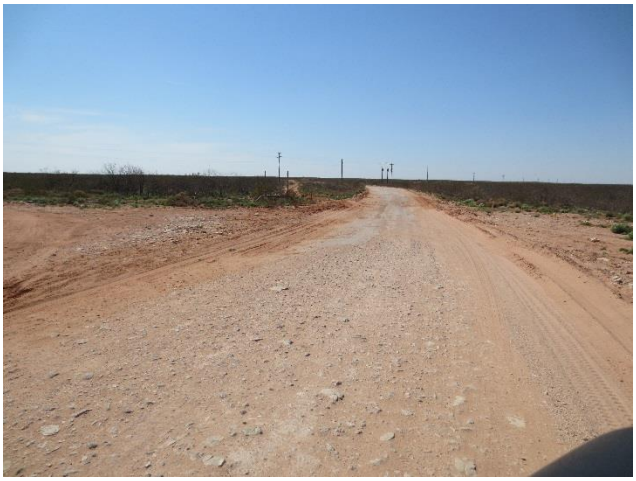




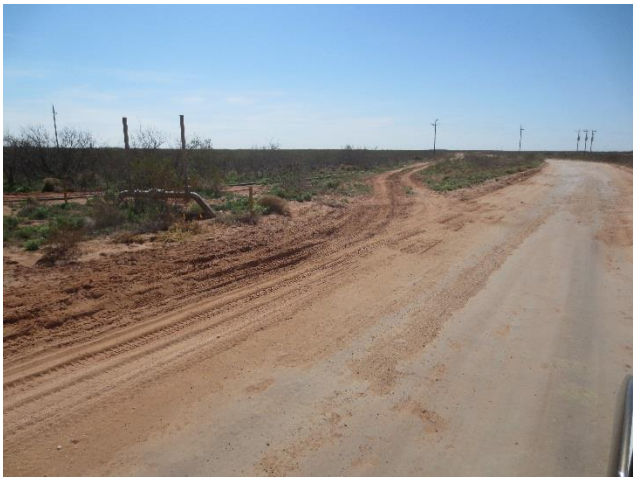
Leak site facing West



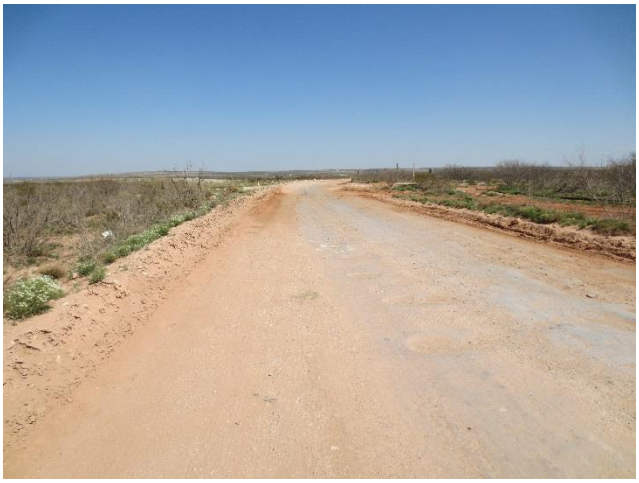
Leak site facing West



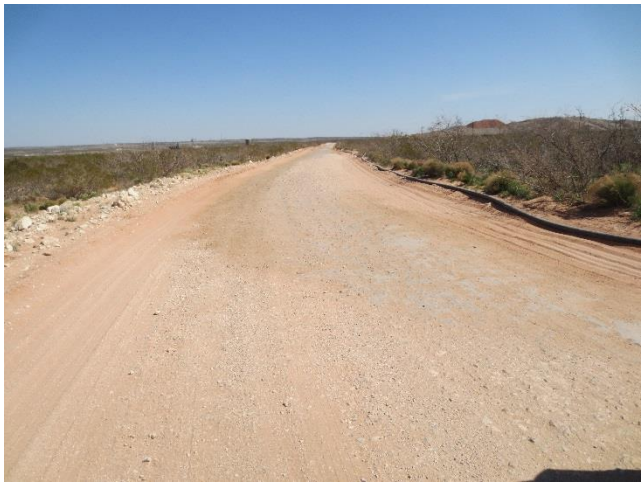
Facing West



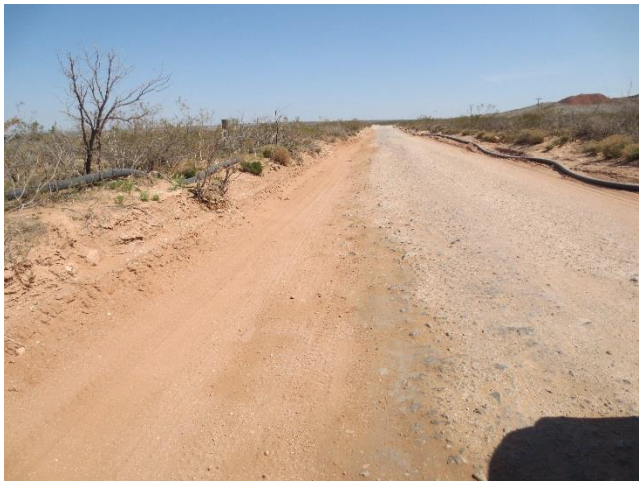
Facing West



Facing East



Facing East



Facing East