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Remedial Activities and Closure Report

Emerald PWH 20 No. 62H

API: 30-015-43372|2RP-3377

Prepared For:

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

Prepared By:

Sheldon L. Hitchcock
Talon/LPE
408 West Texas
Artesia, New Mexico 88210

August 31, 2016

Mr. Mike Bratcher

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

Subject: **Remedial Activities and Closure Report**
Devon Energy
Emerald PWH 20 #62H * 30-015-43372

Dear Mr. Bratcher,

Devon Energy has contracted Talon/LPE (Talon) to perform soil assessment and remediation services at the above referenced location. The incident description, soil sampling results, remediation activities and closure request are submitted herein.

Incident Date

October 31, 2015

Site Information

The Emerald PWH 20 #62H is located approximately seventeen (17) miles southeast of Artesia, New Mexico. The legal location for the site is Section 20, Township 19 South and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for the location are 32.6424438 North and -104.1049327 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 Tonuco loamy fine sand with 0 to 3 percent slopes. Drainage courses in this area are normally dry.

Ground Water and Site Ranking

According to the Chevron Texaco ground water trend map, the ground water in this area is 50-100 feet below ground surface (BGS). See [Appendix II](#). Therefore the ranking for this site is a **10** based on the following:

Depth to ground water	50'-100'
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

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

Incident Description

On the night of October 31, 2015 the H2S alarms went off while drilling. The drilling crew evacuated the rig floor immediately leaving the pumps engaged causing the mud pits to overflow. This resulted in a release of 15 barrels of brine water on location. The location was scraped and the contaminated soil was placed in the cutting bin. A site plan is presented in [Appendix I](#) which illustrates the impacted area.

On June 9 2016, Talon mobilized personnel to begin the preliminary site assessment and to collect initial soil samples from the impacted area with a hand auger to a depth of 0.25-feet BGS, where refusal was encountered. Laboratory results are presented below in [Table 1](#).

On June 20, 2016, Talon returned to the site with a backhoe for further vertical delineation of the impacted area. Laboratory results are presented below in [Table 2](#).

Laboratory Results

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

June 9, 2016

[Table 1](#)

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	0'	--	33200	--	--
	0.25'	--	12300	--	--
S-2	0'	--	29200	--	--
	0.25'	--	13300	--	--

--Analyte Not Tested

June 20, 2016

[Table 2](#)

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	1'	--	96	--	--
	2'	--	16	--	--
	3'	--	<16	--	--
	4'	--	16	--	--
	5'	--	<16	--	--
S-2	1'	--	5040	--	--
	2'	--	1800	--	--
	3'	--	32	--	--
	4'	--	112	--	--
	5'	--	48	--	--

--Analyte Not Tested

Remedial Actions Taken


- The impacted area in the vicinity of sample location S-1 was excavated to a depth of 0.5-feet BGS in accordance with the NMOCD approved work plan.
- The impacted area in the vicinity of sample location S-2 was excavated to a depth of 2-feet BGS.
- All excavated soil was transported to a NMOCD approved disposal facility. Lea Land, LLC.
- The excavation was backfilled with caliche and contoured to match the surrounding location.

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


Sheldon L. Hitchcock
Project Manager

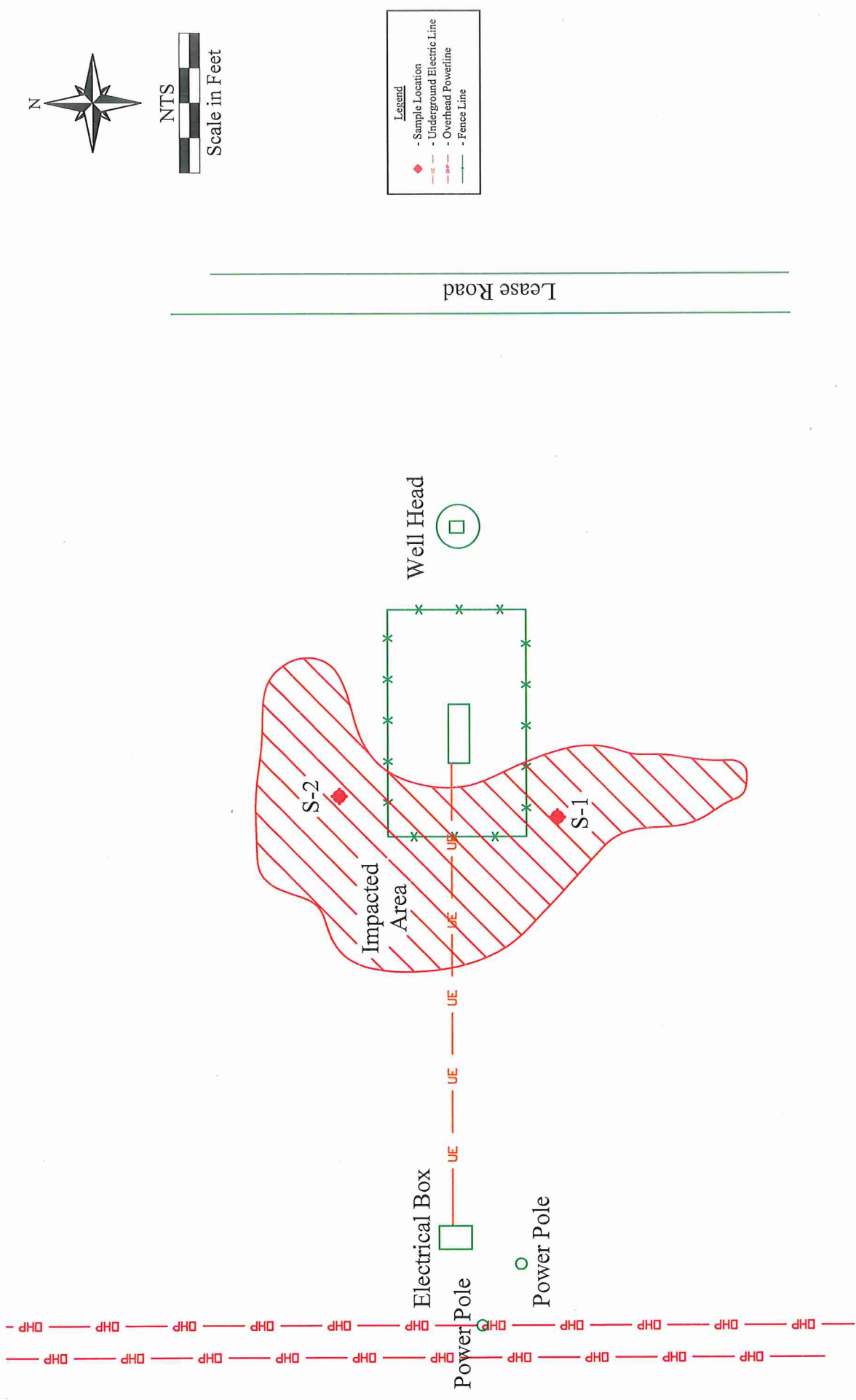

David J. Adkins
District Manager

Attachments:

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

APPENDIX I

SITE PLAN



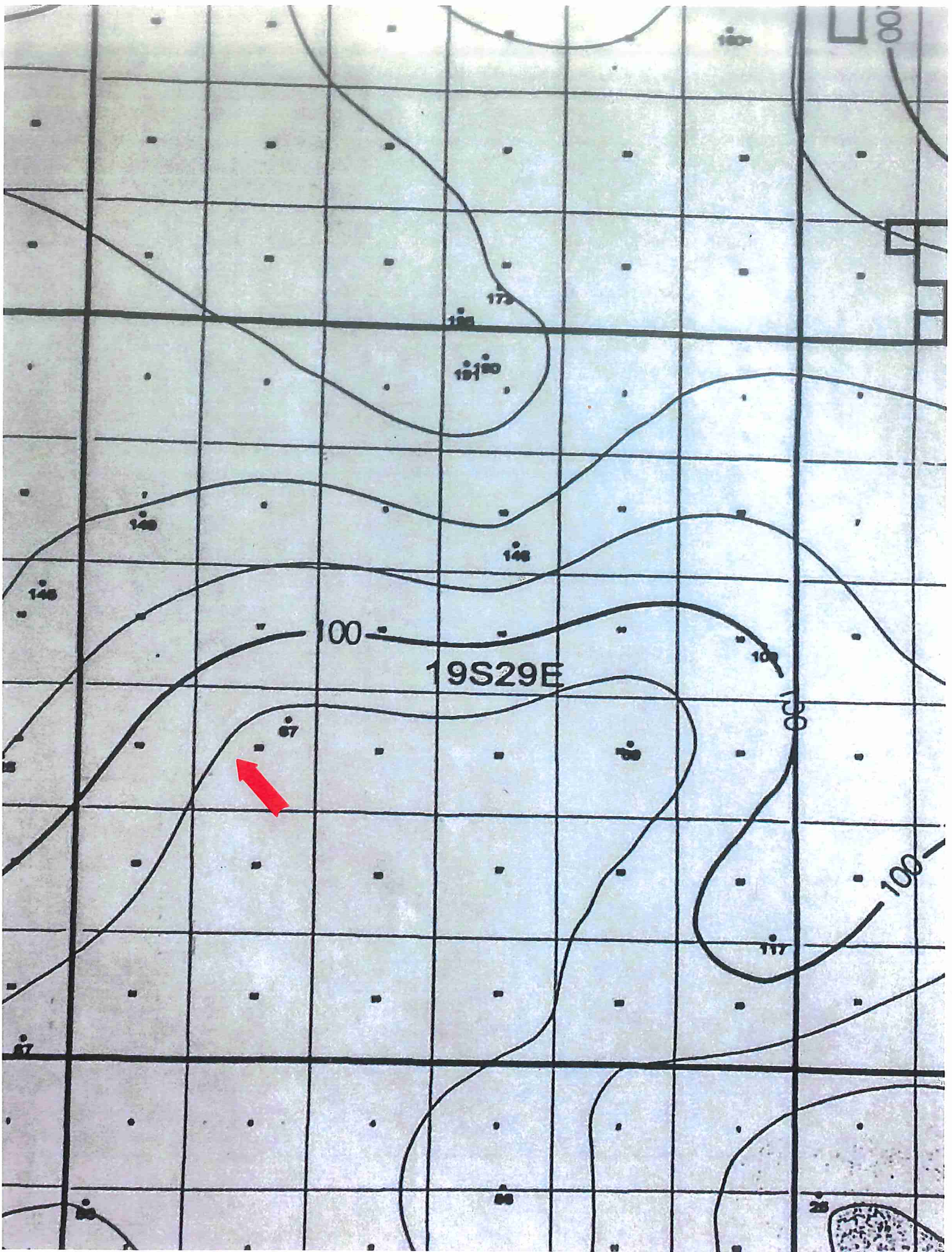
Emerald PWU 20-62H
 Devon Energy Corporation
 Eddy County, New Mexico
 Figure 1 - Site Plan

Date: 07/19/2016
 Scale: NTS
 Drawn By: TJS



APPENDIX II

GROUNDWATER DATA



APPENDIX III
INITIAL C-141
&
FINAL C-141

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

NAB1531427526		OPERATOR	<input checked="" type="checkbox"/> Initial Report	<input type="checkbox"/> Final Report
Name of Company Devon Energy Production 0137		Contact Brett Fulks		
Address 6488 Seven Rivers Hwy Artesia, NM 88220		Telephone No. 432-301-3223		
Facility Name Emerald PWU 20 62H		Facility Type New Well		
Surface Owner State		Mineral Owner State	API No. 30-015-43372	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	20	19S	29E	1238	FSL	248	FWL	EDDY

Latitude: 32.6424438 Longitude: -104.1049327

NATURE OF RELEASE

Type of Release Spill Brine water	Volume of Release 15 BBL	Volume Recovered 14 BBL
Source of Release Drilling pit	Date and Hour of Occurrence 10/31/15 at 7:00 am	Date and Hour of Discovery 10/31/15 at 7:00 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour 11/02/15 12:00 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.*

H2s alarms went off so the drilling crew evacuated the rig floor, leaving the pumps engaged. This resulted in the mud pits running over.

NM OIL CONSERVATION
ARTESIA DISTRICT

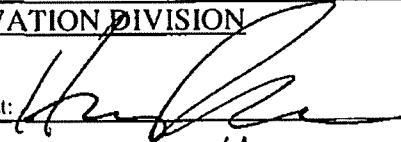
NOV 09 2015

Describe Area Affected and Cleanup Action Taken.*

Scraped contaminated 20 x 20 area and placed in cuttings bin. Will conduct sampling to confirm chloride levels.

RECEIVED

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: Jeanette Barron		OIL CONSERVATION DIVISION	
Printed Name: Jeanette Barron		Approved by Environmental Specialist: 	
Title: Field Admin Support		Approval Date: 11/10/15	Expiration Date: N/A
E-mail Address: Jeanette.barron@dvn.com		Conditions of Approval: Remediation per O.C.D. Rules & Guidelines Attached <input type="checkbox"/>	
Date: 11/06/15 Phone: 575.748.1813		SUBMIT REMEDIATION PROPOSAL NO	

* Attach Additional Sheets If Necessary

LATER THAN: **12/12/15**

2RP-3377

APPENDIX IV

LABORATORY RESULTS



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

June 13, 2016

KIMBERLY WILSON

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: EMERALD PWU 20 #62H

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	Sampling Date:	06/09/2016
Reported:	06/13/2016	Sampling Type:	Soil
Project Name:	EMERALD PWU 20 #62H	Sampling Condition:	Cool & Intact
Project Number:	700794.191.01	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: S-1 0' (H601277-01)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	33200	16.0	06/10/2016	ND	432	108	400	0.00	

Sample ID: S-1 0.25' REFUSAL (H601277-02)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12300	16.0	06/10/2016	ND	432	108	400	0.00	

Sample ID: S-2 0' (H601277-03)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	29200	16.0	06/10/2016	ND	432	108	400	0.00	

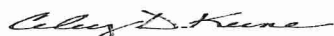
Sample ID: S-2 0.25' REFUSAL (H601277-04)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13300	16.0	06/10/2016	ND	432	108	400	3.77	QM-07

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

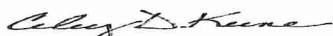
Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Talon/LPE		P.O. #:		ANALYSIS REQUEST									
Project Manager: Kimberly Wilson		Company: Talon/LPE											
Address: 408 W. Texas Ave.		Attn:											
City: Artesia		State: NM Zip: 88210											
Phone #: 575-746-8768		Fax #: 575-746-8905		Address:									
Project #: 700794.191.01		Project Owner: Jellen		City:									
Project Name: Emerald Bowl 20 #624		State:		Zip:									
Project Location: Edley City		Phone #:											
Sampler Name: Kim Wilson		Fax #:											
FOR LAB USE ONLY													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX			PRESERV.	SAMPLING					
				GROUNDWATER									
				WASTEWATER									
				SOIL									
				OIL									
				SLUDGE									
				OTHER:									
				ACID/BASE:									
				ICE/COOL									
				OTHER:									
				DATE	TIME								
H601377													
1	3-1 0'												
2	5-1 0.25' Refused												
3	3-2 0' Refused												
4	5-2 0.25' Refused												
PLEASE NOTE: Liability for damages, contents liability and clients exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the service. All claims including those for negligence and any other claims whatsoever shall be deemed waived unless made in writing and received by Cardinal within 90 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated causes or otherwise.													
Relinquished By: <i>Kim Wilson</i>		Date: 6/16/16		Received By: <i>Kim Wilson</i>									
Time: 12:00		Time: 12:00											
Relinquished By: <i>Kim Wilson</i>		Date: 6/16/16		Received By: <i>Kim Wilson</i>									
Time: 12:00		Time: 12:00											
Delivered By: (Circle One) <i>Shirley Nix</i>		Sample Condition		Checked By: <i>Kim Wilson</i>									
Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>									
Sampler - UPS - Bus - Other: <i>4.70</i>		No <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/>		No <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/>									
REMARKS: <i>RUSH</i>													

* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#75



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

June 24, 2016

KIMBERLY WILSON

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: EMERALD PW 20 62H

Enclosed are the results of analyses for samples received by the laboratory on 06/22/16 12:00.

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: 06/22/2016
 Reported: 06/24/2016
 Project Name: EMERALD PW 20 62H
 Project Number: 700794.191.01
 Project Location: EDDY COUNTY, NM

Sampling Date: 06/20/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: S-1 1' (H601366-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-1 2' (H601366-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-1 3' (H601366-03)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	06/24/2016	ND	416	104	400	0.00		


Sample ID: S-1 4' (H601366-04)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	06/24/2016	ND	416	104	400	0.00		

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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: 06/22/2016
 Reported: 06/24/2016
 Project Name: EMERALD PW 20 62H
 Project Number: 700794.191.01
 Project Location: EDDY COUNTY, NM

Sampling Date: 06/20/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: S-1 5' (H601366-05)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-2 1' (H601366-06)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5040	16.0	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-2 2' (H601366-07)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-2 3' (H601366-08)

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	06/24/2016	ND	416	104	400	0.00	

Sample ID: S-2 4' (H601366-09)

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/24/2016	ND	416	104	400	0.00	

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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: 06/22/2016
Reported: 06/24/2016
Project Name: EMERALD PW 20 62H
Project Number: 700794.191.01
Project Location: EDDY COUNTY, NM

Sampling Date: 06/20/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

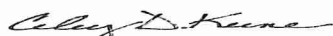
Sample ID: S-2 5' (H601366-10)

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/24/2016	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



ANALYSIS REQUEST

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