



TALON

Soil Assessment and Remediation Work Plan

Cotton Draw Unit 89 API # 30-015-31381 * 2RP-4186 Talon Project No. 700794.241.01

Prepared For:

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

Prepared By:

TALON/LPE 408 W. Texas Avenue Artesia, New Mexico 88210

March 16, 2018

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

Subject:

Soil Assessment and Remediation Work Plan

Cotton Draw Unit 89

API # 30-015-31381 * 2RP-4186

Dear Mr. Bratcher,

Devon Corporation 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.

Site Information

The Cotton Draw Unit 89 is located approximately forty-four (44) miles southeast of Carlsbad, New Mexico. The legal location for this release is Unit Letter O, Section 3, Township 25 South and Range 31 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.1528893 North and -103.7636414 West. A site plan is presented 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 of Berino complex 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 Pleistocene in age and is comprised of eolian sands and piedmont deposits which include silty soils under lain with hard caliche.

Ground Water and Site Ranking

The New Mexico State Engineer web site indicates that there are 7 wells in the vicinity and they all appear to be dry. The Chevron/Texaco Water Trend Map has the ground water in this area to be greater than 450-feet below ground surface. See Appendix III for the referenced groundwater data.

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. The recommended guidelines for total chlorides is 600 mg/kg.

Incident Description and Initial Remedial Actions

On May 10, 2017 a filter screen plug was missing on the triplex pump causing 16 barrels of produced waste to be released outside of the containment. A vac truck was called to the location and recovered 5 barrels of fluid. The main supply valve feeding the pump was closed and the plug was replaced. A site plan is presented in Appendix I which illustrates the impacted area. See initial C-141 in Appendix II.

On December 6, 2017, Talon mobilized personnel to begin the site assessment and soil sampling activities for the construction of a work plan. Grab soil samples were collected from around the impacted area utilizing a hand auger.

See Appendix IV for complete report of laboratory results.

Sample ID	Depth (feet)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH EXT (mg/kg)	BTEX (mg/kg)	Chlorides (mg/kg)
S-1	0'	-				6960
	1'	-	_	-	-	1040
	2'	-	-	-	-	336
S-2	0'		-			432
S-3	0'		-			752
	1'	-	-	-	-	432
	2'	-	-	-	-	704
	3'	-	-	-	-	496
	4'	-	-	-	-	496
S-4	0'					32

⁻⁻ Analyte Not Tested

Proposed Remedial Actions of:

- The impacted soil in the vicinity of S-1 and S-3, as well as the flow paths southward will be excavated to a depth of 2-feet deep.
- All contaminated soil will be transported to Lea Land, LLC, a NMOCD approved disposal facility.
- The excavated area will be backfilled with new caliche. Once the backfilling activities are complete the work area will be contoured to match the surrounding location.
- 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

Jacob Laird

Environmental Scientist

Kimberly M. Wilson

Project Manager

Attachments:

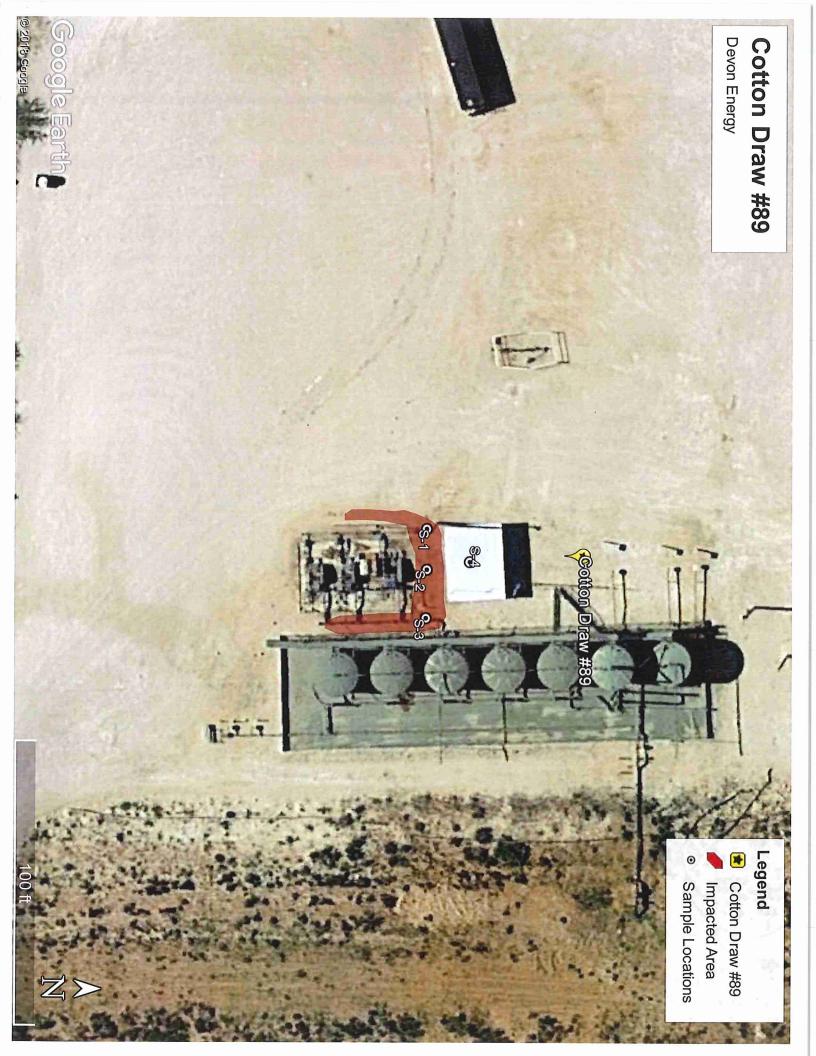
Appendix I Site Plan

Appendix II Initial C-141

Appendix III Groundwater Data

Appendix IV Laboratory Results

APPENDIX I SITE PLAN



APPENDIX II INITIAL C-141

MINI 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

State of New Mexico Energy Minerals and Natural Resources

APR 2 1 2017

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. RECEIVED accordance with 19.15.29 NMAC.

1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa Fe, NM 87505 **Release Notification and Corrective Action OPERATOR** Initial Report Final Report Name of Company Devon Energy Production Company //37 Contact Matt Nettles, Production Foreman Address 6488 Seven Rivers Hwy Artesia, NM 88210 **Telephone No.** 575-513-5767 Facility Name Cotton Draw Unit 89 Facility Type Salt Water Disposal Surface Owner Federal Mineral Owner Federal API No 30-015-31381 **LOCATION OF RELEASE** Unit Letter Section Township Range Feet from the North/South Line Feet from the East/West Line County 3 0 25S 31E 250 **FSL** 1980 **FEL** Eddy **Latitude: 32.1528893** Longitude: -103.7636414 **NATURE OF RELEASE** Type of Release Volume of Release Volume Recovered Produced Water 16bbls 5BBLS Source of Release Date and Hour of Occurrence **Date and Hour of Discovery** Water tanks 4/10/2017 @ 10:00 PM 4/10/2017 @ 10:00 PM Was Immediate Notice Given? If YES, To Whom? ☐ Yes ☐ No ☐ Not Required BLM OCD By Whom? Date and Hour David Simmons, Assistant Production Foreman BLM-4/10/2017 @ 11:00 PM OCD-4/10/20107 @11:02 PM Was a Watercourse Reached? If YES, Volume Impacting the Watercourse ☐ Yes 🛛 No N/A If a Watercourse was Impacted, Describe Fully.* N/A Describe Cause of Problem and Remedial Action Taken.* A filter screen plug was missing on the triplex pump causing a 16BBL produced water release outside of containment. The main water supply valve feeding the pump was closed and the plug was replaced. Describe Area Affected and Cleanup Action Taken.* Approximately 16bbls produced water was released outside of containment. A vacuum truck was dispatched and recovered 5BBLS of produced water. A remediation contractor will be contacted to assist with remediation efforts. 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: Dana DeLaRosa Approved by Environmental Specialist: Printed Name: Dana DelaRosa Expiration Date: Title: Field Admin Support Approval Date:

Conditions of Approval:

see attached

* Attach Additional Sheets If Necessary

Date: 4.20.2017

E-mail Address: Dana.Delarosa@dvn.com

Phone: 575,74,5594

2RP-A186

APPENDIX III GROUNDWATER DATA



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 Sub-		Q	Q	Q								Water
POD Number	Code		County						-	Х	Υ			ellDepthWaterColumn
C 03830 POD1		CUB	ED	4	2	4	02	258	31E	618632	3558432	207	/ 4	50
C 02574			ED	1	1	2	02	258	31E	618092	3559494* 🎒	208	1	*
C 02571			ED	4	1	2	02	25S	31E	618292	3559294*	210	6 8	60
<u>C 02570</u>			ED	4	2	4	02	25S	31E	618704	3558489*	215	8	95
C 02573			ED	1	4	2	02	25S	31E	618499	3559091*	217	2	
C 02569			ED	4	4	2	02	258	31E	618699	3558891*	226	9 . 10	16
C 02572			ED	4	2	2	02	25S	31E	618695	3559294*	244	3 8	52

Average Depth to Water:

Minimum Depth:

Maximum Depth:

Record Count:7

UTMNAD83 Radius Search (in meters):

Easting (X): 616590.67

Northing (Y): 3558051.99

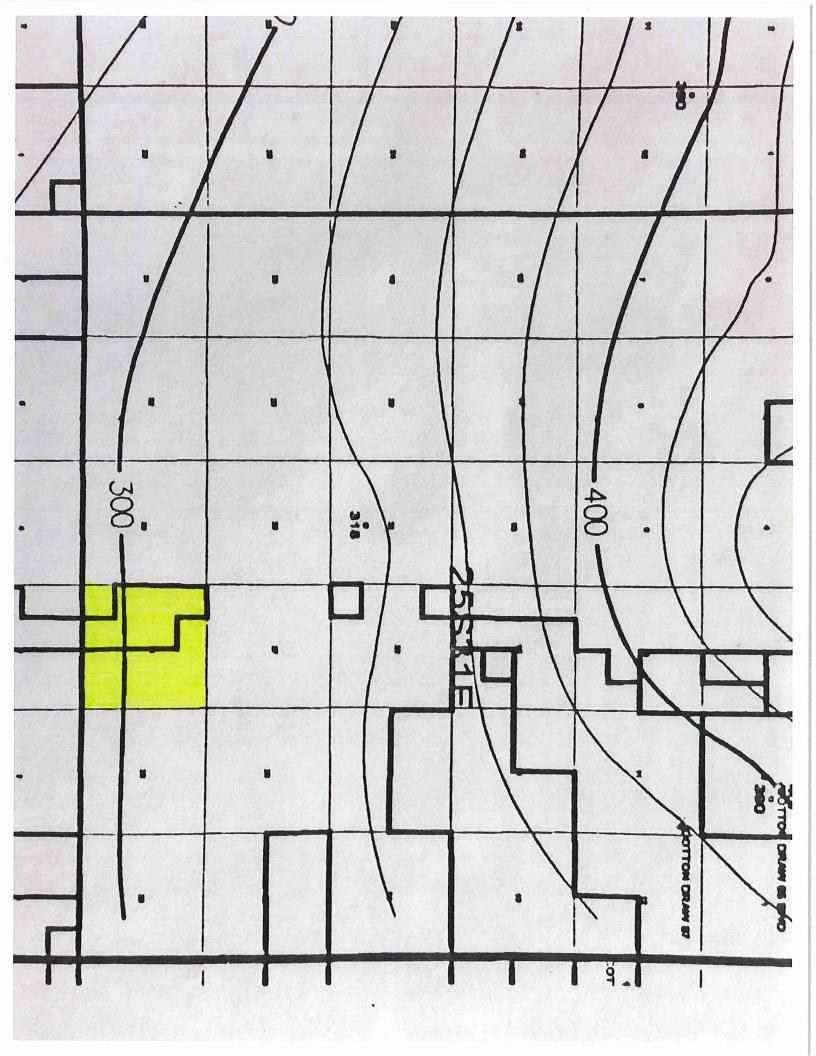
Radius: 2500

*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, or suitability for any particular purpose of the data.

1/18/18 3:10 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



APPENDIX IV LABORATORY RESULTS



December 09, 2017

KIMBERLY WILSON

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: COTTON DRAW #89

Enclosed are the results of analyses for samples received by the laboratory on 12/06/17 16:00.

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.qov/field/qa/lab accredited analytes and matrices visit the TCEQ website at www.tceq.texas.qov/field/qa/lab accredited 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.

Celey D. Keena

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:

12/06/2017

Reported:

Chloride, SM4500CI-B

12/09/2017

Project Name:

COTTON DRAW #89

Project Number:

700794.244.01

Project Location:

EDDY COUNTY, NM

mg/kg

Reporting Limit

16.0

Analyzed

12/07/2017

Result

432

Sampling Date:

12/05/2017

Sampling Type: Soil

Sampling Condition: Sample Received By: Cool & Intact

True Value QC

400

RPD

0.00

Qualifier

Tamara Oldaker

Sample ID: S-1 0' (H703364-01)

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6960	16.0	12/07/2017	ND	448	112	400	0.00		
Sample ID: S-1 1' (H70336	Sample ID: S-1 1' (H703364-02)									
Chloride, SM4500CI-B	hloride, SM4500Cl-B mg/kg			d By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1040	16.0	12/07/2017	ND	448	112	400	0.00		
Sample ID: S-1 2' R (H703	364-03)									
Chloride, SM4500CI-B	mg	/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	336	16.0	12/07/2017	ND	448	112	400	0.00		
Sample ID: S-2 0' (H70336	54-04)									
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC						

Method Blank

ND

BS

448

% Recovery

112

Analyzed By: AC

Cardinal Laboratories

Analyte

Chloride

*=Accredited Analyte

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Celeg & Keene

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:

12/06/2017

Reported:

12/09/2017

Project Name:

COTTON DRAW #89 ·

Project Number:

700794.244.01

Project Location:

EDDY COUNTY, NM

Sampling Date:

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Tamara Oldaker

12/05/2017

Sample ID: S-2 0.5' R (H703364-05)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	12/07/2017	ND	448	112	400	0.00	
Sample ID: S-3 0' (H70336	64-06)								
Chloride, SM4500Cl-B mg/kg			Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	12/07/2017	ND	448	112	400	0.00	
Sample ID: S-3 1' (H70336	64-07)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	12/07/2017	ND	448	112	400	0.00	
Sample ID: S-3 2' (H70330	64-08)								
Chloride, SM4500CI-B	mg	/kg ·	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	12/08/2017	ND	448	112	400	0.00	
									it.
Sample ID: S-3 3' (H7033	64-09)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

Cardinal Laboratories

Chloride

*=Accredited Analyte

0.00

400

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ND

448

112

12/08/2017

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

496

16.0



Analytical Results For:

TALON LPE KIMBERLY WILSON 408 W. TEXAS AVE. ARTESIA NM, 88210

Fax To:

(575) 745-8905

Received:

12/06/2017

Reported:

12/09/2017

Project Name:

COTTON DRAW #89

Project Number: Project Location: 700794.244.01 EDDY COUNTY, NM Sampling Date:

12/05/2017

Sampling Type:

Soil

Sampling Condition:

Cool & Intact

Sample Received By:

Tamara Oldaker

Sample ID: S-3 4' (H703364-10)

Chloride, SM4500CI-B

Chloride

Chloride

mg/kg

Analyzed By: AC

Analyte

Result

496

Result

32.0

Reporting Limit

16.0

Reporting Limit

16.0

Method Blank

% Recovery 112

True Value QC

RPD

Qualifier

Sample ID: S-4 0' (H703364-11)

Chloride, SM4500CI-B

mg/kg

Analyzed By: AC

ND

BS

448

% Recovery

112

400

True Value QC

400

Analyte

Analyzed

Analyzed

12/08/2017

12/08/2017

Method Blank ND

448

BS

RPD 0.00

0.00

Qualifier

Cardinal Laboratories

*=Accredited Analyte

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Celeg D. Keene

Celey D. Keene, Lab Director/Quality Manager

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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 SM4500CI-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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Celeg D. Keine



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Tage 10/2

Time: Bo Received Date: O Received Time: In Received Time: In Received Circle One), 42	PLEASE NOTE: Lability and Chamages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in chiracian or law, and analyses. All claims including those for negligenore and any other cause whatsoever shall be deemed valved unless made in withing and carealwed by Cardinal within, 30 days after completion of the political analyses. All claims including those for negligenore and any other cause whatsoever shall be deemed valved unless made interruptions, loss of use, or loss of profits incurred by client, its subsidialies, service, in no event shall Cardinal to incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidialies, service, in no event shall Cardinal to incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidialies, service, in no event shall Cardinal to incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidialies, service, in no event shall Cardinal within, 30 days after completion of the politicative within analyses.	7 5-3 2' 7 5-3 3'	3 5-1 2' X 4 5-20' X 5 5-2 0.5' X	GROUNDWATER WASTEWATER SOIL	TW794.24.01 Project Owner: Les ame: Cotton Waw # 89 ocation: Eddy By Name: Lin Willow EONLY EONLY	101 East Mariand, 10005, 101 East Mariand, 100
Condition CHECKED BY: Condition CHECKED BY: Checked B	as in contract of law, which and days after completen of the applicative and received by Cardinal within 30 days after completen of the applicative in writing and received by Cardinal within 30 days after complete on the state of profits incurred by clert, its subsidiaries, interruptions, loss of tree, or loss of profits incurred by clert, its subsidiaries, interruptions, loss of tree, or loss of profits incurred by clert, its subsidiaries, interruptions, one of tree, or loss o	chall be limited to the dimount paid by the client for the		OIL SLUDGE OTHER: ACID/BASE: ICE / COOL OTHER: DATE TIME	State: Zip: Phone #: Fax #: PRESERV. SAMPLING PRINCE P	ANALYSIS REQUEST P.O. #: Company: Talon/LPE Address:

+ Cardinal cannot accept verbal channee Dleace fav written channee to IETE) 202-2926



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Time: Corrcle One) Bus - Other: Bus - Other: The scheese Places for well-asses for the self-asses places for the self-asses	Ave. State: NM Zip. State: NM Zip. Project Owner: 4 89	101 East Marland, Hobbs, NM 88240
and whether based in contract or tort, shall be an actively a state of the shall be also an active by the state of the shall be also and the shall be also	WASTEWATER SOIL OIL SLUDGE OTHER: ACID/BASE: ICE / COOL WASTEWATER MATRIX P.O. # P.O. # P.O. # PRESET Phone #: ICE / COOL	
	OTHER: Zip: Zip:	Page.
Yes □ No Add'l Phone #: Yes □ No Add'l Fax #:		ANALYSIS REQUEST