

TALON By Oct

October 1, 2015

Ms. Kellie Jones NMOCD District I 1625 N. French Dr. Hobbs, NM 88240

Subject:

APPROVED Conditional

By OCD District 1 at 10:40 am, Oct 07, 2015

1. Ensure the site has been completely vertically delineated. At S-3 you still haven't found the extent of contamination.

Soil Assessment and Remediation Work Plan Legacy Reserves Operating, LP Rock Queen Unit #86

API #: 30-005-00931

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 290I 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 Il Commercial Place Schertz, Texas 78154 Phone 210.265.8025 Fax 210.568.2191

Incident Date

following.

Dear Ms. Jones,

August 28, 2015

Background Information

The Rock Queen Unit No. 86 is located approximately forty-seven (47) miles northwest of Lovington in Chaves County, New Mexico. The legal location for this site is Section 36, Township 13 South, and Range 31 East. More specifically the latitude and longitude for the release are 33.1485596 North and -103.7815247 West. A site plan is presented in Appendix I.

Legacy Reserves Operating, LP (Legacy) 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

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 the Kimbrough gravelly loam with 0 to 3 percent slopes. Per the New Mexico Bureau of Geology and Mineral Resources, the local surface and shallow geology is comprised of Holocene to middle Pleistocene eolian deposits. Drainage courses in this area are normally dry. The New Mexico State Engineer's web site indicates the nearest ground water data to be in S35-T13S-R31E. The ground water in Section 35 is reported to be a depth of 165-feet below ground surface (bgs). See Appendix III for the referenced groundwater data.

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

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

Page 1 of 4

Incident Description

On August 28, 2015 a flow line leak was discovered, the amount of the mixed fluids released was approximately 20 barrels. All wells were shut in and the flow line was repaired. A vacuum truck was called to the location and recovered approximately 5 barrels of fluid. The impacted area is off the well pad and measured approximately 170-feet long by 100-feet wide. A site plan is presented in Appendix I.

Actions Taken

On September 8, 2015 Talon mobilized personnel to begin site assessment and soil sampling activities for the generation of a work plan. Grab soil samples were collected utilizing a hand auger to a depth of 1.5-feet below ground surface where refusal was encountered. A summary laboratory results are presented in Table 1.

On September 16, 2015 Talon personnel returned to the site to obtain deeper vertical delineation samples utilizing a backhoe to a depth of 11-feet bgs where hard rock refusal was encountered. A summary of laboratory results are presented in Table 2.

All soil samples were collected by Talon personnel wearing clean nitrile gloves. The soil samples were placed in laboratory provided sample containers, iced and transported to Cardinal Laboratories in Hobbs, New Mexico for analysis. The samples were tested for TPH (Total Petroleum Hydrocarbons) using EPA Method 8015M, volatile organics (BTEX) using EPA Method 8021B and the chloride samples were analyzed per Method SM4500Cl-B.

Laboratory Results

See Appendix IV for complete report of laboratory results.

September 4, 201	2			1	Table 1		
Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO		
S-1	0'	0.431	22800	<200	20100		
S-1	1'	< 0.300	12200	<10	<10		
S-1 Refusal	1.5'	< 0.300	13800	<50	976		
S-2	0'	< 0.300	13800	<10	11.5		
S-2	1'	< 0.300	432	<10	<10		
S-2 Refusal	1.5'	< 0.300	128	<10	<10		
S-3	0'	< 0.300	23600	<200	16800		
S-3	1'	< 0.300	13200	<10	35.6		
S-3 Refusal	1.5'	< 0.300	13600	<10	<10		

.

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	2'		11600		
S-1	3'		4800		
S-1	4'		3760		
S-1	6'		7200		
S-1	7'		800	-	
S-1	8'		528		
S-1	9'		400		-
S-1	10'		288		
S-2	2'		<16	14 1 - 17 17.	
S-2	3'		96		
S-2	4'		<16	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
S-2	5'		32		
S-3	2'		3760		
S-3	3'		1320		
S-3	4'		9400	- 11 · 1 · 구 · 1 · 2 · 2	
S-3	5'		6200		
S-3	6'		9500		
S-3	7'		11600		
S-3	8'		16000		
S-3	9'		19600		
S-3	10'		6300	8 	n de d es
S-3	11'		3320		

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 remediation standard is considered to be 1,000 mg/kg based upon a water table depth of 100-feet bgs.

Proposed Remedial Actions

- The impacted area in the vicinity of sample location S-2 will be excavated to a depth of 1-foot bgs.
- The impacted areas in the vicinity of sample locations S-1 and S-3 will be excavated to a depth of 4-feet bgs and a 20-mil liner will be installed.
- All impacted soil will be transported to an NMOCD approved solid waste disposal facility.
- The excavated areas will be backfilled with top soil and contoured to match the surround terrain.
- A final closure report documenting all remedial actions will be provided to the NMOCD office in Hobbs along with the Final Form C-141.

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,

Sheldon L. Hitchcock Project Manager

David J. Adkins District Manager

SITE PLAN



INITIAL C-141

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 October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

			Rel	ease Notific	catio	n and Co	orrective A	ctio	1			
						OPERA'		~~~~~		al Report	ل ـــا	Final Report
Name of Co	ompany : I	Legacy Rese	erves Ope	erating, LP	1	Contact : I		•		aricoport		
Address: 3	03 W. Wa	11 St. Ste 13	00, Midl	and, TX 79701			No. : 432-631-0	099				
Facility Nat	me: Rock	Queen Unit	# 86	·		Facility Typ		<u></u>				
Surface Ow	mar · STA	יזריני		N.	·	<u>_</u>						
Duriace On	noi . DIM			Mineral C	wner:		······································		API #:	30-005-00	931	
				LOCA	TIO	N OF REI	LEASE					
Unit Letter E	Section	Township	Range	Feet from the	North	/South Line	Feet from the	East/	West Line	County: C	HAV	ES
Ľ	36	135	<u> 31E</u>	1980	Nortl	h	660	West		L		
			Latitude	<u>33.1485596</u> I	Ň	Longitud	e <u>-103.78152</u>	47 W				
				 `Nĭ & 'T	הר ברד וי			<u></u>				
Type of Rele	ase · Mixed	Fluide		INAL	UKE	OFREL						
Source of Re	lease : Flow	v line leak					Release : 20 bbl			Recovered: 5		0/00/00/-
						8/28/2015	tour of Occurrent	36:	Date and	Hour of Disc	covery	: 8/28/2015
Was Immedi	ate Notice C					If YES, To	Whom?	••••••	L			
			Yes 🛛	No 🗌 Not Re	quired							
By Whom?						Date and H	lour :					
Was a Water	course Reac					If YES, Vo	lume Impacting t	the Wate	ercourse.			
		L	Yes 🛛	No No								
If a Watercou	urse was Imj	pacted, Descr	ibe Fully.*	e	-							
22												
the location a	ise of Proble	em and Reme	dial Action	n Taken.* A flow	/ line le	eaked causing	a release of 20 ba	arrels of	mixed fluid	is. A vac tru	ick wa	s called to
Describe Are	a Affected a	and Cleanup	Action Tak	en.* The area affe								
sampling to g	enerate a w	ork plan.	LOUOII I AN	en, · ine area are	cied w	as our the well	pad, Ialon/LPE	was co	ntacted for	initial site as	sessm	ent and soil
I hereby certi	fy that the i	nformation gi	iven above	is true and compl	ete to t	he best of my	knowledge and u	nderstar	d that purs	uant to NM()CD 7	ules and
regulations al	i operators :	are required t	o report an	id/or file certain re	elease n	otifications at	d perform correc	tive acti	one for role	near which		donaan
public nealth	or the envir	onment. The	acceptanc	e of a C-141 report	rt bv th	e NMOCD m	arked as "Final R	enort" d	ops not reli	eve the oner	ator of	tiobility.
or the enviror	perations na	ave tailed to a	adequately	investigate and re	mediat	e contaminati	on that pose a thr	eat to gr	ound water	, surface wat	ter, hu	man health
federal, state,	or local law	vs and/or regu	ilations.	tance of a C-141 r	epon u	loes not reliev	e the operator of	responsi	bility for co	ompliance w	ith any	v other
		Q*					OIL CON	SEBA			NT	
	- <	- 0 -	>					<u>olar v</u>	ATION	0101010	IN	
Signature:	- Dan		Vare -									
Printed Name	: Daniel Ro	osa				Approved by District Supervisor:						
Title: For.	- eman					Approval Dat	9:	Ţ	Expiration Date:			
			·····					·····		1		
E-mail Addre	ss: Drosa@	legacylp.com	1			Conditions of	Approval:			Attached	П	
Date: 9/29/2	2015	Phon	e: 432-63)	L-0099								

Date: 9/29/2015 Phone: 4 * Attach Additional Sheets If Necessary

GROUNDWATER DATA

and the State	Nev	v Mexico Office of the	State Engineer
interchalte Stream Commission	Water	Column/Average	Depth to Water
(A CLW##### in the POD suffix indicates the POD has been replaced	(R=POD has been replaced, O=orphaned.		

& no longer serves a water right file.)	C=the file is closed)						V 2=NE est to la	: 3=SW 4= argest)) AD83 UTM in me	eters)	(In feet)	
POD Number	POD Sub- Code basin Co		Q 64 1			c Tw	s Rng		x	Y	Distance		And the second second	Water Column
L 10218	L	LE		4	1 3	5 13	S 31E	6124	29	3668393* 🌍	1147	185	165	20
RA 11846 POD1	(СН	2	4	2 34	4 13	S 31E	6117	64	3668407 🌍	1793	375	90	285
										Avera	ge Depth to	Water:	127	feet
											Minimum	Depth:	90	feet
											Maximum	Depth:	165	feet
Record Count: 2	na ana ina ana ana ana ana ana a								-					No. 1978 1410 1414 141

UTMNAD83 Radius Search (in meters):

Easting (X): 613532

Northing (Y): 3668710

Radius: 2000

*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.

LABORATORY RESULTS



September 14, 2015

SHELDON HITCHCOCK TALON LPE 408 W. TEXAS AVE. ARTESIA, NM 88210

RE: ROCK QUEEN UNIT #86

Enclosed are the results of analyses for samples received by the laboratory on 09/09/15 10:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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,

Celeg D. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-1 0' (H502367-01)

BTEX 8021B	mg/	'kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	0.126	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	0.305	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	0.431	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 9	% 85.6-13	7						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	22800	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					S-06

Method Blank

ND

ND

BS

189

216

% Recovery

94.3

108

True Value QC

200

200

RPD

2.02

1.76

Qualifier

Analyzed

09/10/2015

09/10/2015

Cardinal Laboratories

Analyte

GRO C6-C10

DRO >C10-C28

Surrogate: 1-Chlorooctane

Surrogate: 1-Chlorooctadecane

Result

<200

20100

57.5 %

598 %

Reporting Limit

200

200

47.2-157

52.1-176

*=Accredited Analyte

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Celeg Di Keine



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-1 1' (H502367-02)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	107 %	6 85.6-13	7			_			
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12200	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	<10.0	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	73.8 9	47.2-15	7						
Surrogate: 1-Chlorooctadecane	73.7 9	52.1-17	6						

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Celeg D. Keene-



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Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-1 1.5' REFUSAL (H502367-03)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	104 9	6 85.6-13	7						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13800	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	976	50.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	71.3 9	47.2-15	7						
Surrogate: 1-Chlorooctadecane	88.8 9	52,1-17	6						

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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-2 0' (H502367-04)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	106 %	6 85.6-13	7						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13800	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	11,5	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	73.4 9	6 47.2-15	7						
Surrogate: 1-Chlorooctadecane	72.7 9	6 52.1-17	6						

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



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Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-2 1' (H502367-05)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 %	6 85.6-13	7						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	<10.0	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	72.1 %	6 47.2-15	7						
Surrogate: 1-Chlorooctadecane	70.9 %	6 52.1-17	6						

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Celey D. Keine-

Celey D. Keene, Lab Director/Quality Manager



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-2 1.5' REFUSAL (H502367-06)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 %	6 85.6-13	7						
Chloride, SM4500CI-B	mg/	kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
Chloride	128	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifie
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	<10.0	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	69.9 9	6 47.2-15	7						

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Surrogate: 1-Chlorooctadecane

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Celley D. Keene

79.7 %

52.1-176

Celey D. Keene, Lab Director/Quality Manager



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-3 0' (H502367-07)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	109 %	6 85.6-13	7						-
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	23600	16.0	09/14/2015	ND	432	108	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: CK					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<200	200	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	16800	200	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	77.9 9	% 47.2-15	7						

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Surrogate: 1-Chlorooctadecane

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Celeg Di Keine

437 %

52.1-176



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-3 1' (H502367-08)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	107 9	85.6-13	7						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13200	16.0	09/14/2015	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	35.6	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	72.7	% 47.2-15	7						
Surrogate: 1-Chlorooctadecane	82.7	52.1-17	6						

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Celeg D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

Received:	09/09/2015	Sampling Date:	09/08/2015
Reported:	09/14/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Jodi Henson
Project Location:	LEGACY		

Sample ID: S-3 1.5' REFUSAL (H502367-09)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/11/2015	ND	2.04	102	2.00	1.40	
Toluene*	<0.050	0.050	09/11/2015	ND	1.87	93.3	2.00	1.27	
Ethylbenzene*	<0.050	0.050	09/11/2015	ND	1.91	95.7	2.00	0.474	
Total Xylenes*	<0.150	0.150	09/11/2015	ND	6.31	105	6.00	0.796	
Total BTEX	<0.300	0.300	09/11/2015	ND					
Surrogate: 4-Bromofluorobenzene (PIL	105 9	85.6-13	7						
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13600	16.0	09/14/2015	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/10/2015	ND	189	94.3	200	2.02	
DRO >C10-C28	<10.0	10.0	09/10/2015	ND	216	108	200	1.76	
Surrogate: 1-Chlorooctane	74.7	% 47.2-15	7						
Surrogate: 1-Chlorooctadecane	83.9	52.1-17	6						

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Celeg Di Keene

Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by 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

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

company name: alon/LPE		BILL TO			ANALYSIS REQUEST	
Project Manager: 5, Hitch Cock		P.O. #:				
Address: 408 W. Texas Ave.		company: Talon/LPE	ш			
City: Artesia State: NM Zip: 88	88210	Attn:				
Phone #: 575-746-8768 Fax #: 575-746-8905		Address:				
154.0 Project 0		City:				
Project Name: ROW QUEEN UNIN # 86		State: Zip:				
		Phone #:				
Sampler Name: 5、片 i ナCh / o Ch		Fax #:				
	MATRIX	PRESERV. SAMPLING	NG	3		
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Lability and Damages. Cardinar's stability and client's exclusive remedy for any daim in shuffy these for negligence and any other cause whatevere thail be deemed in shuffying these for negligence and on other cause whatevere thail be deemed ent shall Cardinal to liable for incidential or consequential damages, including without	whether based in contract or unless made in writing and r n, business interruptions, lot	a arising whether baseds in contract or tort, shall be inhibed to the amount paid by the client for the waived unless made in writing and reserved by Caudinnal within 30 days after comprision of the applicable inflattion, business inferruptions, loss of use, or loss of profits incurred by client, its subsidiaries.	by the client for the completion of the appendix the spectrum of the spectrum	plicable		
atiliates or successors arising out of or related to the performance of services, hereunder by Cardinal, repardie Relinquished BV:	ecardless of whether such claim is ba	based upon any of the above stated reas	Sons or otherwise.			
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	d By:					
Time:						
	Sample Condition	n CHECKED BY:				
Sampler - UPS - Bus - Other: 4.0°	No No No	KA				
	1					1

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



September 24, 2015

SHELDON HITCHCOCK TALON LPE 408 W. TEXAS AVE. ARTESIA, NM 88210

RE: ROCK QUEEN UNIT #86

Enclosed are the results of analyses for samples received by the laboratory on 09/18/15 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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/ga/lab accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/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,

Celeg D. Keine

Celey D. Keene Lab Director/Quality Manager



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

Received:	09/18/2015	Sampling Date:	09/18/2015
Reported:	09/24/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Judy Garcia
Project Location:	E-36-13-31		

Sample ID: S-1 2' (H502467-01)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM			2		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11600	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 3' (H502467-02)

Chloride, SM4500Cl-B mg/kg		Analyze	d By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4800	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 4' (H502467-03)

Chloride, SM4500CI-B	ide, SM4500Cl-B mg/kg		Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 6' (H502467-04)

Chloride, SM4500Cl-B	mg/kg			de, SM4500Cl-B mg/kg Analyzed By: HM			d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier			
Chloride	7200	16.0	09/22/2015	ND	416	104	400	3.77				

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Celeg Di Keine



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

Received:	09/18/2015	Sampling Date:	09/18/2015
Reported:	09/24/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Judy Garcia
Project Location:	E-36-13-31		

Sample ID: S-1 7' (H502467-05)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	800	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 8' (H502467-06)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 9' (H502467-07)

Chloride, SM4500CI-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-1 10' (H502467-08)

Chloride, SM4500Cl-B mg/kg			Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-2 2' (H502467-09)

Chloride, SM4500Cl-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/22/2015	ND	416	104	400 .	3.77	

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Celeg Di Keine

Celey D. Keene, Lab Director/Quality Manager



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

Received:	09/18/2015	Sampling Date:	09/18/2015
Reported:	09/24/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Judy Garcia
Project Location:	E-36-13-31		

Sample ID: S-2 3' (H502467-10)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-2 4' (H502467-11)

Chloride, SM4500CI-B	mg	/kg	Analyze	zed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-2 5' (H502467-12)

Chloride, SM4500CI-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-3 2' (H502467-13)

Chloride, SM4500CI-B	mg/kg			Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	09/22/2015	ND	416	104	400	3.77	

Sample ID: S-3 3' (H502467-14)

Chloride, SM4500Cl-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13200	16.0	09/23/2015	ND	416	104	400	3.92	

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Celeg Di Keene



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

Received:	09/18/2015	Sampling Date:	09/18/2015
Reported:	09/24/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Judy Garcia
Project Location:	E-36-13-31		

Sample ID: S-3 4' (H502467-15)

Chloride, SM4500Cl-B	mg	/kg	Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9400	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 5' (H502467-16)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6200	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 6' (H502467-17)

Chloride, SM4500Cl-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9500	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 7' (H502467-18)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11600	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 8' (H502467-19)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16000	16.0	09/23/2015	ND	416	104	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager



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

Received:	09/18/2015	Sampling Date:	09/18/2015
Reported:	09/24/2015	Sampling Type:	Soil
Project Name:	ROCK QUEEN UNIT #86	Sampling Condition:	Cool & Intact
Project Number:	701047.156.01	Sample Received By:	Judy Garcia
Project Location:	E-36-13-31		

Sample ID: S-3 9' (H502467-20)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	19600	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 10' (H502467-21)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result Reporting Limit		Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6300	16.0	09/23/2015	ND	416	104	400	3.92	

Sample ID: S-3 11' (H502467-22)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3320	16.0	09/23/2015	ND	416	104	400	3,92	

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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.
2	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 $% \left({{{\left({{{\left({{{\left({{{c}}} \right)}} \right)}_{i}} \right)}_{i}}}} \right)$

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∫ ⊂arginal cannot accept verbal changes. Please fax written changes to (575) 393-2526		Delivered By: (Circle One)		Relinquished By: Date: 1975 R	him	Date:	affliates or successon arising out of or related to the performance of services hereunder by Cardinal, regardless or whether such claim Relinning hor Bry	analyses. All claims including those for negligence and any other cause whatsoever shall be deen service. In no event shall Cardinal be lable for incidental or post-analysis and any other shall be deen service.	PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any o		A 9 - 10	2 2 2	0	5 0 2-14	5 - [6' .	 2 - 1 - 2 - 1 - 0		20	6.1 7.	194502467	Lab I.D. Sample I.D.		FOR LABLISE DAILY	 och aus	15 ELDI Project Own		State: NM	W. Texas Ave.		a	50
x written changes to (575) 393-2326	Coor Instact I Yes I Yes No I No I No	Sample Condition CHECKED BY:	Under Charcia	Received By:	REMARKS:	Phone Result: 0	without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, indinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.	anayase. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal within 30 days after completion of the applicable		2							G 1 // // (1.07 //	E 1 1 1 9/18/15 0.06		# CONT/ GROUNI WASTEV SOIL DIL SLUDGE DTHER : CID/BA CID/BA CID/BA	DWATER VATER SE:	MATRIX PRESERV. SAMPLING	Fax #:	86 State: Zip:		46-8905 Address:	Zip: 88210 Attn:	company: Talon/LPE	P.O. #:	BILL TO	40
						D No																								ANALYSIS REQUEST	

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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