

RECEIVED

By OCD Dr Oberding at 9:05 am, Jan 13, 2017

PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

May 3, 2016

Attn. Jamie Keves

Environmental Specialists, District 1 Oil Conservation Division, EMNRD 1625 N. French Drive Hobbs, NM 88240

> RE: Path Forward Echo Production E. Livingston Ridge Delaware UL/K/M/N sec.31 T22S R32E 1RP - 4250

Temporary backfill approved 1/13/2017-

- -A backfill of the excavations is conducted as a temporary safety measure.
- -The RP will remain open until complete delineation is achieved.
- -Reassessment of the corrective action plan with a potential for requirement of additional excavation will be conducted at the time of receipt.

Mr. Keyes:

Echo Production Incorporated (Echo) has retained Basin Environmental Service Technologies (Basin) to address potential environmental concerns at the above-referenced site.

Background and Previous Work

The site is located approximately twenty-two (22) miles east of Loving, New Mexico at Unit Letters K, M, N of Section 31 in Township 22 South of Range 32 East. This site is located in an area where groundwater is anticipated to be at greater than four-hundred (400) +/- feet below ground surface (bgs).

During a relinquishment inspection, three release sites were discovered along the pipeline right-of-way. On a subsequent inspection, a fourth (4th) release site was discovered. A steel pipeline is believed to be the cause of all four (4) release areas. An undetermined amount of crude oil and produced water was released at each area. The E. Livingston Ridge; Delaware site is comprised of four (4) separate areas along the pipeline right-of way. Area 1 impacted the approximately two-thousand four-hundred seventeen (2,417) square feet (ft²) of pasture. Area 2 impacted approximately six-thousand two-hundred seventy-six (6,276) ft² of pasture. Area 3 impacted approximately four-thousand two-hundred five (4,205) ft² of pasture. Area 4 impacted approximately two-thousand seven-hundred forty-one (2,741) ft² of pasture. New Mexico Oil Conservation Division (NMOCD) was notified of the releases on approximately April 18th, 2016, and an initial C-141 was submitted to NMOCD on April 18th 2016, for approval.

Basin personnel were on site beginning April 18th, 2016, to begin delineation activities. Initial soil sampling took place at all four (4) areas with some of the samples being submitted to a NMOCD approved and certified laboratory. Chloride, gasoline range organics (GRO), diesel

range organics (DRO), and extended diesel range organics (ORO) were analyzed for concentration.

Corrective Action Plan

All four (4) impacted areas require further sampling and delineation for total petroleum hydrocarbons (TPH) and/or chloride concentration. Soil samples will be sent to an NMOCD approved laboratory to confirm that delineation has been completed once soil sample concentrations are at or below the NMOCD limits for chloride concentration (250 mg/kg) and a concentration from a photo-ionization detector (PID) of less than 100 mg/kg.

At the completion of delineation, the impacted soils will be excavated to a maximum depth of four (4) feet bgs. If remaining floor concentrations are still elevated above the recommended remediation action levels (RRAL) for TPH (5,000 mg/kg) and chloride (1,000 mg/kg), a 20-mil thickness polyethylene liner will be installed to prevent the migration of contaminants downward into the vadose zone. The excavated area will then be backfilled with clean, non-impacted material and contoured to the surrounding area.

At the completion of remediation and at a time conducive for germination, Basin will seed the imported and contoured soil with a blend of native, non-noxious vegetation approved by Bureau of Land Management (BLM). The seed will be applied with either a drill or broadcast method to ensure complete coverage of affected area. The seeds will then be sown with a disc (in compacted soils), rake or a harrow.

The supporting documentation for this Corrective Action Plan is attached.

Basin appreciates the opportunity to work with you on this project. Please contact me if you have any questions or wish to discuss the site.

Sincerely,

M

Robbie Runnels

Project Manager

Basin Environmental Service Technologies

(575) 393-2967

Attachments:

Figure 1 – Site Locations

Figure 2 – Area 1 Sampling Data

Figure 3 – Area 2 Sampling Data

Figure 4 – Area 3 Sampling Data

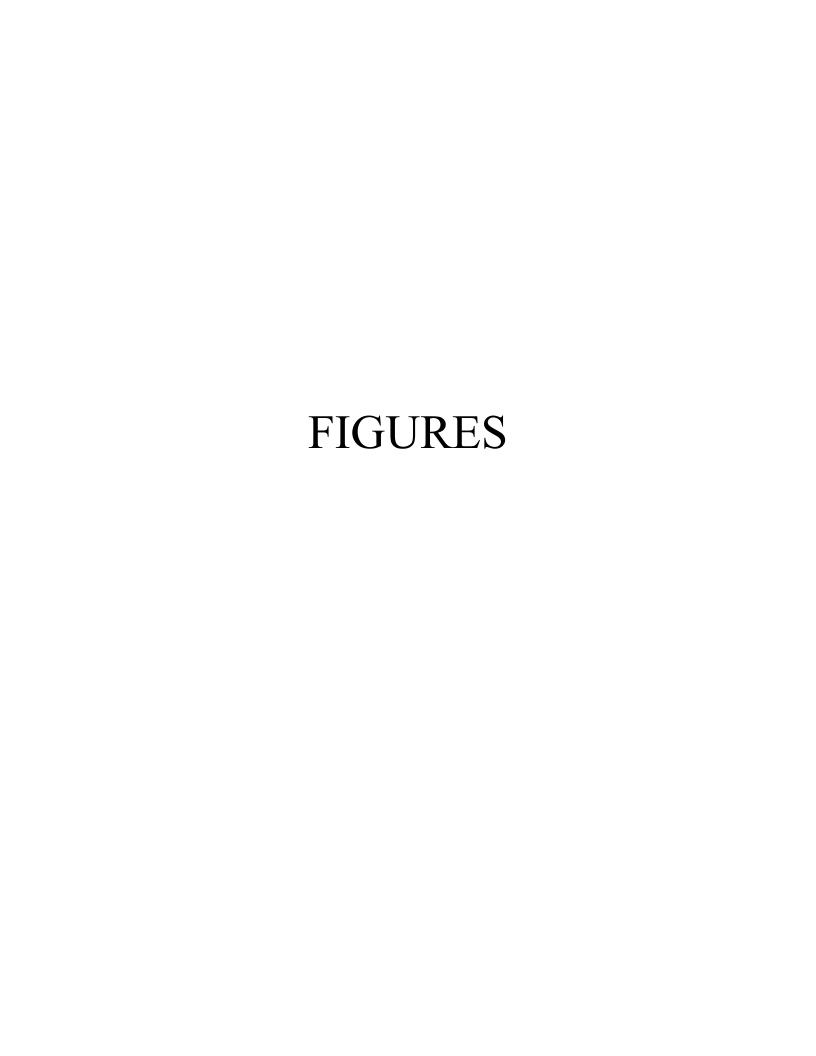
Figure 5 – Area 4 Sampling Data

Appendix A – Initial C-141

Appendix B – Laboratory Analysis

Appendix C – Photo Documentation

cc. – Randy Pair, Bureau of Land Management – rpair@blm.gov



Site Locations





ECHO PRODUCTION E LIVINGSTON RIDGE DELAWARE

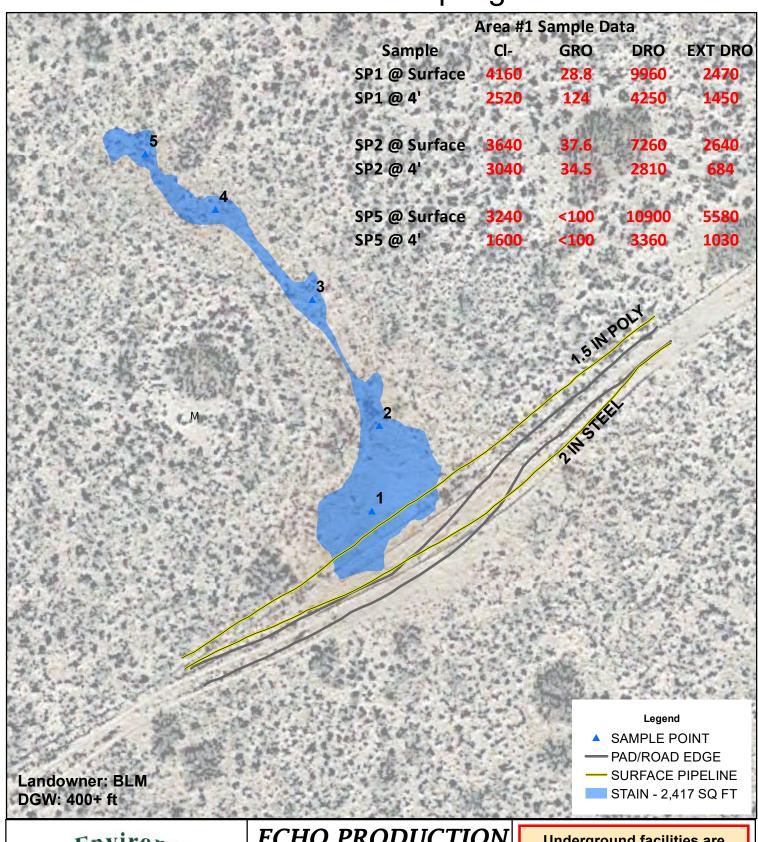
UL K, M & N SECTION 31 T-22-S R-32-E LEA COUNTY, NM Underground facilities are spatially projected and need to be field verified.

GPS: 32.344590 -103.716479

0 130 260 HHH Fee

GPS date: 3/28/16 TG Drawing date: 3/29/16 Drafted by: T. Grieco



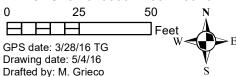


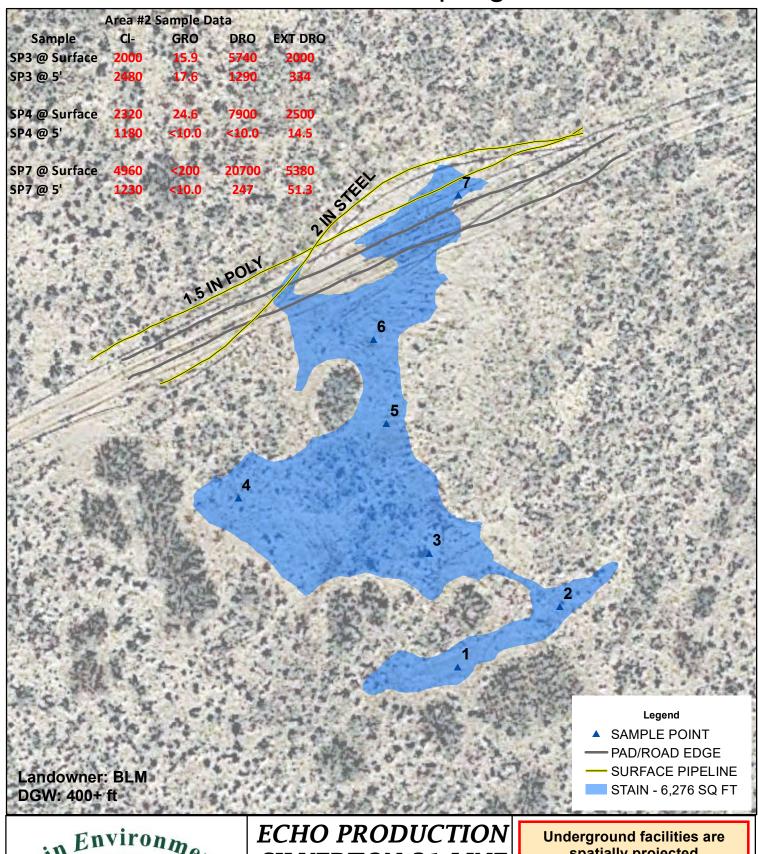


ECHO PRODUCTION SILVERTON 31 LINE AREA 1

UL M SECTION 31 T-22-S R-32-E LEA COUNTY, NM Underground facilities are spatially projected and need to be field verified.

GPS: 32.343580 -103.718976

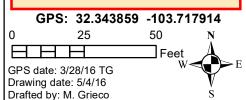


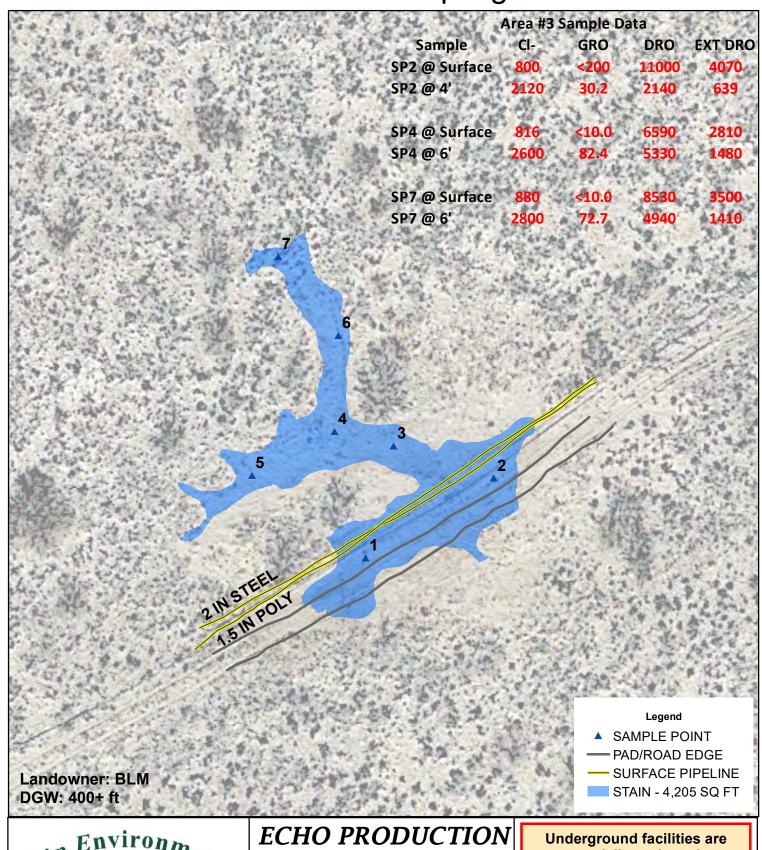




ECHO PRODUCTION SILVERTON 31 LINE AREA 2

UL N SECTION 31 T-22-S R-32-E LEA COUNTY, NM Underground facilities are spatially projected and need to be field verified.

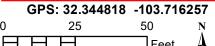






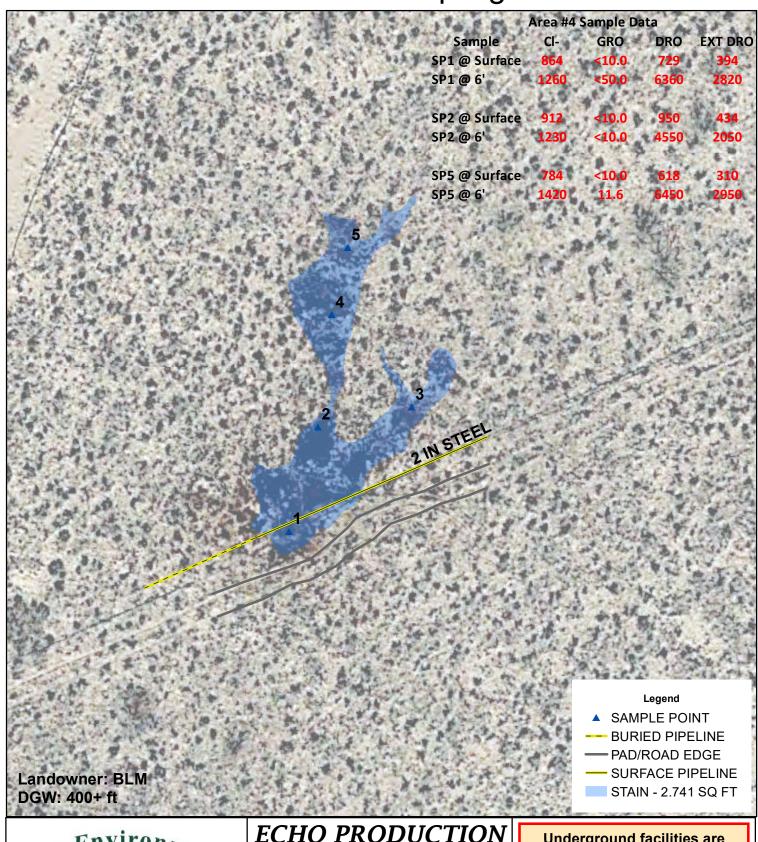
ECHO PRODUCTION SILVERTON 31 LINE AREA 3

UL K SECTION 31 T-22-S R-32-E LEA COUNTY, NM Underground facilities are spatially projected and need to be field verified.



GPS date: 3/28/16 TG Drawing date: 5/4/16 Drafted by: M. Grieco





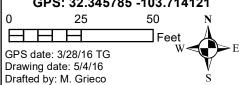


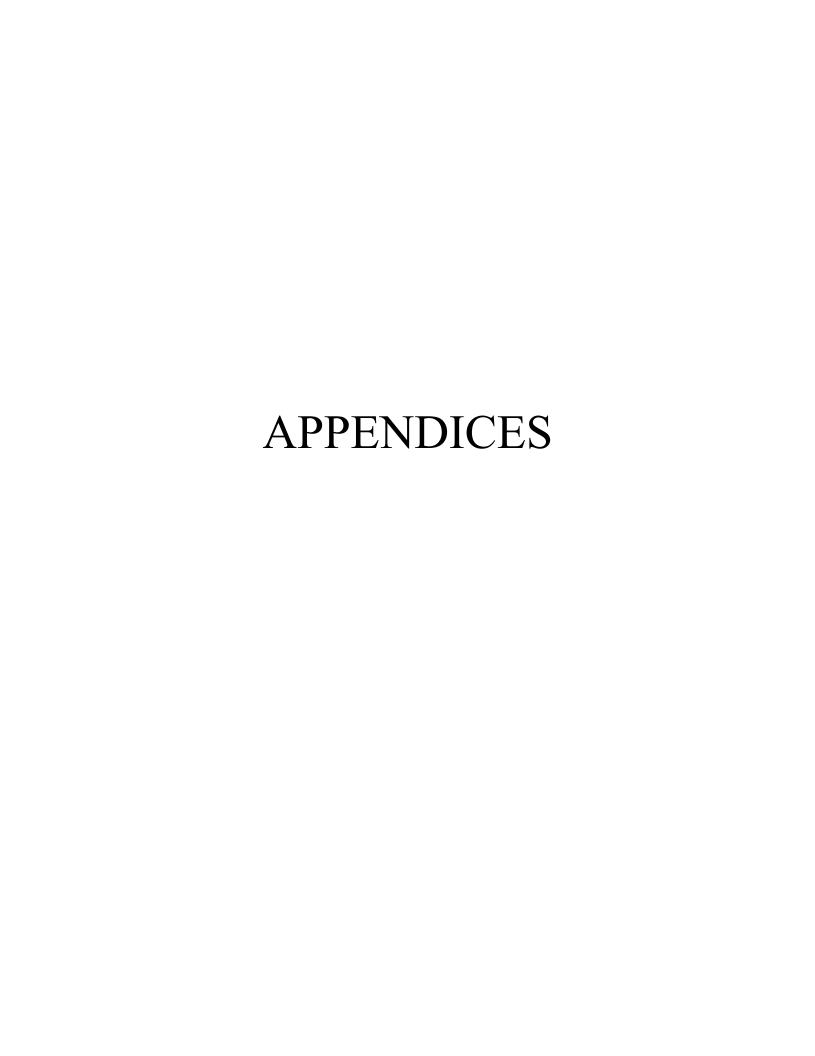
ECHO PRODUCTION SILVERTON 31 LINE AREA 4

ULK SECTION 31 T-22-S R-32-E LEA COUNTY, NM

Underground facilities are spatially projected and need to be field verified.

GPS: 32.345785 -103.714121





APPENDIX A C-141

District I
1625 N. French Dr., Hobbs, NM 8824 DOBBS OCD
District II

State of New Mexico

Form C-141 Revised August 8, 2011

District II 811 S. First St., Artesia, NM 88210

Energy Minerals and Natural Resources

District III 1000 Rio Brazos Road, Aztec, NM 87410

Oil Conservation Division

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

pJXK1610933098

District IV 1220 S. St. Francis Dr., Santa Fe, NM 875 RECEIVED 1220 South St. Francis Dr. Santa Fe. NM 87505

			Rele	ease Notifica	tion and Co	orrective A	ction					
					OPERA'	TOR	⊠ Initia	al Report Final Report				
Name of Co	ompany: E	cho Product	ion, Inc.		Contact: Bu	ick Dollar						
		reet Graham			Telephone 1	No.: (940) 549-:	3292					
Facility Na	me: E. Liv	ingston Ridg	ge; Delaw	are	Facility Type	e: Steel Pipelin	ie ·					
Surface Ow	ner: Feder	ral		Mineral Ow	ner: Federal		API No	. 30-025-36656				
				LOCAT	TION OF RE	LEASE						
Unit Letter K, M, & N	Section 31	Township 22 S	Range 32E	Feet from the 1810"	North/South Line South	Feet from the 330"	East/West Line East	County Lea				
				Latitude 32.34	2537 Longitud	le <u>-103.720823</u>						
				NATU	RE OF REL							
Type of Rele	ase Crude	Oil & Produce	ed		Volume of	Release: unknown	Volume I	Recovered: unknown				
Source of Re	Janea: 2 7/6	etaal lina			Data and I		Data and					
Source of Re	icasc. Z-1/c	sicei ime				Date and Hour of Occurrence: Date and Hour of Discovery: 2/17/2016, 15:00						
Was Immedi	ate Notice				If YES, To	Whom?						
			Yes 2	No Not Requ								
By Whom?					Date and I	Hour						
Was a Water	course Rea	ched?	Yes 2	No	If YES, V	olume Impacting	the Watercourse.					
EPS, discove	ered three le		s. During	During a	ie Keyes, NMOCD	ES, District 1, di	iscovery of the four	EPS and Fernando Banos, th site. GPS coordinates of all				
		and Cleanup			pacted approximate	ly 16,662sq. ft. o	f pasture along the	ROW. The affected area will be				
regulations a public health should their or the enviro	or the envi operations l nment. In	are required ironment. The have failed to	to report a e acceptan adequately OCD acce	nd/or file certain rele ce of a C-141 report investigate and ren	ease notifications a by the NMOCD mediate contaminat	nd perform corre- narked as "Final Fion that pose a the	ctive actions for rel Report" does not rel reat to ground wate	suant to NMOCD rules and eases which may endanger leve the operator of liability r, surface water, human health compliance with any other				
rounding blace	, 01 10001 10					OIL CON	SERVATION	DIVISION				
Signature:	10.0	DB	lla		Approved by	Environmental 6	Jamis	Rlye-				
Printed Nam	e: Buck Do	lllar			Approved by	Approved by Environmental Specia						
Title: Echo I	Production,	Inc.			Approval Da	04/18/2016 te:	Expiration	Date: 06/18/2016				
	ess: buck@	echoproduction		. (040) 540 2202		oles only. Delinea		Attached 1RP 4250				
		ets If Neces		: (940) 549-3292	per NMOCD concurrence/a	guidelines, Ensur approval		nJXK1610932972				

APPENDIX B Laboratory Analysis



April 29, 2016

ROBBIE RUNNELS

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: E. LIVINGSTON RIDGE DELAWARE

Enclosed are the results of analyses for samples received by the laboratory on 04/22/16 9:30.

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/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)

Celey D. Keine

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



Basin Environmental Service **ROBBIE RUNNELS** P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #4 SP 1 @ SURFACE (H600874-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	729	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	394	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	68.1	% 35-147	7						

108 % 28-171 Surrogate: 1-Chlorooctadecane

Sample ID: AREA #4 SP 2 @ SURFACE (H600874-02)

Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	912	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	950	10.0	04/25/2016	ND	213	106	200	5.30	QM-07, QR-03
EXT DRO >C28-C35	434	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	76.8 9	% 35-147	,						
Surrogate: 1-Chlorooctadecane	99.3 9	28-171							

Cardinal Laboratories *=Accredited Analyte

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #4 SP 5 @ SURFACE (H600874-03)

Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	784	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg/	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	618	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	310	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	76.3	% 35-147	,						
Surrogate: 1-Chlorooctadecane	109 9	28-171							

Sample ID: AREA #4 SP 1 @ 6' (H600874-04)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1260	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	6360	50.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2820	50.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	77.1	% 35-147	,						
Surrogate: 1-Chlorooctadecane	492	% 28-171							

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #4 SP 2 @ 6' (H600874-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1230	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	4550	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2050	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	81.9	% 35-147	,						
Surrogate: 1-Chlorooctadecane	425	% 28-171							

Sample ID: AREA #4 SP 5 @ 6' (H600874-06)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1420	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	11.6	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	6450	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2950	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	79.8	% 35-147	,						
Surrogate: 1-Chlorooctadecane	263	% 28-171							

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Celeg D. Keene



Basin Environmental Service **ROBBIE RUNNELS** P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact Sample Received By: Project Number: NONE GIVEN Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #3 SP 2 @ SURFACE (H600874-07)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	800	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<200	200	04/26/2016	ND	206	103	200	7.10	
DRO >C10-C28	11000	200	04/26/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	4070	200	04/26/2016	ND					
Surrogate: 1-Chlorooctane	143	% 35-147	,						

411 % Surrogate: 1-Chlorooctadecane 28-171

Sample ID: AREA #3 SP 4 @ SURFACE (H600874-08)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	6590	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2810	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	84.2	% 35-147	7						
Surrogate: 1-Chlorooctadecane	241	% 28-171							

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Basin Environmental Service **ROBBIE RUNNELS** P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact Sample Received By: Project Number: NONE GIVEN Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #3 SP 7 @ SURFACE (H600874-09)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	8530	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	3500	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	87.3	% 35-147	,						

Surrogate: 1-Chlorooctadecane 285 % 28-171

Sample ID: AREA #3 SP 2 @ 4' (H600874-10)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2120	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	30.2	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	2140	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	639	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	90.5	% 35-147	7						

Cardinal Laboratories *=Accredited Analyte

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Surrogate: 1-Chlorooctadecane

178 %

28-171



Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/18/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #3 SP 4 @ 6' (H600874-11)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	04/27/2016	ND	400	100	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	82.4	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	5330	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	1480	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	94.9	% 35-147	7						

Surrogate: 1-Chlorooctadecane 177 % 28-171

Sample ID: AREA #3 SP 7 @ 6' (H600874-12)

Chloride, SM4500CI-B	mg,	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	04/26/2016	ND	416	104	400	0.00	QM-07
TPH 8015M	mg,	'kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	72.7	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	4940	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	1410	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	96.8	% 35-147							
Surrogate: 1-Chlorooctadecane	293	% 28-171							

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name:E. LIVINGSTON RIDGE DELAWARESampling Condition:Cool & IntactProject Number:NONE GIVENSample Received By:Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #2 SP 3 @ SURFACE (H600874-13)

hloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2000	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	15.9	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	5740	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2000	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	87.5	% 35-147							
Surrogate: 1-Chlorooctadecane	203	% 28-171							

Sample ID: AREA #2 SP 4 @ SURFACE (H600874-14)

Chloride, SM4500Cl-B	mg/l	kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2320	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg/l	kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	24.6	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	7900	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2500	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	94.4 %	% 35-147							
Surrogate: 1-Chlorooctadecane	248 %	6 28-171							

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #2 SP 7 @ SURFACE (H600874-15)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4960	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg,	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<200	200	04/26/2016	ND	206	103	200	7.10	
DRO >C10-C28	20700	200	04/26/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	5380	200	04/26/2016	ND					
Surrogate: 1-Chlorooctane	160	% 35-147	7						

Surrogate: 1-Chlorooctadecane 1300 % 28-171

Sample ID: AREA #2 SP 3 @ 5' (H600874-16)

Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2480	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	17.6	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	1290	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	334	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	79.0 9	% 35-147							
Surrogate: 1-Chlorooctadecane	133 %	6 28-171							

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Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #2 SP 4 @ 5' (H600874-17)

Chloride, SM4500Cl-B	mg/l	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1180	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg/l	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	<10.0	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	14.5	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	75.4 %	6 35-147							
Surrogate: 1-Chlorooctadecane	89.7 %	6 28-171							

Sample ID: AREA #2 SP 7 @ 5' (H600874-18)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1230	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	247	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	51.3	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	73.3	% 35-147	,						
Surrogate: 1-Chlorooctadecane	89.3	% 28-171							

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #1 SP 1 @ SURFACE (H600874-19)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	28.8	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	9960	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2470	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	85.3	% 35-147							
Surrogate: 1-Chlorooctadecane	547	% 28-171							

Sample ID: AREA #1 SP 2 @ SURFACE (H600874-20)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3640	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	37.6	10.0	04/25/2016	ND	206	103	200	7.10	
DRO >C10-C28	7260	10.0	04/25/2016	ND	213	106	200	5.30	
EXT DRO >C28-C35	2640	10.0	04/25/2016	ND					
Surrogate: 1-Chlorooctane	85.9	% 35-147							
Surrogate: 1-Chlorooctadecane	887	% 28-171							

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Basin Environmental Service **ROBBIE RUNNELS** P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact Sample Received By: Project Number: NONE GIVEN Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #1 SP 5 @ SURFACE (H600874-21)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3240	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	04/26/2016	ND	206	103	200	0.134	
DRO >C10-C28	10900	100	04/26/2016	ND	215	108	200	3.54	
EXT DRO >C28-C35	5580	100	04/26/2016	ND					
Surrogate: 1-Chlorooctane	91.4	% 35-147	,						
Summagata: 1 Chlomosatadasana	011	0/ 29 171							

Surrogate: 1-Chlorooctadecane 911 % 28-171

Sample ID: AREA #1 SP 1 @ 4' (H600874-22)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2520	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	124	100	04/26/2016	ND	206	103	200	0.134	
DRO >C10-C28	4250	100	04/26/2016	ND	215	108	200	3.54	
EXT DRO >C28-C35	1450	100	04/26/2016	ND					
Surrogate: 1-Chlorooctane	105	% 35-147							
Surrogate: 1-Chlorooctadecane	330	% 28-171							

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Basin Environmental Service ROBBIE RUNNELS P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received: 04/22/2016 Sampling Date: 04/19/2016

Reported: 04/29/2016 Sampling Type: Soil

Project Name: E. LIVINGSTON RIDGE DELAWARE Sampling Condition: Cool & Intact
Project Number: NONE GIVEN Sample Received By: Jodi Henson

Project Location: LEA COUNTY, NM

Sample ID: AREA #1 SP 2 @ 4' (H600874-23)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3040	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	34.5	10.0	04/26/2016	ND	206	103	200	0.134	
DRO >C10-C28	2810	10.0	04/26/2016	ND	215	108	200	3.54	
EXT DRO >C28-C35	684	10.0	04/26/2016	ND					
Surrogate: 1-Chlorooctane	97.5	% 35-147	7						

Surrogate: 1-Chlorooctadecane 149 % 28-171

Sample ID: AREA #1 SP 5 @ 4' (H600874-24)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	04/26/2016	ND	416	104	400	0.00	
TPH 8015M	mg	/kg	Analyze	d By: MS					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<100	100	04/26/2016	ND	206	103	200	0.134	
DRO >C10-C28	3360	100	04/26/2016	ND	215	108	200	3.54	
EXT DRO >C28-C35	1030	100	04/26/2016	ND					
Surrogate: 1-Chlorooctane	95.3	% 35-147	,						
Surrogate: 1-Chlorooctadecane	246	% 28-171							

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Notes and Definitions

The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or S-06 matrix interference's. S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect. 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 Relative Percent Difference **RPD** 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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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

Company Name:	Basin Environmental Service Technologies, LLC	olog	ies,	, LLC	******		6	BILL TO					A	ANALYSIS	- 1	REQUEST	띪	TS				
Project Manager:	Rubbie Runnels				TO.	P.O. #:	#						4	\dashv	\dashv	\perp			7	\neg	\dashv	\perp
Address: P.O.	P.O. Box 301				0	om	Company:	Basin Env	nv.						_							
City: Lovington	State: NM	Zip	00	Zip : 88260	A	Attn:		Jody														_
Phone #: (575)	(575)396-2378 Fax # : (575)396-1429	96-1	429		A	ddr	Address:	P.O. Box 301	01												_	
Project #:	Project Owner:	.:	П	Echo Production	0	City:		Lovington)		-								
Project Name: E.	E. Livingston Ridge Delaware				S	State:	MN	Zip: 88	88260	le	5M)	21B										
Project Location:	Lea				ס	hor	Phone #:	(575) 396-2378	378	orio	801	(80										
Sampler Name: Abe Redacop	be Redacop				П	Fax #:	#	(575) 396-1429	29	Chl	H (EX										
FOR LAB USE ONLY		\neg	\exists	MATRIX	ł	P	PRESERV.	SAMPLING			TP	вт			×							_
Lab I.D. H <i>b</i> 00874	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER WASTEWATER SOIL OIL SLUDGE	OTHER:	ACID/BASE:	ICE / COOL OTHER :	DATE	TIME													
_ A	Area #4 SP 1 @ surface	В	1	×			×	4/18/2016	8:30	×	×		4	4	\dashv	\dashv					\dashv	\perp
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-	Area #4 SP 2 @ 6'	9	_	×			×	4/18/2016	9:10	×	×				-	\dashv						
-	Area #4 SP 5 @ 6'	9	_	×		_	×	4/18/2016	9:20	×	×			\dashv	\dashv	\dashv					\dashv	
_	Area #3 SP 2 @ surface	9	_	×		_	×	4/18/2016	9:30	×	×			-	\dashv	4					\dashv	
	Area #3 SP 4 @ surface	9	_	×		_	×	4/18/2016	9:40	×	×			-	\dashv	\dashv						
2	Area #3 SP 7 @ surface	9	1	×		_	×	4/18/2016	9:50	×	×		_	\dashv	\dashv	_					v	
10 A	Area #3 SP 2 @ 4'	9	1	×			×	4/18/2016	10:00	×	×			-	\dashv	\dashv					1	
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Revision 1.0 FORM-006 (b) (で光ピール) † Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476 Relinquished By:

Relinquished By

Time: (4:00)
Date: 2216

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Phone Result:
Fax Result:
REMARKS:

□ Yes

□ No

Add'l Phone #: Add'l Fax #:

Sampler - UPS - Bus - Other:

-1.28

Sample Condition
Cool Intact
Pes Pres
No No

CHECKED BY: (Initials)

Please email results to pm@basinenv.com &-Tasavoie@BassPet.com

Delivered By:

(Circle One)

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240

(575) 393-2326 FAX (575) 393-2476

Company Name: Basin Environmental Service Technologies, LLC	al Service Technol	ogies	, L	C				***			6	×	BILL TO	*****			A	ANALYSIS	SIS	REQ	REQUEST	7	
Project Manager: Rubbie Runnels								D	P.O.	#								\perp	\dashv		\dashv	-	
Address: P.O. Box 301								C	m	Company:	ıy:		Basin Env.						_				
City: Lovington	State: NM Z	Zip:	88260	8				A	Attn:				Jody		- 2			_	_	_	_		
Phone #: (575)396-2378	Fax #: (575)396-1429	-1429	9					A	ddr	Address:			P.O. Box 301										
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Project Name: E. Livingston Ridge Delaware	aware							S	State:		Z		Zip: 88260	le	5M)	21B							
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Sampler Name: Abe Redacop								T)	Fax #:	75			575) 396-1429	Chl	PH (EX							
FOR LAB USE ONLY		\dashv	\dashv		MA	MATRIX	^		Ъ	刕	PRESERV	?	SAMPLING		TF	вт							
Lab I.D. Sample I.D.		(G)RAB OR (C)OMP. # CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL		OTHER:	DATE TIME										
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12 Area #3 SP 7 @ 6'		9 1	_		×				_		×		4/18/2016 10:20	×	×								
13 Area #2 SP 3 @ surface		9 1	_		×				_		×		4/19/2016 8:30	×	×								
Area #2 SP 4 @ surface		9 1	_		×				_		×		4/19/2016 8:40	×	×								
15 Area #2 SP 7 @ Surface		9 1	-		×				_		×	_	4/19/2016 8:50	×	×								
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18 Area #2 SP 7 @ 5'		9 1	_		×				_		×		4/19/2016 9:20	×	×								
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20 Area #1 SP 2 @ surface		9 1	_		×				-	_	×	_	0.40	×	×								
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or fort, shall be limited to the amount paid by the client for the analyses. 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	nt's exclusive remedy for any					ŀ		ŀ			,	_	7/10/2010	,									

under by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise

FORM-006 Leviced -1.12 t Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476 Revision 1.0	Sampler - UPS - Bus - Other: -1.20 Cool Intact (Initials) Cool Intact Cool Int	Defivered By: (Circle One) () Sample Condition CHECKED BY:	Malle The file of the second	Religibility Received By:	Time;	01.4.7.10	Relinquished By: Date: // Received By:
ax written changes to 575-393-2476			Please email results to pm@basinenv.com & Tasavoic@BassPet.com		REMARKS:	Fax Result:	Phone Result: ☐ Yes ☐ No Add'I Phone #:

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

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Company Name: Basin Environmental Service Technologies, LLC	ologie	s, L	C								0		8/11/10					,	P	ANALYSIS	KEQUESI	12	1	1	1	_
Project Manager: Rubbie Runnels								P.O.	.#:	1																
Address: P.O. Box 301								Co	щþ	Company:			Basin Env													-
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FOR LAB USE ONLY		_		_	MATRIX	RIX			PR	PRESERV	RV		SAMPLING			Т	B							_		-
Lab I.D. Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:		DATE	TIME												
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Revision 1.0 FORM-006 (DVICE) + Cardinal cannot accept verbal challges. Please fax written changes to 575-393-2476 Cool Intact
Wes Pres #54

Relinquished By

Date: 4-22-16 Time: U.OO Date: 7/-16

Regeived By:

Sample Condition

CHECKED BY:

Please email:results to pm@basinenv.com & Tasaveie@BassPet.com

Sampler - UPS - Bus - Other: Delivered By: (Circle One) Relinquished By:

service. In no event shall Cardinal be liable for incidental or conseq

uental damages, including without limitation, business interru

Recejved By:

uch claim is based upon any of the above stated reasons or otherwise.

Phone Result: ptions, loss of use, or loss of profits incurred by client, its subsidiaries,

Fax Result: REMARKS:

□ Yes

O No

Add'I Fax #: Add'l Phone #:

APPENDIX C Photo Documentation

E. Livingston Ridge; Delaware Unit Letter K, M, N Section 31, T22S, R32E



Area 1, Facing East 5/18/16



Area 3, Facing South 5/18/16



5/15/16 Area 2, Facing North



Area 4, Facing East 5/15/16