

March 26, 2015

HARLEY EVERHART

FRONTIER FIELD SERVICES

4200 SKELLY DRIVE, SUITE 700

TULSA, OK 74135

RE: ANDERSON RANCH REMEDIATION

Enclosed are the results of analyses for samples received by the laboratory on 03/23/15 10:00.

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 accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

FRONTIER FIELD SERVICES
HARLEY EVERHART
4200 SKELLY DRIVE, SUITE 700
TULSA OK, 74135
Fax To: (575) 676-2401

Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#1 (H500769-01)

BTX 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	03/24/2015	ND	1.93	96.3	2.00	11.0	
Toluene*	<0.050	0.050	03/24/2015	ND	1.78	88.9	2.00	10.5	
Ethylbenzene*	<0.050	0.050	03/24/2015	ND	1.70	84.9	2.00	13.0	
Total Xylenes*	<0.150	0.150	03/24/2015	ND	5.10	84.9	6.00	13.9	
Total BTX	<0.300	0.300	03/24/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 61-154

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	03/24/2015	ND	416	104	400	0.00	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26	
DRO >C10-C28	<10.0	10.0	03/25/2015	ND	195	97.7	200	5.35	

Surrogate: 1-Chlorooctane 80.5 % 47.2-157

Surrogate: 1-Chlorooctadecane 90.4 % 52.1-176

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Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#2 (H500769-02)

BTX 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	03/25/2015	ND	2.16	108	2.00	1.54	
Toluene*	<0.050	0.050	03/25/2015	ND	1.96	97.8	2.00	1.01	
Ethylbenzene*	<0.050	0.050	03/25/2015	ND	1.94	97.2	2.00	1.81	
Total Xylenes*	<0.150	0.150	03/25/2015	ND	5.86	97.7	6.00	1.49	
Total BTX	<0.300	0.300	03/25/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/24/2015	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26	
DRO >C10-C28	312	10.0	03/25/2015	ND	195	97.7	200	5.35	

Surrogate: 1-Chlorooctane 109 % 47.2-157

Surrogate: 1-Chlorooctadecane 117 % 52.1-176

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Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#3 (H500769-03)

BTX 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	03/25/2015	ND	2.16	108	2.00	1.54	
Toluene*	<0.050	0.050	03/25/2015	ND	1.96	97.8	2.00	1.01	
Ethylbenzene*	<0.050	0.050	03/25/2015	ND	1.94	97.2	2.00	1.81	
Total Xylenes*	<0.150	0.150	03/25/2015	ND	5.86	97.7	6.00	1.49	
Total BTX	<0.300	0.300	03/25/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/24/2015	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26	
DRO >C10-C28	135	10.0	03/25/2015	ND	195	97.7	200	5.35	

Surrogate: 1-Chlorooctane 92.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 109 % 52.1-176

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Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#4 (H500769-04)

BTX 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	03/25/2015	ND	2.16	108	2.00	1.54	
Toluene*	<0.050	0.050	03/25/2015	ND	1.96	97.8	2.00	1.01	
Ethylbenzene*	<0.050	0.050	03/25/2015	ND	1.94	97.2	2.00	1.81	
Total Xylenes*	<0.150	0.150	03/25/2015	ND	5.86	97.7	6.00	1.49	
Total BTX	<0.300	0.300	03/25/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/24/2015	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26	
DRO >C10-C28	19.1	10.0	03/25/2015	ND	195	97.7	200	5.35	

Surrogate: 1-Chlorooctane 97.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 102 % 52.1-176

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Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#5 (H500769-05)

BTX 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	03/25/2015	ND	2.16	108	2.00	1.54		
Toluene*	<0.050	0.050	03/25/2015	ND	1.96	97.8	2.00	1.01		
Ethylbenzene*	<0.050	0.050	03/25/2015	ND	1.94	97.2	2.00	1.81		
Total Xylenes*	<0.150	0.150	03/25/2015	ND	5.86	97.7	6.00	1.49		
Total BTX	<0.300	0.300	03/25/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/24/2015	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26		
DRO >C10-C28	<10.0	10.0	03/25/2015	ND	195	97.7	200	5.35		

Surrogate: 1-Chlorooctane 91.6 % 47.2-157

Surrogate: 1-Chlorooctadecane 93.6 % 52.1-176

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Received:	03/23/2015	Sampling Date:	03/23/2015
Reported:	03/26/2015	Sampling Type:	Soil
Project Name:	ANDERSON RANCH REMEDIATION	Sampling Condition:	Cool & Intact
Project Number:	AR #8	Sample Received By:	Celey D. Keene
Project Location:	ANDERSON RANCH		

Sample ID: AR # 8 -#6 (H500769-06)

BTX 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	03/25/2015	ND	2.16	108	2.00	1.54	
Toluene*	<0.050	0.050	03/25/2015	ND	1.96	97.8	2.00	1.01	
Ethylbenzene*	<0.050	0.050	03/25/2015	ND	1.94	97.2	2.00	1.81	
Total Xylenes*	<0.150	0.150	03/25/2015	ND	5.86	97.7	6.00	1.49	
Total BTX	<0.300	0.300	03/25/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 61-154

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	03/24/2015	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	03/25/2015	ND	189	94.4	200	3.26	
DRO >C10-C28	1160	10.0	03/25/2015	ND	195	97.7	200	5.35	

Surrogate: 1-Chlorooctane 111 % 47.2-157

Surrogate: 1-Chlorooctadecane 111 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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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

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