

# Appendix V

## LABORATORY ANALYSES

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Diversified Field Service, Inc.  
206 W. Snyder  
Hobbs, NM 88240  
(575) 964-8394

May 12, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL B #52

Enclosed are the results of analyses for samples received by the laboratory on 05/02/14 15:40.

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](http://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:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/01/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 1 @ 4' (H401355-01)**

BTX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2014	ND	2.37	119	2.00	0.0531	
Toluene*	<0.050	0.050	05/09/2014	ND	2.38	119	2.00	0.125	
Ethylbenzene*	<0.050	0.050	05/09/2014	ND	2.24	112	2.00	0.819	
Total Xylenes*	<0.150	0.150	05/09/2014	ND	6.91	115	6.00	0.228	
Total BTX	<0.300	0.300	05/09/2014	ND					

Surrogate: Dibromofluoromethane 99.5 % 61.3-142

Surrogate: Toluene-d8 106 % 71.3-129

Surrogate: 4-Bromofluorobenzene 94.1 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	197	98.4	200	1.30	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80	

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 116 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	05/02/2014	Sampling Date:	05/01/2014
Reported:	05/12/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #52	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY		

### Sample ID: SP. 2 @ 4' (H401355-02)

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/09/2014	ND	2.37	119	2.00	0.0531		
Toluene*	<0.050	0.050	05/09/2014	ND	2.38	119	2.00	0.125		
Ethylbenzene*	<0.050	0.050	05/09/2014	ND	2.24	112	2.00	0.819		
Total Xylenes*	<0.150	0.150	05/09/2014	ND	6.91	115	6.00	0.228		
Total BTEX	<0.300	0.300	05/09/2014	ND						

Surrogate: Dibromofluoromethane 73.9 % 61.3-142

Surrogate: Toluene-d8 109 % 71.3-129

Surrogate: 4-Bromofluorobenzene 98.5 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	05/08/2014	ND	400	100	400	3.92		

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	05/09/2014	ND	197	98.4	200	1.30		
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80		

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 3 @ 4' (H401355-03)**

BTX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/09/2014	ND	2.37	119	2.00	0.0531	
Toluene*	<0.050	0.050	05/09/2014	ND	2.38	119	2.00	0.125	
Ethylbenzene*	<0.050	0.050	05/09/2014	ND	2.24	112	2.00	0.819	
Total Xylenes*	<0.150	0.150	05/09/2014	ND	6.91	115	6.00	0.228	
Total BTX	<0.300	0.300	05/09/2014	ND					

Surrogate: Dibromofluoromethane 95.9 % 61.3-142

Surrogate: Toluene-d8 106 % 71.3-129

Surrogate: 4-Bromofluorobenzene 94.1 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	197	98.4	200	1.30	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80	

Surrogate: 1-Chlorooctane 95.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.5 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 4 @ 2' (H401355-04)**

BTX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50	
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752	
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311	
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10	
Total BTX	<0.300	0.300	05/10/2014	ND					

Surrogate: Dibromofluoromethane 95.5 % 61.3-142

Surrogate: Toluene-d8 104 % 71.3-129

Surrogate: 4-Bromofluorobenzene 96.4 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	197	98.4	200	1.30	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80	

Surrogate: 1-Chlorooctane 122 % 65.2-140

Surrogate: 1-Chlorooctadecane 121 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	05/02/2014	Sampling Date:	05/02/2014
Reported:	05/12/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #52	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY		

**Sample ID: SP. 5 @ 2' (H401355-05)**

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50		
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752		
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311		
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10		
Total BTEX	<0.300	0.300	05/10/2014	ND						

Surrogate: Dibromofluoromethane 99.1 % 61.3-142

Surrogate: Toluene-d8 106 % 71.3-129

Surrogate: 4-Bromofluorobenzene 101 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	05/08/2014	ND	400	100	400	3.92		

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	05/09/2014	ND	197	98.4	200	1.30		
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80		

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 111 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

 Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 8 @ 2' (H401355-06)**

BTX 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50	
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752	
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311	
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10	
Total BTX	<0.300	0.300	05/10/2014	ND					

Surrogate: Dibromofluoromethane 94.4 % 61.3-142

Surrogate: Toluene-d8 106 % 71.3-129

Surrogate: 4-Bromofluorobenzene 96.4 % 65.7-141

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	197	98.4	200	1.30	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80	

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 116 % 63.6-154

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 9 @ 2' (H401355-07)**

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50	
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752	
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311	
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10	
Total BTEx	<0.300	0.300	05/10/2014	ND					

Surrogate: Dibromofluoromethane 94.9 % 61.3-142

Surrogate: Toluene-d8 105 % 71.3-129

Surrogate: 4-Bromofluorobenzene 96.5 % 65.7-141

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	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	197	98.4	200	1.30	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	215	108	200	2.80	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 111 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 10 @ 2' (H401355-08)**

BTEX 8260B		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50	
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752	
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311	
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10	
Total BTEX	<0.300	0.300	05/10/2014	ND					

Surrogate: Dibromofluoromethane 98.0 % 61.3-142

Surrogate: Toluene-d8 102 % 71.3-129

Surrogate: 4-Bromofluorobenzene 94.4 % 65.7-141

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	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	200	100	200	4.31	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	221	111	200	4.59	

Surrogate: 1-Chlorooctane 123 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 05/02/2014  
 Reported: 05/12/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 05/02/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 11 @ 2' (H401355-09)**

BTX 8260B		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/10/2014	ND	2.28	114	2.00	2.50	
Toluene*	<0.050	0.050	05/10/2014	ND	2.27	114	2.00	0.752	
Ethylbenzene*	<0.050	0.050	05/10/2014	ND	2.18	109	2.00	0.311	
Total Xylenes*	<0.150	0.150	05/10/2014	ND	6.74	112	6.00	2.10	
Total BTX	<0.300	0.300	05/10/2014	ND					

Surrogate: Dibromofluoromethane 97.5 % 61.3-142

Surrogate: Toluene-d8 106 % 71.3-129

Surrogate: 4-Bromofluorobenzene 99.0 % 65.7-141

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	05/08/2014	ND	400	100	400	3.92	

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	05/09/2014	ND	200	100	200	4.31	
DRO >C10-C28	<10.0	10.0	05/09/2014	ND	221	111	200	4.59	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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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

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326 #54





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

June 17, 2014

BRIAN WALL  
LINN OPERATING-HOBBS  
2130 W. BENDER  
HOBBS, NM 88240

RE: J. L. KEEL B #52

Enclosed are the results of analyses for samples received by the laboratory on 06/10/14 15:45.

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/qa/lab\\_accred\\_certif.html](http://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:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 06/10/2014  
 Reported: 06/17/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 06/10/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 6 @ 14' (H401766-01)**

BTEX 8021B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2014	ND	2.10	105	2.00	2.72	
Toluene*	<0.050	0.050	06/13/2014	ND	2.25	113	2.00	3.44	
Ethylbenzene*	<0.050	0.050	06/13/2014	ND	2.03	102	2.00	3.01	
Total Xylenes*	<0.150	0.150	06/13/2014	ND	6.28	105	6.00	3.21	
Total BTEX	<0.300	0.300	06/13/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/16/2014	ND	400	100	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	06/16/2014	ND	178	88.9	200	3.26	
DRO >C10-C28	<10.0	10.0	06/16/2014	ND	186	93.2	200	10.1	

Surrogate: 1-Chlorooctane 71.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 82.8 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 06/10/2014  
 Reported: 06/17/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 06/10/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP. 7 @ 11' (H401766-02)**

BTX 8021B			mg/kg		Analyzed By: CK				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/13/2014	ND	2.10	105	2.00	2.72	
Toluene*	<0.050	0.050	06/13/2014	ND	2.25	113	2.00	3.44	
Ethylbenzene*	<0.050	0.050	06/13/2014	ND	2.03	102	2.00	3.01	
Total Xylenes*	<0.150	0.150	06/13/2014	ND	6.28	105	6.00	3.21	
Total BTX	<0.300	0.300	06/13/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 106 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	06/16/2014	ND	400	100	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	06/17/2014	ND	178	88.9	200	3.26	
DRO >C10-C28	<10.0	10.0	06/17/2014	ND	186	93.2	200	10.1	

Surrogate: 1-Chlorooctane 82.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 96.3 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

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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



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

Page 5 of 5

July 30, 2014

BRIAN WALL

LINN OPERATING-HOBBS

2130 W. BENDER

HOBBS, NM 88240

RE: J. L. KEEL B #52

Enclosed are the results of analyses for samples received by the laboratory on 07/23/14 14:40.

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](http://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,



Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



**Analytical Results For:**

 LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

 Received: 07/23/2014  
 Reported: 07/30/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

 Sampling Date: 07/21/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SW 1 NORTH (H402252-01)**

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	07/27/2014	ND	1.67	83.5	2.00	2.10	
Toluene*	<0.050	0.050	07/27/2014	ND	1.63	81.4	2.00	2.39	
Ethylbenzene*	<0.050	0.050	07/27/2014	ND	1.64	81.9	2.00	2.42	
Total Xylenes*	<0.150	0.150	07/27/2014	ND	5.31	88.4	6.00	2.84	
Total BTEX	<0.300	0.300	07/27/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 105 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/29/2014	ND	384	96.0	400	4.08	

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	07/25/2014	ND	176	88.2	200	2.52	
DRO >C10-C28	<10.0	10.0	07/25/2014	ND	194	97.0	200	3.54	

Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 63.6-154

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received:	07/23/2014	Sampling Date:	07/21/2014
Reported:	07/30/2014	Sampling Type:	Soil
Project Name:	J. L. KEEL B #52	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY		

**Sample ID: SW 2 EAST (H402252-02)**

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	07/27/2014	ND	1.67	83.5	2.00	2.10		
Toluene*	<0.050	0.050	07/27/2014	ND	1.63	81.4	2.00	2.39		
Ethylbenzene*	<0.050	0.050	07/27/2014	ND	1.64	81.9	2.00	2.42		
Total Xylenes*	<0.150	0.150	07/27/2014	ND	5.31	88.4	6.00	2.84		
Total BTEX	<0.300	0.300	07/27/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 105 % 89.4-126

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	07/29/2014	ND	384	96.0	400	4.08	

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	07/25/2014	ND	176	88.2	200	2.52	
DRO >C10-C28	<10.0	10.0	07/25/2014	ND	194	97.0	200	3.54	

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 130 % 63.6-154

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

LINN OPERATING-HOBBS  
 BRIAN WALL  
 2130 W. BENDER  
 HOBBS NM, 88240  
 Fax To: (575) 738-1740

Received: 07/23/2014  
 Reported: 07/30/2014  
 Project Name: J. L. KEEL B #52  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY

Sampling Date: 07/21/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SW 3 WEST (H402252-03)**

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	07/27/2014	ND	1.67	83.5	2.00	2.10		
Toluene*	<0.050	0.050	07/27/2014	ND	1.63	81.4	2.00	2.39		
Ethylbenzene*	<0.050	0.050	07/27/2014	ND	1.64	81.9	2.00	2.42		
Total Xylenes*	<0.150	0.150	07/27/2014	ND	5.31	88.4	6.00	2.84		
Total BTX	<0.300	0.300	07/27/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 104 % 89.4-126

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	07/29/2014	ND	384	96.0	400	4.08		

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	07/25/2014	ND	176	88.2	200	2.52	
DRO >C10-C28	11.2	10.0	07/25/2014	ND	194	97.0	200	3.54	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 123 % 63.6-154

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Mike Snyder For 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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\*=Accredited Analyte

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Mike Snyder For 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

<b>Company Name:</b> <u>Lin Energy</u>		<b>P.O. #:</b>		<b>BILL TO</b>																																											
<b>Project Manager:</b> <u>Brian Wall</u>		<b>Company:</b> <u>Lin Energy</u>		<b>ANALYSIS REQUEST</b>																																											
<b>Address:</b>		<b>Attn:</b> <u>Brian Wall</u>																																													
<b>City:</b>		<b>Address:</b>																																													
<b>State:</b>		<b>City:</b>																																													
<b>Zip:</b>		<b>State:</b>																																													
<b>Phone #:</b>		<b>Phone #:</b>																																													
<b>Fax #:</b>		<b>Fax #:</b>																																													
<b>Project #:</b>		<b>Project Owner:</b>																																													
<b>Project Name:</b> <u>Sidewalk</u>		<b>State:</b>																																													
<b>Project Location:</b> <u>SW 152</u>		<b>Zip:</b>																																													
<b>Sampler Name:</b> <u>Michael Alvar</u>		<b>Phone #:</b>																																													
<b>FOR LAB USE ONLY</b>		<b>Fax #:</b>																																													
<b>Lab I.D.</b>		<b>Sample I.D.</b>		<b>MATRIX</b>		<b>PRESERV</b>		<b>SAMPLING</b>																																							
<u>H402252</u>		<u>SW1 North</u>		<input type="checkbox"/> (G)RAB OR (C)OMP		<input type="checkbox"/> # CONTAINERS		<input type="checkbox"/> GROUNDWATER		<input type="checkbox"/> WASTEWATER		<input type="checkbox"/> SOIL		<input type="checkbox"/> OIL		<input type="checkbox"/> SLUDGE		<input type="checkbox"/> OTHER		<input type="checkbox"/> ACID/BASE		<input type="checkbox"/> ICE / COOL		<input type="checkbox"/> OTHER		<input type="checkbox"/> DATE		<input type="checkbox"/> TIME		<input type="checkbox"/> C/L		<input type="checkbox"/> TPA		<input type="checkbox"/> GTR													
<u>3</u>		<u>SW2 East</u>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>													
<u>3</u>		<u>SW3 West</u>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>													
<b>Relinquished By:</b>		<b>Date:</b>		<b>Received By:</b>		<b>Date:</b>		<b>Time:</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>Phone Result:</b>		<b>Yes</b>		<b>No</b>		<b>Add'l Phone #:</b>																											
<u>[Signature]</u>		<u>1/23/14</u>		<u>[Signature]</u>		<u>8:40</u>		<u>5:70</u>		<u>Yes</u>		<u>[Signature]</u>		<u>Yes</u>		<u>No</u>		<u>No</u>		<u>Add'l Phone #:</u>																											
<b>Relinquished By:</b>		<b>Date:</b>		<b>Received By:</b>		<b>Date:</b>		<b>Time:</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>Phone Result:</b>		<b>Yes</b>		<b>No</b>		<b>Add'l Phone #:</b>																											
<u>[Signature]</u>		<u>1/23/14</u>		<u>[Signature]</u>		<u>8:40</u>		<u>5:70</u>		<u>Yes</u>		<u>[Signature]</u>		<u>Yes</u>		<u>No</u>		<u>No</u>		<u>Add'l Phone #:</u>																											
<b>Delivered By: (Circle One)</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>Phone Result:</b>		<b>Yes</b>		<b>No</b>		<b>Add'l Phone #:</b>																																			
<u>UPS</u>		<u>Yes</u>		<u>[Signature]</u>		<u>Yes</u>		<u>No</u>		<u>No</u>		<u>Add'l Phone #:</u>																																			
<b>Sampler - UPS - Bus - Other:</b>		<b>Sample Condition</b>		<b>CHECKED BY:</b>		<b>Phone Result:</b>		<b>Yes</b>		<b>No</b>		<b>Add'l Phone #:</b>																																			
<u>UPS</u>		<u>Yes</u>		<u>[Signature]</u>		<u>Yes</u>		<u>No</u>		<u>No</u>		<u>Add'l Phone #:</u>																																			

**Company Name:** Linn Energy  
**Location Name:** JL Keel B #52

Linn Energy  
JL Keel B #52

SP Date: 2/14/2014 5/1/2014 6/10/2014  
Release Date: 9/16/2012

7/21/2014

[illegible]

	Lab Confirmation Sample
	Field Sampling
	Needs Delineation and confirmation samples



SP6	CHL	TPH	SP7	CHL	TPH	SP8	CHL	TPH	SP9	CHL	TPH	SP10	CHL	TPH
Surface	323	0.4	Surface	624	0.5	Surface	274	0.4	Surface	249	0.6	Surface	249	0.9
1'	699	0	1'	1774	0.3	1'	274	0.1	1'	274	0	1'	249	0
2'	1449	0	2'	2999	0.3	2'	324	0	2'	249	0	2'	249	0
3'	2974	0.3	3'	1279	0.2	2'	80	<10	2'	<16	<10	2'	<16	<10
4'	3173	0.2	4'	3224	0.3									
Auger Refusal			5'	3448	0.2									
6'	4123	0.1	Auger Refusal											
7'	1374	0	6'	2474	0.1									
8'	4423	0.1	7'	2474	0.3									
9'	2274	0.3	8'	2374	0.2									
10'	2474	0	9'	1449	0.1									
11'	1124	0.1	10'	949	0.1									
12'	1124	0.1	11'	774	0.1									
13'	274	0.1	11'	576	<10									
14'	349	0.1												
14'	112	<10												

Lab Confirmation Sample
Field Sampling
Needs Delineation and confirmation samples

	Lab Confirmation Sample
	Field Sampling
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