



May 08, 2019

GREG GREGSON

MARK L. SHIDLER

1313 CAMPBELL ROAD BLDG. D

HOUSTON, TX 77055

RE: STATE 23

Enclosed are the results of analyses for samples received by the laboratory on 05/02/19 14:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" at the beginning.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

Received:	05/02/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	STATE 23	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA		

**Sample ID: 1 B - BOTTOM 7" (H901590-01)**

BTEX 8021B		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2019	ND	2.00	99.8	2.00	2.33		
Toluene*	<0.050	0.050	05/04/2019	ND	1.99	99.3	2.00	3.04		
Ethylbenzene*	<0.050	0.050	05/04/2019	ND	2.00	99.9	2.00	2.87		
Total Xylenes*	<0.150	0.150	05/04/2019	ND	5.56	92.7	6.00	3.19		
Total BTEX	<0.300	0.300	05/04/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>4360</b>	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
<b>DRO &gt;C10-C28*</b>	<b>91.5</b>	10.0	05/03/2019	ND	224	112	200	2.44		
<b>EXT DRO &gt;C28-C36</b>	<b>12.3</b>	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 94.2 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

Received:	05/02/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	STATE 23	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA		

**Sample ID: 2 B - BOTTOM 7" (H901590-02)**

BTEX 8021B		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2019	ND	2.00	99.8	2.00	2.33		
Toluene*	<0.050	0.050	05/04/2019	ND	1.99	99.3	2.00	3.04		
Ethylbenzene*	<0.050	0.050	05/04/2019	ND	2.00	99.9	2.00	2.87		
Total Xylenes*	<0.150	0.150	05/04/2019	ND	5.56	92.7	6.00	3.19		
Total BTEX	<0.300	0.300	05/04/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
DRO >C10-C28*	<10.0	10.0	05/03/2019	ND	224	112	200	2.44		
EXT DRO >C28-C36	<10.0	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 91.2 % 41-142

Surrogate: 1-Chlorooctadecane 99.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

Received:	05/02/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	STATE 23	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA		

**Sample ID: 3 B - BOTTOM 7" (H901590-03)**

BTEX 8021B		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2019	ND	2.00	99.8	2.00	2.33		
Toluene*	<0.050	0.050	05/04/2019	ND	1.99	99.3	2.00	3.04		
Ethylbenzene*	<0.050	0.050	05/04/2019	ND	2.00	99.9	2.00	2.87		
Total Xylenes*	<0.150	0.150	05/04/2019	ND	5.56	92.7	6.00	3.19		
Total BTEX	<0.300	0.300	05/04/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1220</b>	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
<b>DRO &gt;C10-C28*</b>	<b>50.8</b>	10.0	05/03/2019	ND	224	112	200	2.44		
EXT DRO >C28-C36	<10.0	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 107 % 41-142

Surrogate: 1-Chlorooctadecane 122 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

Received:	05/02/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	STATE 23	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA		

**Sample ID: 4 B - BOTTOM 7" (H901590-04)**

BTEX 8021B		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2019	ND	2.00	99.8	2.00	2.33		
Toluene*	<0.050	0.050	05/04/2019	ND	1.99	99.3	2.00	3.04		
Ethylbenzene*	<0.050	0.050	05/04/2019	ND	2.00	99.9	2.00	2.87		
Total Xylenes*	<0.150	0.150	05/04/2019	ND	5.56	92.7	6.00	3.19		
Total BTEX	<0.300	0.300	05/04/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2240</b>	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
<b>DRO &gt;C10-C28*</b>	<b>48.5</b>	10.0	05/03/2019	ND	224	112	200	2.44		
EXT DRO >C28-C36	<10.0	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 99.2 % 41-142

Surrogate: 1-Chlorooctadecane 112 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

Received:	05/02/2019	Sampling Date:	05/02/2019
Reported:	05/08/2019	Sampling Type:	Soil
Project Name:	STATE 23	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA		

**Sample ID: 5 B - BOTTOM 7" (H901590-05)**

BTEX 8021B		mg/kg		Analyzed By: ms				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/06/2019	ND	2.04	102	2.00	1.10		
Toluene*	<0.050	0.050	05/06/2019	ND	2.12	106	2.00	1.22		
Ethylbenzene*	<0.050	0.050	05/06/2019	ND	2.00	99.8	2.00	1.44		
Total Xylenes*	<0.150	0.150	05/06/2019	ND	6.18	103	6.00	1.52		
Total BTEX	<0.300	0.300	05/06/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2640</b>	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
<b>DRO &gt;C10-C28*</b>	<b>68.3</b>	10.0	05/03/2019	ND	224	112	200	2.44		
EXT DRO >C28-C36	<10.0	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 121 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 MARK L. SHIDLER  
 GREG GREGSON  
 1313 CAMPBELL ROAD BLDG. D  
 HOUSTON TX, 77055  
 Fax To:

 Received: 05/02/2019  
 Reported: 05/08/2019  
 Project Name: STATE 23  
 Project Number: NONE GIVEN  
 Project Location: LEA

 Sampling Date: 05/02/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: 6 B - BOTTOM 7" (H901590-06)**

BTEX 8021B		mg/kg		Analyzed By: ms				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/06/2019	ND	2.04	102	2.00	1.10		
Toluene*	<0.050	0.050	05/06/2019	ND	2.12	106	2.00	1.22		
Ethylbenzene*	<0.050	0.050	05/06/2019	ND	2.00	99.8	2.00	1.44		
Total Xylenes*	<0.150	0.150	05/06/2019	ND	6.18	103	6.00	1.52		
Total BTEX	<0.300	0.300	05/06/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	05/06/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	05/03/2019	ND	197	98.5	200	1.04		
DRO >C10-C28*	563	10.0	05/03/2019	ND	224	112	200	2.44		
EXT DRO >C28-C36	156	10.0	05/03/2019	ND						

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 138 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- A-01 Sample container contained headspace which could cause the results to be biased low.
- 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 SM450Cl-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

