

December 28, 2017

Olivia Yu  
Oil Conservation Division, District 1  
1625 N. French Dr.  
Hobbs, NM 88240

**APPROVED**

***By Olivia Yu at 4:01 pm, Jan 02, 2018***

NMOCD approves of the delineation completed for 1RP-4853. Proposed remediation is approved with stipulations indicated in email correspondence.

**Re: Work Plan  
Raspberry State Com #001H  
API #: 30-025-43179  
RP#: 1RP-4853  
Unit Letter P Section 27, Township 21S, Range 33E  
Lea County, NM**

Ms. Yu/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit for your consideration the following remediation work plan for the Raspberry State Com #001H. This plan is in response to an oil water release that occurred on October 20, 2017. Subsequent to the release a C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) on October 23, 2017.

## **BACKGROUND**

The Raspberry State Com #001H release is located in Unit Letter P, Section 27, Township 21 South, and Range 33 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.44345842 North and -103.5524045 West.

On October 20, 2017, the throttle head did not engage to open the Kimray dump and sent fluid through the flare resulting in the release of approximately twelve (12) barrels (bbls) of oil. A vacuum truck was dispatched to the site to recover freestanding fluids. Approximately eight (8) bbls of oil were recovered.

On December 13, 2017, a site assessment and soil sampling were conducted in order to vertically and horizontally define the impacted area. A site diagram is included in Appendix I. The analytical results from the soil sampling activities are summarized in the table below.

## GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately five-hundred and eighty-two (582) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

Depth to groundwater >100-feet  
 Distance to surface water body >1000-feet  
 Wellhead Protection Area >1000-feet

### Analytical Results

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
T-1	0	<0.050	<0.300	2070	4840
T-1	1	<0.050	<0.300	<10.0	72.8
T-1	2	<0.050	<0.300	<10.0	<10.0
T-1	3	<0.050	<0.300	19.3	<10.0
T-1	4	<0.050	<0.300	<10.0	<10.0
T-2	0	<0.050	<0.300	147	4063
T-2	1	<0.050	<0.300	12.2	66.7
T-2	2	<0.050	<0.300	<10.0	<10.0
T-2	3	<0.050	<0.300	<10.0	<10.0
T-2	4	<0.050	<0.300	<10.0	<10.0
T-3	0	<0.050	<0.300	57.4	757
T-3	1	<0.050	<0.300	11.8	<10.0
T-3	2	<0.050	<0.300	<10.0	<10.0
T-3	3	<0.050	<0.300	13.8	<10.0
NORTH	0	<0.050	<0.300	<10.0	<10.0
SOUTH	0	<0.050	<0.300	484	105
EAST	0	<0.050	<0.300	<10.0	<10.0
WEST	0	<0.050	<0.300	18.0	<10.0

## PROPOSED REMEDIAL ACTIONS

- The impacted area in the vicinity of sample location T-1 will be excavated to a depth of one (1) foot BGS.
- All of the excavated material will be transported to an NMOCD approved solid waste disposal facility.
- The excavation will backfilled with clean “like” material and contoured to match the surrounding terrain.

Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,



Sheldon L. Hitchcock  
HSE Coordinator  
[slhitchcock@concho.com](mailto:slhitchcock@concho.com)

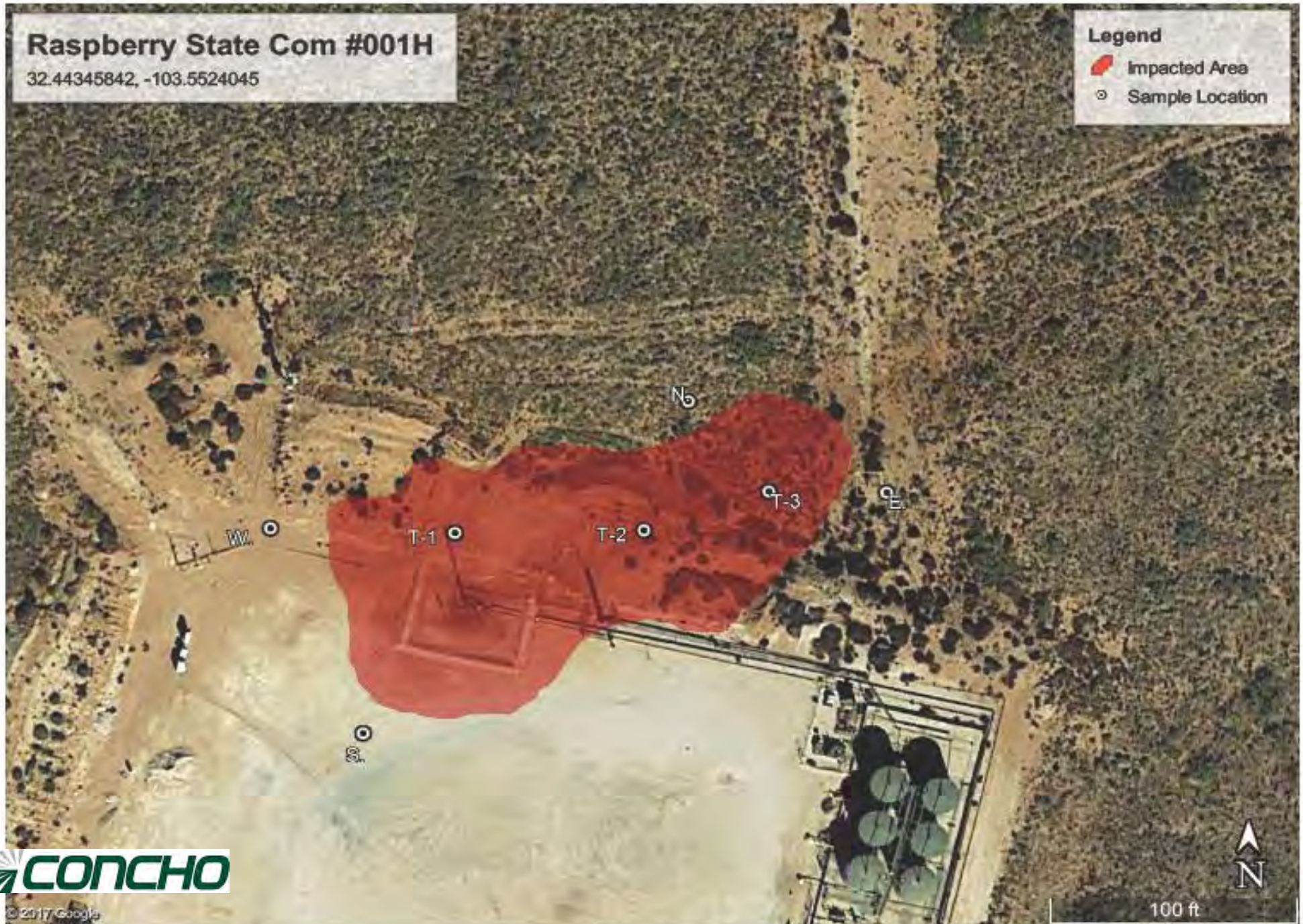
Enclosed:

Appendix I: Site Diagram  
Appendix II: Groundwater Data  
Appendix III: Initial C-141 (Copy)  
Appendix IV: Analytical Reports and Chain-of-Custody Forms

# APPENDIX I



# Raspberry State Com #001H



# APPENDIX II



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 01411 POD1</a>	CP	LE		2	2	34	21S	33E		635968	3590386	228	1149		
<a href="#">CP 01411 POD2</a>	CP	LE		1	2	34	21S	33E		635534	3590380	463	1125		
<a href="#">CP 01349 POD1</a>	CP	LE		2	3	1	27	21S	33E	635304	3591576	1153	1188	572	616
<a href="#">CP 01355 POD1</a>	CP	LE		2	1	3	27	21S	33E	634773	3591061	1246	1192	582	610
<a href="#">CP 01357 POD1</a>	CP	LE		4	3	1	27	21S	33E	634782	3591347	1368	1286	578	708
<a href="#">CP 01356 POD1</a>	CP	LE		4	2	2	33	21S	33E	634560	3590014	1500	1098	555	543

Average Depth to Water: **571 feet**

Minimum Depth: **555 feet**

Maximum Depth: **582 feet**

Record Count: 6

### Basin/County Search:

County: Lea

### UTMNAD83 Radius Search (in meters):

Easting (X): 635936

Northing (Y): 3590612

Radius: 2000

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

# APPENDIX III



District I  
1625 N French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating, LLC (OGRID# 229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: Raspberry State Com #001H	Facility Type: Tank Battery

Surface Owner: Fee	Mineral Owner: State	API No.: 30-025-43179
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LOCATION OF RELEASE

Unit Letter P	Section 27	Township 21S	Range 33E	Feet from the 330	North/South Line South	Feet from the 200	East/West Line East	County Lea
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Latitude: 32.44345842 Longitude: -103.5524045 NAD83

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 12bbbls	Volume Recovered: 8bbbls
Source of Release: Flare	Date and Hour of Occurrence: 10/20/17 7:00am	Date and Hour of Discovery: 10/20/17 7:00am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

The throttle head did not engage to open Kimray dump and sent fluid through the flare. The back pressure regulator was rebuilt and the throttle head was replaced with a snap head.

Describe Area Affected and Cleanup Action Taken.\*

The release impacted the pasture adjacent to the location. A vacuum truck was dispatched to recover all free standing fluids. Approximately 8bbbls of oil were recovered. Concho will have the spill area evaluated for any possible impact from the release and will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations

OIL CONSERVATION DIVISION

Signature: *Sheldon Hitchcock*

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

E-mail Address: slhitchcock@concho.com

Date: 10/23/2017

Phone: 575-746-2010

Approved by Environmental Specialist:

Approval Date: 10/27/2017

Expiration Date:

Conditions of Approval:

see attached directive

Attached ☒

\* Attach Additional Sheets If Necessary

1RP-4853

nOY1730048212

pOY1730048559

# APPENDIX IV



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 27, 2017

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: RASPBERRY ST. COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 12/13/17 13:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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:**COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONEReported:  
27-Dec-17 16:55

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T-1 0'	H703451-01	Soil	13-Dec-17 11:20	13-Dec-17 13:25
T-1 1'	H703451-02	Soil	13-Dec-17 11:22	13-Dec-17 13:25
T-1 2'	H703451-03	Soil	13-Dec-17 11:24	13-Dec-17 13:25
T-1 3'	H703451-04	Soil	13-Dec-17 11:26	13-Dec-17 13:25
T-1 4'	H703451-05	Soil	13-Dec-17 11:28	13-Dec-17 13:25
T-2 0'	H703451-06	Soil	13-Dec-17 11:35	13-Dec-17 13:25
T-2 1'	H703451-07	Soil	13-Dec-17 11:37	13-Dec-17 13:25
T-2 2'	H703451-08	Soil	13-Dec-17 11:39	13-Dec-17 13:25
T-2 3'	H703451-09	Soil	13-Dec-17 11:41	13-Dec-17 13:25
T-2 4'	H703451-10	Soil	13-Dec-17 11:43	13-Dec-17 13:25
T-3 0'	H703451-11	Soil	13-Dec-17 12:00	13-Dec-17 13:25
T-3 1'	H703451-12	Soil	13-Dec-17 12:02	13-Dec-17 13:25
T-3 2'	H703451-13	Soil	13-Dec-17 12:04	13-Dec-17 13:25
T-3 3'	H703451-14	Soil	13-Dec-17 12:06	13-Dec-17 13:25

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-1 0' H703451-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050	0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Surrogate: 4-Bromofluorobenzene (PID)		96.9 %		72-148	7121503	MS	15-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	3750	10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	1090	10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
Surrogate: 1-Chlorooctane		65.8 %		28.3-164	7121801	MS	18-Dec-17	8015B	
Surrogate: 1-Chlorooctadecane		131 %		34.7-157	7121801	MS	18-Dec-17	8015B	

### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	2070	100	mg/kg wet	100	B712171	JDA	27-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-1 1'**  
**H703451-02 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.8 %	72-148		7121503	MS	15-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	25.9		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	46.9		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			97.5 %	28.3-164		7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			96.2 %	34.7-157		7121801	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-1 2' H703451-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			93.6 %	72-148		7121503	MS	15-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			85.4 %	28.3-164		7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			85.4 %	34.7-157		7121801	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-1 3'**  
**H703451-04 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.3 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>95.8 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>97.0 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	19.3		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-1 4'**  
**H703451-05 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.8 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>96.3 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>95.8 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-2 0'**

**H703451-06 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.8 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<b>DRO &gt;C10-C28*</b>	<b>3170</b>		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<b>EXT DRO &gt;C28-C36</b>	<b>893</b>		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>93.9 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>146 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	147		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-2 1' H703451-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.5 %	72-148		7121503	MS	15-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	24.1		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	42.6		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			97.0 %	28.3-164		7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			97.2 %	34.7-157		7121801	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	12.2		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-2 2' H703451-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.4 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>101 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>103 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-2 3' H703451-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>93.9 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>97.5 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>95.9 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-2 4'**  
**H703451-10 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

##### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.9 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

##### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>99.5 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>99.9 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

##### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

**T-3 0'**  
**H703451-11 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			93.8 %	72-148		7121503	MS	15-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	593		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	164		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			88.6 %	28.3-164		7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			99.8 %	34.7-157		7121801	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	57.4		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-3 1' H703451-12 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>95.1 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>90.2 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>90.0 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	11.8		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-3 2' H703451-13 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	15-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	15-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			<i>94.7 %</i>	<i>72-148</i>		<i>7121503</i>	<i>MS</i>	<i>15-Dec-17</i>	<i>8021B</i>	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			<i>84.9 %</i>	<i>28.3-164</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	
<i>Surrogate: 1-Chlorooctadecane</i>			<i>86.7 %</i>	<i>34.7-157</i>		<i>7121801</i>	<i>MS</i>	<i>18-Dec-17</i>	<i>8015B</i>	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### T-3 3' H703451-14 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	16-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			95.8 %	72-148		7121503	MS	16-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			88.0 %	28.3-164		7121801	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			87.5 %	34.7-157		7121801	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	13.8		10.0	mg/kg wet	10	B712171	JDA	23-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121503 - Volatiles

##### Blank (7121503-BLK1)

Prepared & Analyzed: 15-Dec-17

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0955		mg/kg	0.100		95.5	72-148			

##### LCS (7121503-BS1)

Prepared & Analyzed: 15-Dec-17

Benzene	2.01	0.050	mg/kg	2.00		100	79.5-124			
Toluene	1.97	0.050	mg/kg	2.00		98.4	75.5-127			
Ethylbenzene	1.90	0.050	mg/kg	2.00		95.1	77.7-125			
Total Xylenes	5.87	0.150	mg/kg	6.00		97.8	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0927		mg/kg	0.100		92.7	72-148			

##### LCS Dup (7121503-BSD1)

Prepared & Analyzed: 15-Dec-17

Benzene	2.00	0.050	mg/kg	2.00		99.8	79.5-124	0.651	6.5	
Toluene	1.94	0.050	mg/kg	2.00		96.9	75.5-127	1.51	7.02	
Ethylbenzene	1.89	0.050	mg/kg	2.00		94.5	77.7-125	0.643	7.83	
Total Xylenes	5.85	0.150	mg/kg	6.00		97.6	70.9-124	0.266	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.0941		mg/kg	0.100		94.1	72-148			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121801 - General Prep - Organics

##### Blank (7121801-BLK1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	43.4		mg/kg	50.0		86.8	28.3-164			
Surrogate: 1-Chlorooctadecane	46.0		mg/kg	50.0		92.0	34.7-157			

##### LCS (7121801-BS1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	173	10.0	mg/kg	200		86.4	76.6-119			
DRO >C10-C28	194	10.0	mg/kg	200		97.1	81.4-124			
Total TPH C6-C28	367	10.0	mg/kg	400		91.7	79.4-121			
Surrogate: 1-Chlorooctane	42.8		mg/kg	50.0		85.6	28.3-164			
Surrogate: 1-Chlorooctadecane	42.5		mg/kg	50.0		85.0	34.7-157			

##### LCS Dup (7121801-BSD1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	177	10.0	mg/kg	200		88.5	76.6-119	2.41	7.94	
DRO >C10-C28	200	10.0	mg/kg	200		99.9	81.4-124	2.90	9.83	
Total TPH C6-C28	377	10.0	mg/kg	400		94.2	79.4-121	2.67	8.57	
Surrogate: 1-Chlorooctane	44.5		mg/kg	50.0		88.9	28.3-164			
Surrogate: 1-Chlorooctadecane	44.6		mg/kg	50.0		89.2	34.7-157			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 16:55

### Soluble (DI Water Extraction) - Quality Control

#### Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B712171 - General Prep - Wet Chem

##### Blank (B712171-BLK1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	ND	10.0	mg/kg wet							
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##### LCS (B712171-BS1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	243	10.0	mg/kg wet	250		97.1	85-115			
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##### LCS Dup (B712171-BSD1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	244	10.0	mg/kg wet	250		97.5	85-115	0.489	20	
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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

Pg 1 of 2





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

PG 2052



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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December 27, 2017

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: RASPBERRY ST. COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 12/13/17 13:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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:**COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONEReported:  
27-Dec-17 17:01

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N. 0'	H703452-01	Soil	13-Dec-17 12:08	13-Dec-17 13:25
S. 0'	H703452-02	Soil	13-Dec-17 12:10	13-Dec-17 13:25
E. 0'	H703452-03	Soil	13-Dec-17 12:12	13-Dec-17 13:25
W. 0'	H703452-04	Soil	13-Dec-17 12:14	13-Dec-17 13:25

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

**N. 0'**  
**H703452-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

##### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			95.4 %		72-148	7121503	MS	16-Dec-17	8021B	

##### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121809	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121809	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121809	MS	18-Dec-17	8015B	
Surrogate: 1-Chlorooctane			92.1 %		28.3-164	7121809	MS	18-Dec-17	8015B	
Surrogate: 1-Chlorooctadecane			91.1 %		34.7-157	7121809	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

##### Soluble (DI Water Extraction)

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	22-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

**S. 0'**  
**H703452-02 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

##### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	16-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			94.4 %	72-148		7121503	MS	16-Dec-17	8021B	

##### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
DRO >C10-C28*	60.9		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
EXT DRO >C28-C36	44.5		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			78.1 %	28.3-164		7121809	MS	19-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			78.2 %	34.7-157		7121809	MS	19-Dec-17	8015B	

#### Green Analytical Laboratories

##### Soluble (DI Water Extraction)

Chloride	484		10.0	mg/kg wet	10	B712171	JDA	22-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

**E. 0'**  
**H703452-03 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121503	MS	16-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121503	MS	16-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			94.9 %	72-148		7121503	MS	16-Dec-17	8021B	

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121809	MS	19-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			87.6 %	28.3-164		7121809	MS	19-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			85.3 %	34.7-157		7121809	MS	19-Dec-17	8015B	

**Green Analytical Laboratories**
**Soluble (DI Water Extraction)**

Chloride	<10.0		10.0	mg/kg wet	10	B712171	JDA	22-Dec-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

**W. 0'**  
**H703452-04 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7121805	MS	18-Dec-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7121805	MS	18-Dec-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7121805	MS	18-Dec-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7121805	MS	18-Dec-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7121805	MS	18-Dec-17	8021B	
<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			96.2 %	72-148		7121805	MS	18-Dec-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	7121803	MS	18-Dec-17	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	7121803	MS	18-Dec-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7121803	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctane</i>			84.8 %	28.3-164		7121803	MS	18-Dec-17	8015B	
<i>Surrogate: 1-Chlorooctadecane</i>			83.6 %	34.7-157		7121803	MS	18-Dec-17	8015B	

#### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	18.0		10.0	mg/kg wet	10	B712171	JDA	22-Dec-17	EPA300.0	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 7121503 - Volatiles</b>										
<b>Blank (7121503-BLK1)</b>				Prepared & Analyzed: 15-Dec-17						
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0955		mg/kg	0.100		95.5	72-148			
<b>LCS (7121503-BS1)</b>				Prepared & Analyzed: 15-Dec-17						
Benzene	2.01	0.050	mg/kg	2.00		100	79.5-124			
Toluene	1.97	0.050	mg/kg	2.00		98.4	75.5-127			
Ethylbenzene	1.90	0.050	mg/kg	2.00		95.1	77.7-125			
Total Xylenes	5.87	0.150	mg/kg	6.00		97.8	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0927		mg/kg	0.100		92.7	72-148			
<b>LCS Dup (7121503-BSD1)</b>				Prepared & Analyzed: 15-Dec-17						
Benzene	2.00	0.050	mg/kg	2.00		99.8	79.5-124	0.651	6.5	
Toluene	1.94	0.050	mg/kg	2.00		96.9	75.5-127	1.51	7.02	
Ethylbenzene	1.89	0.050	mg/kg	2.00		94.5	77.7-125	0.643	7.83	
Total Xylenes	5.85	0.150	mg/kg	6.00		97.6	70.9-124	0.266	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.0941		mg/kg	0.100		94.1	72-148			
<b>Matrix Spike (7121503-MS1)</b>				Source: H703450-04	Prepared: 15-Dec-17 Analyzed: 16-Dec-17					
Benzene	2.02	0.050	mg/kg	2.00	ND	101	70.9-127			
Toluene	1.97	0.050	mg/kg	2.00	0.010	97.8	46-161			
Ethylbenzene	1.91	0.050	mg/kg	2.00	ND	95.5	38.8-164			
Total Xylenes	5.84	0.150	mg/kg	6.00	0.035	96.8	41.9-151			
Surrogate: 4-Bromofluorobenzene (PID)	0.0937		mg/kg	0.100		93.7	72-148			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121503 - Volatiles

Matrix Spike Dup (7121503-MSD1)		Source: H703450-04		Prepared: 15-Dec-17 Analyzed: 16-Dec-17						
Benzene	2.02	0.050	mg/kg	2.00	ND	101	70.9-127	0.354	3.45	
Toluene	1.97	0.050	mg/kg	2.00	0.010	97.7	46-161	0.0450	5.27	
Ethylbenzene	1.91	0.050	mg/kg	2.00	ND	95.7	38.8-164	0.190	4.92	
Total Xylenes	5.87	0.150	mg/kg	6.00	0.035	97.3	41.9-151	0.520	6.95	
Surrogate: 4-Bromofluorobenzene (PID)	0.0937		mg/kg	0.100		93.7	72-148			

#### Batch 7121805 - Volatiles

Blank (7121805-BLK1)		Prepared & Analyzed: 18-Dec-17								
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0967		mg/kg	0.100		96.7	72-148			

LCS (7121805-BS1)		Prepared & Analyzed: 18-Dec-17								
Benzene	1.96	0.050	mg/kg	2.00		98.0	79.5-124			
Toluene	1.95	0.050	mg/kg	2.00		97.5	75.5-127			
Ethylbenzene	1.87	0.050	mg/kg	2.00		93.4	77.7-125			
Total Xylenes	5.84	0.150	mg/kg	6.00		97.3	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0948		mg/kg	0.100		94.8	72-148			

LCS Dup (7121805-BSD1)		Prepared & Analyzed: 18-Dec-17								
Benzene	1.95	0.050	mg/kg	2.00		97.7	79.5-124	0.335	6.5	
Toluene	1.94	0.050	mg/kg	2.00		97.2	75.5-127	0.250	7.02	
Ethylbenzene	1.87	0.050	mg/kg	2.00		93.5	77.7-125	0.0455	7.83	
Total Xylenes	5.80	0.150	mg/kg	6.00		96.7	70.9-124	0.633	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.0937		mg/kg	0.100		93.7	72-148			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121805 - Volatiles

##### Matrix Spike (7121805-MS1)

Source: H703452-04

Prepared & Analyzed: 18-Dec-17

Benzene	1.99	0.050	mg/kg	2.00	ND	99.7	70.9-127			
Toluene	2.00	0.050	mg/kg	2.00	0.046	97.5	46-161			
Ethylbenzene	1.94	0.050	mg/kg	2.00	ND	97.1	38.8-164			
Total Xylenes	6.01	0.150	mg/kg	6.00	ND	100	41.9-151			
Surrogate: 4-Bromofluorobenzene (PID)	0.0926		mg/kg	0.100		92.6	72-148			

##### Matrix Spike Dup (7121805-MSD1)

Source: H703452-04

Prepared & Analyzed: 18-Dec-17

Benzene	2.01	0.050	mg/kg	2.00	ND	101	70.9-127	0.959	3.45	
Toluene	1.99	0.050	mg/kg	2.00	0.046	97.4	46-161	0.106	5.27	
Ethylbenzene	1.96	0.050	mg/kg	2.00	ND	98.0	38.8-164	0.937	4.92	
Total Xylenes	6.07	0.150	mg/kg	6.00	ND	101	41.9-151	0.898	6.95	
Surrogate: 4-Bromofluorobenzene (PID)	0.0928		mg/kg	0.100		92.8	72-148			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121803 - General Prep - Organics

##### Blank (7121803-BLK1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	43.4		mg/kg	50.0		86.7	28.3-164			
Surrogate: 1-Chlorooctadecane	43.4		mg/kg	50.0		86.9	34.7-157			

##### LCS (7121803-BS1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	197	10.0	mg/kg	200		98.3	76.6-119			
DRO >C10-C28	180	10.0	mg/kg	200		90.1	81.4-124			
Total TPH C6-C28	377	10.0	mg/kg	400		94.2	79.4-121			
Surrogate: 1-Chlorooctane	46.7		mg/kg	50.0		93.4	28.3-164			
Surrogate: 1-Chlorooctadecane	45.4		mg/kg	50.0		90.9	34.7-157			

##### LCS Dup (7121803-BSD1)

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	220	10.0	mg/kg	200		110	76.6-119	11.3	7.94	QR-02
DRO >C10-C28	207	10.0	mg/kg	200		103	81.4-124	13.9	9.83	QR-02
Total TPH C6-C28	427	10.0	mg/kg	400		107	79.4-121	12.5	8.57	QR-02
Surrogate: 1-Chlorooctane	50.4		mg/kg	50.0		101	28.3-164			
Surrogate: 1-Chlorooctadecane	49.5		mg/kg	50.0		99.0	34.7-157			

##### Matrix Spike (7121803-MS1)

Source: H703452-04

Prepared & Analyzed: 18-Dec-17

GRO C6-C10	209	10.0	mg/kg	200	3.85	103	39.3-131			
DRO >C10-C28	199	10.0	mg/kg	200	2.77	98.0	18.2-177			
Total TPH C6-C28	408	10.0	mg/kg	400	6.63	100	30-150			
Surrogate: 1-Chlorooctane	43.9		mg/kg	50.0		87.9	28.3-164			
Surrogate: 1-Chlorooctadecane	41.7		mg/kg	50.0		83.4	34.7-157			

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121803 - General Prep - Organics

Matrix Spike Dup (7121803-MSD1)		Source: H703452-04			Prepared & Analyzed: 18-Dec-17					
GRO C6-C10	221	10.0	mg/kg	200	3.85	109	39.3-131	5.47	18.5	
DRO >C10-C28	218	10.0	mg/kg	200	2.77	108	18.2-177	9.52	22.5	
Total TPH C6-C28	439	10.0	mg/kg	400	6.63	108	30-150	7.47	117	
Surrogate: 1-Chlorooctane	48.9		mg/kg	50.0		97.7	28.3-164			
Surrogate: 1-Chlorooctadecane	44.2		mg/kg	50.0		88.3	34.7-157			

#### Batch 7121809 - General Prep - Organics

Blank (7121809-BLK1)		Prepared & Analyzed: 18-Dec-17								
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	51.6		mg/kg	50.0		103	28.3-164			
Surrogate: 1-Chlorooctadecane	54.5		mg/kg	50.0		109	34.7-157			

LCS (7121809-BS1)		Prepared: 18-Dec-17 Analyzed: 19-Dec-17								
GRO C6-C10	206	10.0	mg/kg	200		103	76.6-119			
DRO >C10-C28	243	10.0	mg/kg	200		122	81.4-124			
Total TPH C6-C28	449	10.0	mg/kg	400		112	79.4-121			
Surrogate: 1-Chlorooctane	50.5		mg/kg	50.0		101	28.3-164			
Surrogate: 1-Chlorooctadecane	50.3		mg/kg	50.0		101	34.7-157			

LCS Dup (7121809-BSD1)		Prepared: 18-Dec-17 Analyzed: 19-Dec-17								
GRO C6-C10	199	10.0	mg/kg	200		99.5	76.6-119	3.27	7.94	
DRO >C10-C28	234	10.0	mg/kg	200		117	81.4-124	3.78	9.83	
Total TPH C6-C28	433	10.0	mg/kg	400		108	79.4-121	3.55	8.57	
Surrogate: 1-Chlorooctane	48.9		mg/kg	50.0		97.9	28.3-164			
Surrogate: 1-Chlorooctadecane	49.9		mg/kg	50.0		99.8	34.7-157			

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7121809 - General Prep - Organics

Matrix Spike (7121809-MS1)		Source: H703469-29			Prepared: 18-Dec-17 Analyzed: 19-Dec-17					
GRO C6-C10	194	50.0	mg/kg	200	21.2	86.5	39.3-131			
DRO >C10-C28	1830	50.0	mg/kg	200	1760	36.9	18.2-177			
Total TPH C6-C28	2030	50.0	mg/kg	400	1780	61.7	30-150			
Surrogate: 1-Chlorooctane	43.4		mg/kg	50.0		86.8	28.3-164			
Surrogate: 1-Chlorooctadecane	69.9		mg/kg	50.0		140	34.7-157			
Matrix Spike Dup (7121809-MSD1)		Source: H703469-29			Prepared: 18-Dec-17 Analyzed: 19-Dec-17					
GRO C6-C10	212	50.0	mg/kg	200	21.2	95.4	39.3-131	9.77	18.5	
DRO >C10-C28	1810	50.0	mg/kg	200	1760	28.2	18.2-177	26.7	22.5	QM-07
Total TPH C6-C28	2030	50.0	mg/kg	400	1780	61.8	30-150	0.146	117	
Surrogate: 1-Chlorooctane	47.3		mg/kg	50.0		94.6	28.3-164			
Surrogate: 1-Chlorooctadecane	72.4		mg/kg	50.0		145	34.7-157			

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### Analytical Results For:

COG OPERATING  
P. O. BOX 1630  
ARTESIA NM, 88210

Project: RASPBERRY ST. COM #1H  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
27-Dec-17 17:01

### Soluble (DI Water Extraction) - Quality Control

### Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B712171 - General Prep - Wet Chem

##### Blank (B712171-BLK1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	ND	10.0	mg/kg wet							
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##### LCS (B712171-BS1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	243	10.0	mg/kg wet	250		97.1	85-115			
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##### LCS Dup (B712171-BSD1)

Prepared: 20-Dec-17 Analyzed: 22-Dec-17

Chloride	244	10.0	mg/kg wet	250		97.5	85-115	0.489	20	
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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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
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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Pg 1 of 1

Company Name: Concho Resources		P.O. #:		BILL TO																							
Project Manager: Sheldon Hitchcock		Company: COG		ANALYSIS REQUEST																							
Address: 2407 Pecos Avenue		Attn: Robert McNeill																									
City: Artesia		Address: 600 W. Illinois Ave																									
Phone #: 575-703-6475		City: Midland																									
Fax #: _____		State: TX Zip: 79701																									
Project #: _____		Phone #: _____																									
Project Name: Raspberry St. Corn #14		Fax #: _____																									
Project Location: P-26-215-33E																											
Sampler Name: S. Hitchcock																											
FOR LAB USE ONLY																											
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX			PRESERV	SAMPLING																			
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH	BTEX	Chlorides										
H703452	N.O.	G-1	1	/	/	/	/	/	/	/	/	/	12/31/17	12:08	/	/	EPA 300										
	S.O.	G-1	1	/	/	/	/	/	/	/	/	/	12:10		/	/											
	E.O.	G-1	1	/	/	/	/	/	/	/	/	/	12:12		/	/											
	V.O.	G-1	1	/	/	/	/	/	/	/	/	/	12:14		/	/											
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Relinquished By: _____		Received By: _____																									
Relinquished By: _____		Received By: _____																									
Date: _____		Time: _____																									
Delivered By: (Circle One)		Sample Condition		Cool		Intact		CHECKED BY: _____																			
Sampler - UPS - Bus - Other: _____		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		(Initials)																			
22.05/22.10																											
Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326																											