

**Third Quarter 2018  
Remediation Phase Status  
Report**

Rangely C-4 Incident  
Rangely, Colorado



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November 21, 2018

## Sign-off Sheet

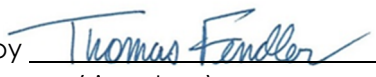
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# THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

November 21, 2018

## Table of Contents

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2.0</b>	<b>SEPTEMBER 2018 SOIL SAMPLING AND ANALYSIS.....</b>	<b>2</b>
2.1	SAMPLING AND ANALYSIS PROCEDURES .....	2
2.2	SAMPLE ANALYTICAL RESULTS.....	2
<b>3.0</b>	<b>FOURTH QUARTER REMEDIAL ACTIONS AND EVALUATION.....</b>	<b>4</b>
<b>4.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>5</b>
<b>5.0</b>	<b>REFERENCES.....</b>	<b>6</b>

## LIST OF FIGURES

Figure 1	Site Layout
Figure 2-1 through 2-3	Total Petroleum Hydrocarbon Soil Sample Results, September 25, 2018

## LIST OF TABLES

Table 1	Soil Sample Results for Organic Compounds
Table 2	Soil Sample Results for Fractionation of Total Petroleum Hydrocarbon Ranges

## LIST OF APPENDICES

Appendix A	Soil Sample Laboratory Analytical Reports
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## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

INTRODUCTION  
November 21, 2018

### 1.0 INTRODUCTION

On March 5, 2017, Chevron Pipe Line Company (CPL) was notified of a release of crude oil approximately 7.1 miles west-northwest of Rangely, Colorado in Rio Blanco County (Rangely C-4 Incident). The release originated from near the Rangely C-4 pad (Site). Product flowed overland approximately 1.8 miles from the Site through a dry drainage feature from coordinates 40° 7' 51.86" N, -108° 55' 11.05" W to the Siphon 5 dam at coordinates 40° 7' 48.76" N, -108° 53' 30.87" W, where it was contained by a permanent siphon dam. The general location of the Site is presented on **Figure 1**.

The release area was divided into five operational units (i.e., Divisions), as presented on **Figure 1**. Response efforts were completed on April 30, 2017, and impacted soil remediation is ongoing in Divisions 1, 2, and 3 (**Figure 2-1** through **Figure 2-3**). Remediation of the Rangely C-4 Incident has been assigned Remediation Project Number 10149 by the Colorado Oil and Gas Conservation Commission (COGCC).

For Division 4 and Division 5, CPL requested a determination of no further action (NFA) status in the *Remediation Baseline Sampling Report*, dated August 1, 2017. COGCC approved CPL's request on August 30, 2017. Ongoing remediation in Divisions 1 through 3 is guided by concentrations in soil that exceed COGCC Table 910-1 Concentration Levels.

On September 27, 2018, CPL and Bureau of Land Management (BLM) personnel met to walk the Site and review the vegetative growth. BLM was pleased to see that there was growth coming back from previously established vegetation. BLM understood that the seeding of Division 4 did not produce any seeded growth of vegetation due to the dry conditions so far this year. However, in October the area received 1.35 inches of rain ([www.wunderground.com](http://www.wunderground.com)) which allowed the seeding to germinate and new growth was observed. To further help with vegetation growth, another round of reseeding of Division 4 was completed on November 13 and 14, 2018. A report summarizing 2018 restoration activities will be submitted to BLM in the first quarter of 2019, including plans for weed control.

This *Third Quarter 2018 Remediation Phase Status Report* summarizes remediation activities and presents the results of the September 25, 2018, soil sampling event (September 2018 event).

## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

SEPTEMBER 2018 SOIL SAMPLING AND ANALYSIS  
November 21, 2018

## 2.0 SEPTEMBER 2018 SOIL SAMPLING AND ANALYSIS

On September 25, 2018, a total of 49 samples were collected at previously sampled and new locations as shown on **Figure 2-1** through **Figure 2-3**. The September 2018 event was conducted in accordance with the *Response Sampling Plan* included in the April 14, 2017, Remediation Workplan.

### 2.1 SAMPLING AND ANALYSIS PROCEDURES

Soil samples were collected by hand approximately 0 to 3 inches below ground surface using clean nitrile gloves that were replaced between each sample location. For each sample, soil was placed in laboratory-supplied 4-ounce clear glass jars, labeled with sample identification number, sample date, and time of sample collection. Sample containers were immediately placed in a cooler with ice. Custody seals and chain-of-custody procedures were maintained from the time of sample collection until they arrived at the laboratory. Samples were transported via the sampler to America West Analytical Laboratories (AWAL) in Salt Lake City, Utah.

Soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by U.S. Environmental Protection Agency (EPA) SW-846 Method 8260C and TPH as diesel range organics (DRO) by EPA SW-846 Method 8015D. In addition, selected samples were analyzed for specific aliphatic and aromatic fractions (carbon [C]-ranges) that make up the total TPH concentrations. On six selected samples, the laboratory (AWAL) provided a breakdown of the following hydrocarbon fractions, which have associated EPA Regional Screening Levels (RSLs) for residential and commercial/industrial soils:

- Low Aliphatic (C5-C8)
- Med Aliphatic (C9-C18)
- High Aliphatic (C19-C32)
- Low Aromatic (C6-C8)
- Medium Aromatic (C9-C16)
- High Aromatic (C17-C32)

The analytical results are included in the laboratory analytical reports in **Appendix A**. Soil sample results are summarized in **Table 1** (GRO and DRO), and **Table 2** (aliphatic and aromatic fractions).

### 2.2 SAMPLE ANALYTICAL RESULTS

Soil samples were collected at 24 locations in Division 1, 15 locations in Division 2, and 10 locations in Division 3. The sampling locations and total TPH results are shown on **Figure 2-1** through **Figure 2-3**.

## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

SEPTEMBER 2018 SOIL SAMPLING AND ANALYSIS  
November 21, 2018

The analytical results for the September 2018 event soil samples show that detectable total TPH concentrations ranged from 74 to 3,560 milligrams per kilogram (mg/kg) and were generally lower than concentrations previously measured in 2017 and May 2018 soil samples.

The following observations detail remedial progress based on the latest analytical results from the September 2018 event by Division:

- **In Division 1**, samples were collected from 0 to 3-inch depths at 24 locations: 11 from previously sampled locations and 13 new locations spaced along the spill area pathway. Total TPH concentrations for soil samples from six sample were less than 500 mg/kg. The total TPH concentrations in the remaining 18 samples ranged from 566 to 3,380 mg/kg.

The average total TPH concentration from the September 2018 event for previously sampled locations was 2,101 mg/kg, which is slightly higher than the average of 1,973 mg/kg from May 2018, however, is 64% lower than the average total TPH concentration for samples collected from these locations in 2017 (5,764 mg/kg).

- **In Division 2**, samples were collected from 0 to 3-inch depths at 15 locations: nine from previously sampled locations and six new locations spaced along the spill area pathway. The total TPH concentrations ranged from 351 to 1,640 mg/kg.

The average total TPH concentration from the September 2018 event for previously sampled locations was 1,090 mg/kg, which is slightly lower than the average of 1,146 mg/kg from May 2018, and 69% lower than the average total TPH concentration for samples from these locations in 2017 (3,560 mg/kg).

- **In Division 3**, soil samples were collected from 0 to 3-inch depths at ten locations, eight from previously sampled locations and two new locations spaced along the spill area pathway. The total TPH concentrations ranged from 410 to 3,560 mg/kg.

The average total TPH concentration in September 2018 for previously sampled locations was 1,582 mg/kg, which is 30% lower than the average of 2,262 mg/kg from May 2018, and 50% lower than the average total TPH concentration for samples from these locations in 2017 (3,137 mg/kg).

Six samples from the September 2018 event were analyzed for specific aliphatic and aromatic fractions (C-ranges) that make up the total TPH concentrations. The data are summarized in **Table 2**. The only hydrocarbon carbon range that had concentrations exceeding the Residential RSLs is the Medium Aliphatic (C9 – C18) results from two samples in Division 1 which are nearest the location of the release. The aromatic fractions are very low to non-detect. These data are being used to better evaluate the effectiveness of monitored natural attenuation by correlating the total TPH (as GRO and DRO) concentrations with the expected concentration of the Medium Aliphatic (C9 – C18) fraction.

## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

Fourth Quarter Remedial Actions and Evaluation  
November 21, 2018

### 3.0 FOURTH QUARTER REMEDIAL ACTIONS AND EVALUATION

Following the September 2018 sampling event, CPL selected three areas, one in each Division, for further evaluation of remedial actions and progress:

- Division 1, near sampling locations RC4-SC-188 and RC4-SC-232 (**Figure 2-1**). This area is approximately 400 feet from the spill location.
- Division 2, near sampling locations RC4-SC-207 and RC4-SC-208 (**Figure 2-2**). This area is adjacent to an overhead water pipe.
- Division 3, near sampling locations RC4-SC-222 and RC4-SC-224 (**Figure 2-3**). This area is near Drip Trap 18.

In November 2018, the following actions were taken in these areas for further evaluation during sampling in 2019:

- Soils were mixed vertically and side-to-side to better homogenize the adjacent spill-impacted soils in Division 1 and 3. The area in Division 2 could not be mixed due to water in the area. Excavations in these areas were not practical in October and November due to heavy rains which saturated the soils.
- Approximately 300 pounds of nutrients were added in each division to assist in enhancing microbial degradation. The nutrients consisted of 50% as 46-0-0 Nitrogen-Potassium-Phosphorus (NKP) and 50% as 16-16-8 NKP.
- Later in the fourth quarter of 2018, CPL plans to collect four additional samples from the areas identified in Division 1 and Division 3.

## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

CONCLUSIONS AND RECOMMENDATIONS  
November 21, 2018

### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the September 2018 event, the following conclusions are made:

- As shown on **Figure 2-1** and **Figure 2-2**, approximately 400 to 500 feet of the spill area in Division 1 meets the COGCC Table 910-1 Concentration Level for TPH of 500 mg/kg.
- The total TPH concentrations were all below 5,000 mg/kg, and in the samples with greater than 3,000 mg/kg, greater than 99.97% of the TPH was as DRO. Also, based on TPH fractionation results, the September 2018 data continue to show that the TPH composition measured in Divisions 1, 2, and 3, continues to degrade to lower risk constituents.
- Attenuation in concentrations measured between May and September 2018 may have slowed due to the lack of soil moisture and low levels of precipitation in the spring and summer at the Site. To limit further soil drying by evaporation, CPL personnel did not till the soils as often as was done in 2017, which likely reduced the soil oxygen content in 2018, and lowered microbial TPH degradation rates.

For continued remediation in 2019, CPL recommends the following activities:

- Monitor the three identified areas in the Divisions, as described in Section 3.0, and potentially excavate these areas if needed to accelerate the remediation progress to meet the Concentration Levels in COGCC Table 910-1.
- Conduct a soil sampling event in the first or second quarter of 2019.
- Based on the soil sampling events, prepare and submit a site action plan in the second quarter of 2019 that will describe ongoing soil remediation activities and plans to meet BLM site restoration requirements.
- In 2019, request closure for several areas across Divisions 1, 2, and 3 that meet COGCC Table 910-1 Concentration Levels.



## THIRD QUARTER 2018 REMEDIATION PHASE STATUS REPORT

### REFERENCES

November 21, 2018

## 5.0 REFERENCES

Form 27: Remediation Workplan, Rangely C-4 Incident, Rangely, Colorado, April 14, 2017

Colorado Oil and Gas Conservation Commission. 900 Series rules, January 30, 2015

Colorado Department of Public Health and Environment. Emergency Petroleum Spill Waste Management Guidance, First Edition, January 2014

Colorado Department of Public Health and Environment. Soil Screening Values.  
<https://www.colorado.gov/pacific/cdphe/approach-soil-screening-values>, July 2017

Form 27 Supplemental: Phase I Response Sampling and Analysis Report, Rangely C-4 Incident, Rangely, Colorado, May 17, 2017

Form 27 Supplemental: Request to Amend the COGCC Table 910-1 Analyte List Specific for the Rangely C4 Incident Remediation Workplan, June 5, 2017

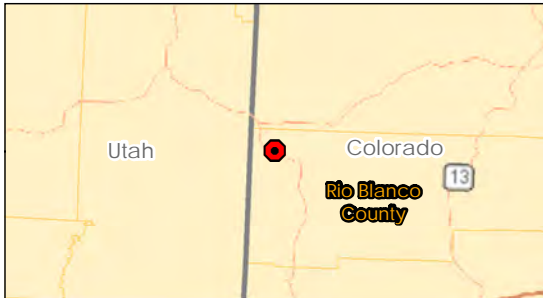
Form 27 Supplemental: Request to Amend Soils in Three Pilot Areas with Nitrogen to Enhance Biodegradation of Total Petroleum Hydrocarbons (TPH) at the Rangely C4 Incident Site, July 20, 2017

Stantec Standard Operating Procedure for Soil Sampling, ESPA-001, Most Recent Version




Stantec Standard Operating Procedure for Field Notebook, ESPA-011, Most Recent Version

# FIGURES





## Legend

-  Spill Location
-  Spill Pathway
-  Operational Divisions

Notes

1. Coordinate System: NAD 1983 StatePlane Colorado North FIPS 0501 Feet
2. Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Project Location  
Near Rangely  
Rio Blanco County, Colorado

Prepared by LMB on 2017-05-12  
Technical Review by BL on 2017-05-12  
Independent Review by TM on 2017-05-12

Client/Project  
Rangely C-4 Spill - Confidential

Figure No.  
1

Title

Rangely C-4  
Site Layout





### Legend

- Operational Divisions
- Approximate Spill Location
- TPH Soil Sample Results
  - Total TPH  $\leq$  500
  - Total TPH  $>$  500 and  $\leq$  5000 mg/kg
  - Total TPH  $>$  5000 mg/kg
- Area For Further Evaluation

Notes

- Coordinate System: NAD 1983 StatePlane Colorado North FIPS 0501 Feet
- Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 75 150 Feet  
1:900 (At original document size of 11x17)



Project Location  
Near Rangely  
Rio Blanco County, Colorado

Client/Project  
Rangely C-4 Spill - Confidential

Figure No.  
2-1

Title

Rangely C-4  
TPH Soil Sample Results  
September 25th, 2018

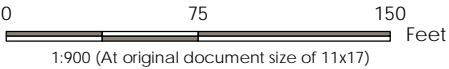




Legend

- Operational Divisions
- Approximate Spill Location
- TPH Soil Sample Results
  - Total TPH <= 500
  - Total TPH > 500 and <= 5000 mg/kg
  - Total TPH > 5000 mg/kg
- Area For Further Evaluation

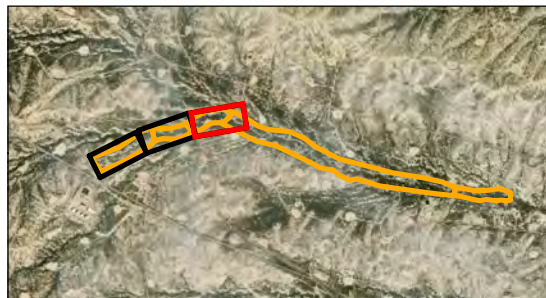
Notes  
1. Coordinate System: NAD 1983 StatePlane Colorado North FIPS 0501 Feet  
2. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Project Location  
Near Rangely  
Rio Blanco County, Colorado  
Prepared by LMB on 2018-10-23  
Technical Review by TR on 2018-10-23  
Independent Review by TM on 2018-10-23  
Client/Project  
Rangely C-4 Spill - Confidential  
Figure No.  
2-2  
Title

Rangely C-4  
TPH Soil Sample Results  
September 25th, 2018





**Notes**

- Coordinate System: NAD 1983 StatePlane Colorado North FIPS 0501 Feet
- Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## Legend

- Operational Divisions
- Approximate Spill Location
- TPH Soil Sample Results
  - Total TPH ≤ 500
  - Total TPH > 500 and ≤ 5000 mg/kg
  - Total TPH > 5000 mg/kg
- Area For Further Evaluation

0 75 150 Feet  
1:900 (At original document size of 11x17)



**Project Location**  
Near Rangely  
Rio Blanco County, Colorado

**Client/Project**  
Rangely C-4 Spill - Confidential

**Figure No.**  
2-3

**Title**

**Rangely C-4**  
**TPH Soil Sample Results**  
**September 25th, 2018**

## TABLES



Table 1  
Soil Sample Results For Organic Compounds - Remediation Phase  
Rangely C4 Incident

Sample ID	Sample Depth (feet bgs)	Sample Date	Latitude	Longitude	TPH GRO (C6-C10)	TPH DRO (C10-C28)	Med Aliphatics (C9-C18)	Total TPH	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Acenaphthene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Pyrene	
					(mg/kg)	(mg/kg)	mg/kg see note "RSL"	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
COGCC Allowable Concentrations and Levels					--	--		500	0.17	85	100	175	1,000	1,000	0.22	0.022	0.22	2.2	22	0.022	1,000	1,000	0.22	23	1,000	
Analytical Method					8260C	8015D	8270D	--	8260C	8260C	8260C	8260C	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	
Division 1																										
RC4-SC-40(2)	0.25	5/3/2017	40.131192	-108.920160	2	9,010	1,080	9,012	0.008	0.044	0.026	0.195	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	< 0.00701	1.35 E	< 0.00701	
RC4-SC-40(3)	0.25	6/2/2017	40.131192	-108.920160	1.5	6,430	--	6,432	<0.00291	<0.00583	0.0315	0.155	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	<0.00784	
RC4-SC-41(2)	0.25	5/3/2017	40.131154	-108.920109	31.90	7,400	1,710	7,432	0.213	0.609	2.090	20.9	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	1.6 E	< 0.00707	
RC4-SC-41(3)	0.25	6/2/2017	40.131154	-108.920109	59.1	13,300	--	13,359	0.0630	0.367	0.503	6.82	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	<0.00738	1.99	<0.00738	
RC4-SC-41(4)	0.25	5/22/2018	40.131154	-108.920109	<0.0207	654	77.1	654	<0.00207	<0.00207	<0.00207	<0.00207	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	<0.350	--	<0.350	
RC4-SC-41(5)	0.25	9/25/2018	40.131154	-108.920109	4.60	3,160	96.3	3,165	0.0467	0.176	0.0409	0.99	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	<6.86	0.0744	<6.86	
RC4-SC-44(2)	0.25	5/3/2017	40.131162	-108.919996	1.9	16,000	1,230	16,002	0.007	0.044	0.041	0.370	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	< 0.00707	0.34	< 0.00707	< 0.00707	< 0.00707	< 0.00707	1.03 E	< 0.00707	
RC4-SC-44(3)	0.25	6/2/2017	40.131162	-108.919996	3.33	4,300	--	4,303	<0.00290	<0.00580	0.0701	0.238	0.425	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	
RC4-SC-44(4)	0.25	5/22/2018	40.131162	-108.919996	0.0953	2,570	384	2,570	<0.00205	<0.00205	<0.00205	<0.00205	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	<6.96	--	<6.96	
RC4-SC-44(5)	0.25	9/25/2018	40.131162	-108.919996	6.18	2,270	162	2,276	<0.00499	0.0417	0.0972	0.936	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	<6.94	0.0758	<6.94	
RC4-SC-47(2)	0.25	6/2/2017	40.131218	-108.919903	34.3 §	12,500	--	12,534	0.0139	0.353	0.607	4.84	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	<0.00724	1.45	<0.00724	
RC4-SC-47(3)	0.25	5/22/2018	40.131218	-108.919903	0.128	3,110	--	3,110	<0.00104	0.00257	<0.00208	<0.00208	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-47(4)	0.25	9/25/2018	40.131218	-108.919903	0.152	3,380	--	3,380	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-49(2)	0.25	6/2/2017	40.131263	-108.919820	10.5	10,200	--	10,211	0.00717	0.0792	0.128	0.574	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	1.91	<0.00705	
RC4-SC-50(2)	0.25	6/2/2017	40.131271	-108.919758	26.3	7,330	--	7,356	0.0237	0.739	0.800	5.96	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	<0.00716	0.576	<0.00716	
RC4-SC-50(3)	0.25	5/22/2018	40.131271	-108.919758	0.128	2,500	--	2,500	<0.00103	<0.00205	<0.00205	<0.00205	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-50(4)	0.25	9/25/2018	40.131271	-108.919758	2.71	2,100	--	2,103	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-51(2)	0.25	6/2/2017	40.131271	-108.919740	5.56 §	12,600	--	12,606	0.00281	0.0347	0.0453	0.301	<0.00756	<0.00756	<0.00756	<0.00756	<0.00756	<0.00756	<0.00756	<0.00756	<0.00756	0.44	<0.00756	1.62	<0.00756	
RC4-SC-54(2)	0.25	6/2/2017	40.131274	-108.919691	1.38	8,470	--	8,471	<0.00282	0.0224	0.0146	0.0846	<0.00754	<0.00754	<0.00754	<0.00754	<0.00754	<0.00754	0.485	<0.00754	<0.00754	<0.00754	<0.00754	0.285	<0.00754	
RC4-SC-55(2)	0.25	6/2/2017	40.131420	-108.919573	1.46	8,510	--	8,511	<0.00288	0.0311	0.0200	0.0881	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	<0.00764	
RC4-SC-55(2) DUP	0.25	6/2/2017	40.131420	-108.919573	0.634	3,690	--	3,691	<0.00300	<0.00600	0.00831	0.028	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	<0.00767	
RC4-SC-55(3)	0.25	5/22/2018	40.131420	-108.919573	0.0721	2,100	--	2,100	<0.00103	<0.00205	<0.00205	<0.00205	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-55(4)	0.25	9/25/2018	40.131420	-108.919573	0.270	2,000	--	2,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-180	0.25	9/12/2017	40.131169	-108.920145	21.2	4,790	--	4,811	0.0441	0.232	0.256	1.85	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-181	0.25	9/12/2017	40.131212	-108.919950	13.4	5,900	--	5,913	<0.0102	0.0287	0.0813	0.583	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-182	0																									





Table 1  
Soil Sample Results For Organic Compounds - Remediation Phase  
Rangely C4 Incident

Sample ID		Sample Depth (feet bgs)	Sample Date	Latitude	Longitude	TPH GRO (C6-C10)	TPH DRO (C10-C28)	Med Aliphatics (C9-C18)	Total TPH	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Acenaphthene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Pyrene	
						(mg/kg)	(mg/kg)	mg/kg see note "RSL"	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
COGCC Allowable Concentrations and Levels						--	--		500	0.17	85	100	175	1,000	1,000	0.22	0.022	0.22	2.2	22	0.022	1,000	1,000	0.22	23	1,000	
Analytical Method						8260C	8015D	8270D	--	8260C	8260C	8260C	8260C	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	
RC-SC-207(3)	0.25	9/25/2018	40.133041	-108.914175	<0.0500	1,640	--		1,640	<0.00250	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-208	0.25	9/12/2017	40.133091	-108.914029	1.38	2,460	--		2,461	<0.00254	<0.00508	<0.00508	<0.00508	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-208(2)	0.25	5/23/2018	40.133091	-108.914029	0.0411	1,270	--		1,270	<0.00102	<0.00204	<0.00204	<0.00204	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-208(3)	0.25	9/25/2018	40.133091	-108.914029	<0.0515	1,540	--		1,540	<0.00257	<0.00515	<0.00515	<0.00515	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-209	0.25	9/12/2017	40.133169	-108.913840	0.567	1,690	--		1,691	<0.00253	<0.00505	<0.00505	<0.00505	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-210	0.25	9/12/2017	40.133261	-108.913772	0.155	923	--		923	<0.00253	<0.00507	<0.00507	<0.00507	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-211	0.25	9/12/2017	40.133293	-108.913663	0.478	1,530	--		1,530	<0.00254	<0.00508	<0.00508	<0.00508	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-212	0.25	9/12/2017	40.133258	-108.913535	<0.0525	362	--		362	<0.00262	<0.00525	<0.00525	<0.00525	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-213	0.25	9/12/2017	40.133157	-108.913367	<0.0557	62.9	--		63	<0.00279	<0.00557	<0.00557	<0.00557	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-213(2)	0.25	11/9/2017	40.133157	-108.913367	<0.0561	140	16.5		140	<0.00561	<0.00561	<0.00561	<0.00561	<0.387	<0.387	<0.387	<0.387	<0.387	<0.387	<0.387	<0.387	<0.387	<0.387	--	<0.387		
RC4-SC-244(1)	0.25	9/25/2018	40.132989	-108.915889	<0.0513	1,310	--		1,310	<0.00256	<0.00513	<0.00513	<0.00513	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-245(1)	0.25	9/25/2018	40.132978	-108.914815	<0.0493	1,250	--		1,250	<0.00246	0.00520	<0.00493	<0.00493	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-246(1)	0.25	9/25/2018	40.132995	-108.914595	0.218	1,040	--		1,040	<0.00252	<0.00504	<0.00504	<0.00504	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-247(1)	0.25	9/25/2018	40.133245	-108.913766	<0.0498	591	--		591	<0.00249	<0.00498	<0.00498	<0.00498	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-248(1)	0.25	9/25/2018	40.133150	-108.913366	<0.0504	351	--		351	<0.00252	<0.00504	<0.00504	<0.00504	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-249(1)	0.25	9/25/2018	40.133247	-108.913308	<0.0503	566	--		566	<0.00251	<0.00503	<0.00503	<0.00503	--	--	--	--	--	--	--	--	--	--	--	--		
Division 3																											
RC4-SC-110(2)	0.25	5/2/2017	40.134034	-108.912282	1.46	5,350	--		5,351	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
RC4-SC-110(3)	0.25	6/2/2017	40.134040	-108.912259	0.678	3,980	687		3,981	<0.00277	0.00679	0.00596	0.0421	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722	<0.00722		
RC4-SC-110(4)	0.25	5/23/2018	40.134040	-108.912259	0.113	5,320	951		5,320	<0.00207	<0.00207	<0.00207	<0.00207	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0		
RC4-SC-110(5)	0.25	9/25/2018	40.134040	-108.912259	0.167	2,120	--		2,120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-111(2)	0.25	5/2/2017	40.134029	-108.912260	2.29	1,960	--		1,962	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-111(3) **	0.25	6/2/2017	40.134022	-108.912253	0.112	3,540	--		3,540	<0.00255	<0.00509	<0.00509	<0.00509	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704	<0.00704		
RC4-SC-118(2)	0.25	6/2/2017	40.134262	-108.911213	< 0.0524	820	92.7		820	<0.00262	<0.00524	<0.00524	<0.00524	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719	<0.00719		
RC4-SC-121(2)	0.25	5/2/2017	40.134187	-108.910652	1.02	9,440	--		9,441	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-121(3)	0.25	6/2/2017	40.134178	-108.910653	< 0.0536	1,840	--		1,840	<0.00268	<0.00536	<0.00536	<0.00536	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694	<0.00694			
RC4-SC-122(2)	0.25	5/2/2017	40.134157	-108.910570	0.646	3,190	--		3,191	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-122(3) ****	0.25	6/2/2017	40.134169	-108.910555	0.291	2,030	308		2,030	<0.00254	<0.00508	<0.00508	<0.00508	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711	<0.00711			
RC4-SC-168	0.25	5/2/2017	40.133438	-108.912965	<0.0532	87.3	--		87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-169	0.25	5/2/2017	40.133558	-108.912718	2.92	3,240	--		3,243	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
RC4-SC-170	0.25	5/2/2017	40.133706	-108.912503	1.82	2,130	--		2,132	--	--																





Table 1 Soil Sample Results For Organic Compounds - Remediation Phase Rangely C4 Incident																										
Sample ID	Sample Depth (feet bgs)	Sample Date	Latitude	Longitude	TPH GRO (C6-C10)	TPH DRO (C10-C28)	Med Aliphatics (C9-C18)	Total TPH	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Acenaphthene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Pyrene	
					(mg/kg)	(mg/kg)	mg/kg see note "RSL"																			(mg/kg)
COGCC Allowable Concentrations and Levels					--	--		500	0.17	85	100	175	1,000	1,000	0.22	0.022	0.22	2.2	22	0.022	1,000	1,000	0.22	23	1,000	
Analytical Method					8260C	8015D		--	8260C	8260C	8260C	8260C	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	
RC4-PS-6L	0.25	5/31/2017	40.133141	-108.906905	< 0.0619	29	--	29	<0.00309	<0.00619 @	<0.00619	<0.00619	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	
RC4-PS-6L DUP	0.25	5/31/2017	40.133141	-108.906905	< 0.0606	< 24.1	--	0	<0.00303	<0.00606	<0.00606	<0.00606	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	< 0.00808	
RC4-PS-6R	0.25	5/31/2017	40.133141	-108.906905	< 0.0611	34	--	34	<0.00306	<0.00611	<0.00611	<0.00611	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	< 0.00805	
RC4-PS-7C	0.25	5/31/2017	40.133177	-108.906446	0.787	290	--	291	<0.00305	<0.00610	<0.00610	<0.00610	<0.00814	<0.00814	<0.00814	<0.00814	<0.00814	<0.00814	<0.00814	<b>0.0623</b>	<0.00814	<0.00814	0.0607	<0.00814	<0.00814	
RC4-PS-7C (re-analysis)	0.25	5/31/2017	40.133177	-108.906446	0.787	290	--	291	<0.00305	<0.00610	<0.00610	<0.00610	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	<0.00818 H	
RC4-PS-7C(2)	0.25	6/26/2017	40.133177	-108.906446	0.381	60.2	--	61	<0.00286	<0.00572	<0.00572	<0.00572	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	< 0.00780	
RC4-PS-7L	0.25	5/31/2017	40.133177	-108.906446	< 0.0628	39.9	--	40	<0.00314	<0.00628	<0.00628	<0.00628	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	< 0.00816	
RC4-PS-7R	0.25	5/31/2017	40.133177	-108.906446	< 0.0571	79.5	--	80	<0.00286	<0.00571	<0.00571	<0.00571	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	< 0.00762	
RC4-PS-8C	0.25	5/31/2017	40.132990	-108.905838	0.492	213	--	213	<0.00307	<0.00614	<0.00614	<0.00614	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	
RC4-PS-8L	0.25	5/31/2017	40.132990	-108.905838	< 0.0599	< 23.5	--	0	<0.00300	<0.00599	<0.00599	<0.00599	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	<0.00789	
RC4-PS-8R	0.25	5/31/2017	40.132990	-108.905838	< 0.0578	< 24.3	--	0	<0.00289	<0.00578	<0.00578	<0.00578	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	<0.00815	
RC4-PS-9C	0.25	5/31/2017	40.132862	-108.905229	0.493	92.7	--	93	<0.00308	<0.00616	<0.00616	<0.00616	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	<0.00826	
RC4-PS-9C DUP	0.25	5/31/2017	40.132862	-108.905229	0.73	111	--	112	<0.00294	<0.00588	<0.00588	<0.00588	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	<0.00794	
RC4-PS-9L	0.25	5/31/2017	40.132862	-108.905229	< 0.0186	23.9	--	24	<0.000929	<0.00186	<0.00186	<0.00186	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	<0.00745	
RC4-PS-9R	0.25	5/31/2017	40.132862	-108.905229	< 0.0631	< 25.3	--	0	<0.00315	<0.00631	<0.00631	<0.00631	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	<0.00849	
Division 5																										
RC4-SC-137(2)	0.25	6/1/2017	40.130219	-108.892122	< 0.0571	259	--	13	<0.00286	<0.00571	<0.00571	<0.00571	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	<0.00753	
RC4-SC-138(2)	0.25	6/1/2017	40.130216	-108.892007	< 0.0551	79	--	79	<0.00276	<0.00551	<0.00551	<0.00551	<0.00735	<0.00735	<0.00735	<0.00735	<0.00735	<0.00735	<0.00735	<0.00735	<0.00735	0.0439	<0.00735	<0.00735	<0.00735	
RC4-SC-139(2)	0.25	6/1/2017	40.130173	-108.891964	< 0.0628	83.7	--	84	<0.00314	<0.00628	<0.00628	<0.00628	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	<0.00852	
RC4-SC-140(2)	0.25	NA	40.130208	-108.891954	**** This location could not be sampled because it was submerged by standing water; an alternate location (RC-SC-178) was selected as a replacement.																					
RC4-SC-141(2)	0.25	6/1/2017	40.130237	-108.891936	< 0.0642	183	--	183	<0.00321	<0.00642	<0.00642	<0.00642	<0.00903	<0.00903	<0.00903	<0.00903	<0.00903	<0.00903	<0.00903	<0.00903	<0.00903	0.0575	<0.00903	<0.00903	<0.00903	
RC4-SC-142(2)	0.25	NA	40.130202	-108.891916	**** This location could not be sampled because it was submerged by standing water; an alternate location (RC-SC-179) was selected as a replacement.																					
RC4-SC-143(2)	0.25	6/1/2017	40.130264	-108.891923	0.931	347	--	348	<0.00281	<0.00562	<0.00562	<0.00562	<0.00742	<0.00742	<0.00742	<0.00742	<0.00742	<0.00742	<0.00742	<0.00742	<0.00742	0.0421	<0.00742	<0.00742	<0.00742	
RC4-SC-144(2)	0.25	6/1/2017	40.130233	-108.891863	< 0.0586	215	--	215	<0.00293	<0.00586 @	<0.00586 @	<0.00586 @	<0.00761	<0.00761	<0.00761	<0.00761	<0.00761	<0.00761	<0.00761	<0.00761	<0.00761	0.0954	<0.00761	<0.00761	<0.00761	
RC4-SC-145(2)	0.25	6/1/2017	40.130193	-108.891871	< 0.0525	429	--	429	<0.00263	<0.00525	<0.00525	<0.00525	<0.00684	<0.00684	<0.00684	<0.00684	<0.00684	<0.00684	<0.00684	<0.00684	<0.00684	0.0361	<0.00684	<0.00684	<0.00684	
RC4-SC-146(2)	0.25	6/1/2017	40.130160	-108.891899	< 0.0514	94.1	--	94	<0.00257	<0.00514	<0.00514	<0.00514	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	<0.00705	
RC4-SC-147(2)	0.25	6/1/2017	40.130146	-108.891951	< 0.0567	284	--	3	<0.00283	<0.00567	<0.00567	<0.00567	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	<0.00773	
RC4-SC-178 (rep 140(2))	0.25	6/1/2017	40.130213	-108.891980	< 0.0710	360	--	360	<0.00355	<0.00710	<0.00710	<0.00710	<0.00919	<0.00919	<0.00919	<0.00919	<0.00919	<0.00919	<0.00919	<0.00919	<0.00919	0.0393	<0.00919	<0.00919	<0.00919	
RC4-SC-179 (rep 142(2))	0.25	6/1/2017	40.130227	-108.891887	< 0.0656	1,080	--	<b>1,080</b>	<0.00328	<0.00656	<0.00656	<0.00656	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	<0.00891	
RC4-SC-179 DUP (rep 142(2))	0.25	6/1/2017	40.130227	-108.891887	< 0.0679	179	--	179	<0.00339	<0.00679	<0.00679	<0.00679	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	<0.00888	

**Notes:**  
Concentrations in **BOLD** are above the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 Allowable Concentrations.  
The September 2018 data is highlighted.  
bgs: below ground surface  
TPH: total petroleum hydrocarbons  
GRO: gasoline range organics  
DRO: diesel range organics  
RSL: The EPA RSLs for medium aliphatics are 96 mg/kg and 440 mg/kg, respectively for residential and industrial/commercial. The RSL value is based on surrogate of n-Nonane.  
mg/kg: milligrams per kilogram  
-- : Not analyzed.  
@: High RPD due to suspected sample non homogeneity or matrix interference  
\$: One or more constituents of this analyte were obtained from a 1:10 dilution  
E: Estimated value. The concentration exceeds the calibration range.  
H: Analysis requested by the client after the hold time expired.  
V: Concentration from 8260C volatile scan was reported higher.  
<: represent concentrations below the test method limit unless otherwise noted  
\*: Laboratory analytical report No. 1706077 shows the sample collected on 6/2/2017 as "RC4-SC-155".  
\*\*\*: Laboratory analytical report No. 1706076 shows the sample collected on 6/2/2017 as "RC4-SC-111(2)".  
\*\*\*\*: Laboratory analytical report No. 1706076 shows the sample collected on 6/2/2017 as "RC4-SC-122(2)".  
\*\*\*: Laboratory analytical report No. 1706076 shows the sample collected on 6/2/2017 as "RC4-SC-93(2)".  
\*\*\*\*\*: Laboratory analytical report No. 1706075 shows the sample collected on 6/1/2017 as "RC4-SC-142(2)".

Table 2  
Soil Sample Results For Fractionation of Total Petroleum Hydcarbon Ranges  
Rangely C4 Incident

Sample ID		Sample Depth (feet bgs)	Sample Date	Latitude	Longitude	TPH GRO (C6-C10)	TPH DRO (C10-C28)	Total TPH	Low Aliphatic (C5-C8)	Med Aliphatics (C9-C18)	High Aliphatic (C19-C32)	Low Aromatic (C6-C8)	Medium Aromatic (C9-C16)	High Aromatic (C17-C32)
						(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
COGCC Allowable Concentrations and Levels						--	--	500	--	--	--	--	--	--
USEPA Regional Screening Levels (RSLs) - Residential						--	--	--	520	96	230,000	82	110	2,500
Analytical Method						8260C	8015D	--	8260C	8270D	8270D	8260C	8270D	8270D
RC4-SC-40(2)	0.25	5/3/2017	40.13119185	-108.9201603	2	9,010	9,012	0.423	1,080	756	0.274	19.6	< 0.356	
RC4-SC-41(2)	0.25	5/3/2017	40.13115395	-108.9201093	31.90	7,400	7,432	5.39	1,710	1,180	7.88	48.3	< 0.359	
RC4-SC-41(4)	0.25	5/22/2018	40.13115395	-108.9201093	<0.0207	654	654	<0.0207	77.1	188	<0.0207	<0.0200	<0.350	
RC4-SC-41(5)	0.25	9/25/2018	40.13115395	-108.9201093	4.60	3,160	3,165	1.05	96.3	548	1.12	3.1	<6.86	
RC4-SC-44(2)	0.25	5/3/2017	40.13116205	-108.9199962	1.9	16,000	16,002	0.250	1,230	1,300	0.462	23.6	< 0.359	
RC4-SC-44(4)	0.25	5/22/2018	40.13116205	-108.9199962	0.0953	2,570	2,570	<0.0205	384	494	<0.0205	<0.0200	<6.96	
RC4-SC-44(5)	0.25	9/25/2018	40.13116205	-108.9199962	6.18	2,270	2,276	1.17	162	419	1.08	2.28	<6.94	
RC4-SC-154(2)	0.25	6/2/2017	40.133281	-108.9137039	2.13	2,620	2,622	--	571	--	--	--	--	
RC4-SC-155(2) *	0.25	6/2/2017	40.13327968	-108.9136747	2.44	4,280	4,282	--	1,210	--	--	--	--	
RC4-SC-156(2)	0.25	6/2/2017	40.13326078	-108.9135859	2.52	10,000	10,003	--	649	--	--	--	--	
RC4-SC-81(2)	0.25	6/2/2017	40.13294541	-108.9160637	< 0.0561	345	345	--	31.1	--	--	--	--	
RC4-SC-93(3) ***	0.25	6/2/2017	40.13317592	-108.9138008	12.7	4,120	4,133	--	694	--	--	--	--	
RC4-SC-110(3)	0.25	6/2/2017	40.13404033	-108.9122589	0.678	3,980	3,981	--	687	--	--	--	--	
RC4-SC-110(4)	0.25	5/23/2018	40.13404033	-108.9122589	0.113	5,320	5,320	<0.0207	951	1,040	<0.0207	<0.0200	<7.00	
RC4-SC-118(2)	0.25	6/2/2017	40.1342618	-108.911213	< 0.0524	820	820	--	92.7	--	--	--	--	
RC4-SC-122(3) ****	0.25	6/2/2017	40.13416864	-108.9105551	0.291	2,030	2,030	--	308	--	--	--	--	
RC4-182(3)	0.25	9/25/2018	40.131253	-108.919858	0.757	3,040	3,041	<0.0495	74.1	610	<0.0495	0.397	<6.9	
RC4-SC-199(2)	0.25	11/9/2017	40.132941	-108.91646	0.69	1,530	1,531	<0.0580	143	178	<0.0580	0.143	<0.396	
RC4-SC-199(2)	0.25	5/22/2018	40.132941	-108.91646	0.0531	683	683	<0.0204	86.7	152	<0.0204	<0.0200	<0.345	
RC4-SC-200(2)	0.25	11/9/2017	40.132846	-108.916373	0.0963	1,330	1,330	<0.0592	112	96.6	<0.0592	<0.020	<0.405	
RCR-SC-200(2)	0.25	5/22/2018	40.132846	-108.916373	<0.0207	1,290	1,290	<0.0207	154	321	<0.0207	<0.0200	<6.97	
RC4-SC-204(2)	0.25	11/9/2017	40.13298	-108.915092	0.0754	1,760	1,760	<0.0584	125	261	<0.0584	<0.020	<0.399	
RC4-SC-206(2)	0.25	11/9/2017	40.132967	-108.914345	0.181	1,810	1,810	<0.0593	172	209	<0.0593	<0.020	<0.405	
RC4-SC-207(2)	0.25	11/9/2017	40.133041	-108.914175	0.554	2,080	2,081	<0.0590	241	327	<0.0590	<0.020	<0.407	
RC4-SC-207(2)	0.25	5/23/2018	40.133041	-108.914175	0.0255	1,240	1,240	<0.0213	136	355	<0.0213	<0.0200	<0.361	
RC4-SC-213(2)	0.25	11/9/2017	40.133157	-108.913367	<0.0561	140	140	<0.0561	16.5	51.8	<0.0561	<0.020	<0.387	
RC4-SC-222(3)	0.25	9/25/2018	40.134206	-108.910758	0.412	3,560	3,560	<0.0503	75.5	593	<0.0503	0.148	<6.82	
RC4-SC-224(3)	0.25	9/25/2018	40.134168	-108.910651	0.365	2,010	2,010	<0.0504	44.6	424	<0.0504	<0.0200	<6.87	
RC4-SC-227(2)-3	0.25	11/9/2017	40.134305	-108.911066	<0.0576	1,310	1,310	<0.0576	120	129	<0.0576	<0.020	<0.398	
RC4-SC-227(2)-3	0.25	5/23/2018	40.134305	-108.911066	<0.0211	523	523	<0.0211	44	125	<0.0211	<0.0200	<0.354	
RC4-SC-227(2)-6	0.5	11/9/2017	40.134305	-108.911066	1.44	2,980	2,981	0.471	311	242	<0.0564	0.0413	<0.384	
RC4-SC-227(2)-6	0.5	5/23/2018	40.134305	-108.911066	<0.0219	364	364	<0.0219	19	44.7	<0.0219	<0.0200	<0.372	

Table 2  
Soil Sample Results For Fractionation of Total Petroleum Hydcarbon Ranges  
Rangely C4 Incident

Sample ID	Sample Depth (feet bgs)	Sample Date	Latitude	Longitude	TPH GRO (C6-C10)	TPH DRO (C10-C28)	Total TPH	Low Aliphatic (C5-C8)	Med Aliphatics (C9-C18)	High Aliphatic (C19-C32)	Low Aromatic (C6-C8)	Medium Aromatic (C9-C16)	High Aromatic (C17-C32)
					(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
COGCC Allowable Concentrations and Levels					--	--	500	--	--	--	--	--	--
USEPA Regional Screening Levels (RSLs) - Residential					--	--	--	520	96	230,000	82	110	2,500
Analytical Method					8260C	8015D	--	8260C	8270D	8270D	8260C	8270D	8270D
RC4-SC-227(2)-12	1	11/9/2017	40.134305	-108.911066	29.6	4,800	4,830	3	925	279	0.639	6.72	<0.378
RC4-SC-227(2)-12	1	5/23/2018	40.134305	-108.911066	<0.0218	163	163	<0.0218	16.3	33.6	<0.0218	<0.0200	<0.370
RC4-SC-230(3)	0.25	9/25/2018	40.134198	-108.910885	0.497	1,080	1,080	<0.0508	35.3	368	<0.0508	0.275	<6.9

Notes:

Concentrations in **BOLD** are above the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 Allowable Concentrations, or above the USEPA RSLs for Residential.

The September 2018 data is highlighted.

bgs: below ground surface

TPH: total petroleum hydrocarbons

GRO: gasoline range organics

DRO: diesel range organics

mg/kg: milligrams per kilogram

-- : Not analyzed.

<: represent concentrations below the test method limit unless otherwise noted

\*: Laboratory analytical report No. 1706077 shows the sample collected on 6/2/2017 as "RC4-SC-155".

\*\*\*: Laboratory analytical report No. 1706076 shows the sample collected on 6/2/2017 as "RC4-SC-122(2)".

\*\*\*: Laboratory analytical report No. 1706076 shows the sample collected on 6/2/2017 as "RC4-SC-93(2)".

# **APPENDIX A**

## **SOIL SAMPLE LABORATORY ANALYTICAL REPORTS**





Tom Madsen  
Stantec Consulting, Inc.  
3995 S. 700 E. Suite 300  
Salt Lake City, UT 84107  
TEL: (801) 261-0090

RE: Chevron Rangely C4 / 203720102.300.0001

Dear Tom Madsen:

Lab Set ID: 1809577

3440 South 700 West  
Salt Lake City, UT 84119

American West Analytical Laboratories received sample(s) on 9/26/2018 for the analyses presented in the following report.

Phone: (801) 263-8686  
Toll Free: (888) 263-8686  
Fax: (801) 263-8687  
e-mail: [awal@awal-labs.com](mailto:awal@awal-labs.com)  
web: [www.awal-labs.com](http://www.awal-labs.com)

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: \_\_\_\_\_  
Laboratory Director or designee



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-001B  
**Client Sample ID:** RC4-SC-41(5)  
**Collection Date:** 9/25/2018 844h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1638h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 40 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		810	3,160	<sup>2</sup>
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	15.6	33.74	46.3	10-122	

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery.  
The reporting limits were raised due to sample matrix interferences.

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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-002B  
**Client Sample ID:** RC4-SC-44(5)  
**Collection Date:** 9/25/2018 847h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1831h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 40 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		817	2,270	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.0	34.03	53.0	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-003B  
**Client Sample ID:** RC4-SC-47(4)  
**Collection Date:** 9/25/2018 848h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1909h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 40 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		813	3,380	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	16.8	33.85	49.6	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-004B  
**Client Sample ID:** RC4-SC-182(3)  
**Collection Date:** 9/25/2018 850h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1947h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 40 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		813	3,040	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	21.4	33.88	63.2	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-005B  
**Client Sample ID:** RC4-SC-50(4)  
**Collection Date:** 9/25/2018 851h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2025h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	2,100	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	17.8	33.79	52.8	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-006B  
**Client Sample ID:** RC4-SC-55(4)  
**Collection Date:** 9/25/2018 852h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2102h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	2,000	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.6	33.69	55.2	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-007B  
**Client Sample ID:** RC4-SC-231(1)  
**Collection Date:** 9/25/2018 854h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2140h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,450	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.7	33.77	55.5	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Jose Rocha  
QA Officer





## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-008B  
**Client Sample ID:** RC4-SC-186(3)  
**Collection Date:** 9/25/2018 855h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2218h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	953	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.7	33.67	55.5	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-009B  
**Client Sample ID:** RC4-SC-232(1)  
**Collection Date:** 9/25/2018 857h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2256h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	2,590	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	21.9	33.85	64.6	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-010B  
**Client Sample ID:** RC4-SC-188(3)  
**Collection Date:** 9/25/2018 858h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2333h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	2,980	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.4	33.73	54.5	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-011B  
**Client Sample ID:** RC4-SC-233(1)  
**Collection Date:** 9/25/2018 900h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 030h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,460	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	19.6	33.75	58.0	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-012B  
**Client Sample ID:** RC4-SC-234(1)  
**Collection Date:** 9/25/2018 902h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### **Analytical Results**

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 108h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		204	359	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	20.6	34.01	60.4	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-013B  
**Client Sample ID:** RC4-SC-235(1)  
**Collection Date:** 9/25/2018 905h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 145h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		206	1,020	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.8	34.26	54.8	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-014B  
**Client Sample ID:** RC4-SC-236(1)  
**Collection Date:** 9/25/2018 906h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 223h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		204	590	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	20.6	33.93	60.9	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-015B  
**Client Sample ID:** RC4-SC-237(1)  
**Collection Date:** 9/25/2018 908h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1101h **Extracted:** 9/27/2018 1248h

**Units:** mg/kg-dry

**Dilution Factor:** 1

**Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		20.2	456	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.3	33.67	54.4	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-016B  
**Client Sample ID:** RC4-SC-238(1)  
**Collection Date:** 9/25/2018 910h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1139h **Extracted:** 9/27/2018 1248h  
**Units:** mg/kg-dry **Dilution Factor:** 1 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		20.5	150	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.9	34.10	55.5	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-017B  
**Client Sample ID:** RC4-SC-239(1)  
**Collection Date:** 9/25/2018 912h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1216h **Extracted:** 9/27/2018 1248h

**Units:** mg/kg-dry

**Dilution Factor:** 1

**Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		20.3	73.6	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	19.9	33.78	58.8	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-018B  
**Client Sample ID:** RC4-SC-240(1)  
**Collection Date:** 9/25/2018 913h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1716h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 1 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		21.2	233	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	17.7	35.30	50.0	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-019B  
**Client Sample ID:** RC4-SC-241(1)  
**Collection Date:** 9/25/2018 915h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1909h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 1 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		20.3	337	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	19.4	33.86	57.4	10-122	

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**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-020B  
**Client Sample ID:** RC4-SC-196(3)  
**Collection Date:** 9/25/2018 919h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 1947h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	885	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.2	33.73	42.1	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-021B  
**Client Sample ID:** RC4-SC-242(1)  
**Collection Date:** 9/25/2018 917h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2025h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	566	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.6	33.74	43.3	10-122	

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**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-022B  
**Client Sample ID:** RC4-SC-199(3)  
**Collection Date:** 9/25/2018 923h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2102h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,310	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	11.3	33.90	33.4	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-023B  
**Client Sample ID:** RC4-SC-200(3)  
**Collection Date:** 9/25/2018 924h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2140h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		205	1,020	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.4	34.15	42.2	10-122	

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**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-024B  
**Client Sample ID:** RC4-SC-243(1)  
**Collection Date:** 9/25/2018 926h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2218h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	950	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	16.1	33.75	47.7	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-025B  
**Client Sample ID:** RC4-SC-244(1)  
**Collection Date:** 9/25/2018 1040h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2256h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,310	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	13.1	33.78	38.9	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
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Jose Rocha  
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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-026B  
**Client Sample ID:** RC4-SC-202(3)  
**Collection Date:** 9/25/2018 1051h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/28/2018 2333h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		201	1,110	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	15.2	33.57	45.2	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-027B  
**Client Sample ID:** RC4-SC-203(3)  
**Collection Date:** 9/25/2018 1053h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 011h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	909	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.6	33.70	43.3	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-028B  
**Client Sample ID:** RC4-SC-204(3)  
**Collection Date:** 9/25/2018 1055h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 145h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		201	1,050	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	13.8	33.55	41.1	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-029B  
**Client Sample ID:** RC4-SC-245(1)  
**Collection Date:** 9/25/2018 1057h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 242h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		201	1,250	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	13.1	33.53	39.2	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-030B  
**Client Sample ID:** RC4-SC-246(1)  
**Collection Date:** 9/25/2018 1100h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 319h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		200	1,040	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.6	33.38	43.8	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-031B  
**Client Sample ID:** RC4-SC-206(3)  
**Collection Date:** 9/25/2018 1101h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 9/29/2018 356h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	1,280	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	12.5	33.67	37.2	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-032B  
**Client Sample ID:** RC4-SC-207(3)  
**Collection Date:** 9/25/2018 1103h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1254h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,640	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	8.74	33.82	25.8	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-033B  
**Client Sample ID:** RC4-SC-208(3)  
**Collection Date:** 9/25/2018 1104h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1332h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	1,540	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	20.0	33.64	59.4	10-122	

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**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-034B  
**Client Sample ID:** RC4-SC-93(5)  
**Collection Date:** 9/25/2018 1106h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1410h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	618	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.4	33.58	54.9	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-035B  
**Client Sample ID:** RC4-SC-247(1)  
**Collection Date:** 9/25/2018 1108h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1448h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	591	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	19.0	33.70	56.4	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-036B  
**Client Sample ID:** RC4-SC-155(3)  
**Collection Date:** 9/25/2018 1112h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1526h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		201	793	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	12.8	33.53	38.2	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-037B  
**Client Sample ID:** RC4-SC-156(4)  
**Collection Date:** 9/25/2018 1114h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1604h **Extracted:** 9/27/2018 1317h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		205	872	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	16.8	34.10	49.3	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-038B  
**Client Sample ID:** RC4-SC-248(1)  
**Collection Date:** 9/25/2018 1115h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1139h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 1 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		20.2	351	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	18.2	33.61	54.2	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-039B  
**Client Sample ID:** RC4-SC-249(1)  
**Collection Date:** 9/25/2018 1117h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1332h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		204	566	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	15.3	33.93	45.0	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-040B  
**Client Sample ID:** RC4-SC-215(3)  
**Collection Date:** 9/25/2018 1125h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1410h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	1,750	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	15.2	33.67	45.3	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-041B  
**Client Sample ID:** RC4-SC-250(1)  
**Collection Date:** 9/25/2018 1128h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1448h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		203	1,720	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	17.7	33.79	52.3	10-122	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-042B  
**Client Sample ID:** RC4-SC-110(5)  
**Collection Date:** 9/25/2018 1130h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1526h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		206	2,120	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	14.6	34.27	42.6	10-122	

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**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-043B  
**Client Sample ID:** RC4-SC-251(1)  
**Collection Date:** 9/25/2018 1132h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1604h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	1,410	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	13.3	33.68	39.4	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-044B  
**Client Sample ID:** RC4-SC-219(3)  
**Collection Date:** 9/25/2018 1135h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1642h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		204	821	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	15.3	33.95	45.0	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-045B  
**Client Sample ID:** RC4-SC-227(3)  
**Collection Date:** 9/25/2018 1139h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1719h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		204	410	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	13.8	33.93	40.6	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-046B  
**Client Sample ID:** RC4-SC-228(3)  
**Collection Date:** 9/25/2018 1140h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1757h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		201	907	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	12.1	33.46	36.3	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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Jose Rocha  
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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-047B  
**Client Sample ID:** RC4-SC-230(3)  
**Collection Date:** 9/25/2018 1141h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1701h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	1,080	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	10.2	33.58	30.3	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-048B  
**Client Sample ID:** RC4-SC-222(3)  
**Collection Date:** 9/25/2018 1142h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1738h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	3,560	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	10.8	33.64	32.0	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-049B  
**Client Sample ID:** RC4-SC-224(3)  
**Collection Date:** 9/25/2018 1144h  
**Received Date:** 9/26/2018 1107h

Test Code: 8015-S-TPH-3546

### Analytical Results

TPH-DRO (C10-C28) by Method 8015D/3546

**Analyzed:** 10/2/2018 1816h **Extracted:** 9/28/2018 1408h  
**Units:** mg/kg-dry **Dilution Factor:** 10 **Method:** SW8015D

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
Diesel Range Organics (DRO) (C10-C28)			68476-34-6		202	2,010	
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 4-Bromofluorobenzene		460-00-4	12.6	33.61	37.5	10-122	

*The reporting limits were raised due to sample matrix interferences.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-001A  
**Client Sample ID:** RC4-SC-41(5)  
**Collection Date:** 9/25/2018 844h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1549h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,860	< 6,860	
1-Methylnaphthalene	90-12-0	6,860	< 6,860	
2-Methylnaphthalene	91-57-6	6,860	< 6,860	
Acenaphthene	83-32-9	6,860	< 6,860	S
Acenaphthylene	208-96-8	6,860	< 6,860	
Anthracene	120-12-7	6,860	< 6,860	
Benz(a)anthracene	56-55-3	6,860	< 6,860	
Benzo(a)pyrene	50-32-8	6,860	< 6,860	S
Benzo(b)fluoranthene	205-99-2	6,860	< 6,860	
Benzo(g,h,i)perylene	191-24-2	6,860	< 6,860	
Benzo(k)fluoranthene	207-08-9	6,860	< 6,860	
C17-C32 Aromatic hydrocarbons		6,860	< 6,860	
C19-C32 Aliphatic hydrocarbons		6,860	<b>548,000</b>	
C9-C18 Aliphatic hydrocarbons		6,860	<b>96,300</b>	
Chrysene	218-01-9	6,860	< 6,860	
Dibenz(a,h)anthracene	53-70-3	6,860	< 6,860	
Fluoranthene	206-44-0	6,860	< 6,860	
Fluorene	86-73-7	6,860	< 6,860	
Indene	95-13-6	6,860	< 6,860	
Indeno(1,2,3-cd)pyrene	193-39-5	6,860	< 6,860	
Phenanthrene	85-01-8	6,860	< 6,860	
Pyrene	129-00-0	6,860	< 6,860	S

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	346	673.0	51.4	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

*S - Sample dilution required due to sample matrix. MS spiking compound recoveries are outside of the control limits as expected due to being diluted out.*

*The reporting limits were raised due to high analyte concentrations.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-002A  
**Client Sample ID:** RC4-SC-44(5)  
**Collection Date:** 9/25/2018 847h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1654h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,940	< 6,940	
1-Methylnaphthalene	90-12-0	6,940	< 6,940	
2-Methylnaphthalene	91-57-6	6,940	< 6,940	
Acenaphthene	83-32-9	6,940	< 6,940	
Acenaphthylene	208-96-8	6,940	< 6,940	
Anthracene	120-12-7	6,940	< 6,940	
Benz(a)anthracene	56-55-3	6,940	< 6,940	
Benzo(a)pyrene	50-32-8	6,940	< 6,940	
Benzo(b)fluoranthene	205-99-2	6,940	< 6,940	
Benzo(g,h,i)perylene	191-24-2	6,940	< 6,940	
Benzo(k)fluoranthene	207-08-9	6,940	< 6,940	
C17-C32 Aromatic hydrocarbons		6,940	< 6,940	
C19-C32 Aliphatic hydrocarbons		6,940	<b>419,000</b>	
C9-C18 Aliphatic hydrocarbons		6,940	<b>162,000</b>	
Chrysene	218-01-9	6,940	< 6,940	
Dibenz(a,h)anthracene	53-70-3	6,940	< 6,940	
Fluoranthene	206-44-0	6,940	< 6,940	
Fluorene	86-73-7	6,940	< 6,940	
Indene	95-13-6	6,940	< 6,940	
Indeno(1,2,3-cd)pyrene	193-39-5	6,940	< 6,940	
Phenanthrene	85-01-8	6,940	< 6,940	
Pyrene	129-00-0	6,940	< 6,940	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	370	680.8	54.4	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.  
The reporting limits were raised due to high analyte concentrations.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-004A  
**Client Sample ID:** RC4-SC-182(3)  
**Collection Date:** 9/25/2018 850h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1716h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,900	< 6,900	
1-Methylnaphthalene	90-12-0	6,900	< 6,900	
2-Methylnaphthalene	91-57-6	6,900	< 6,900	
Acenaphthene	83-32-9	6,900	< 6,900	
Acenaphthylene	208-96-8	6,900	< 6,900	
Anthracene	120-12-7	6,900	< 6,900	
Benz(a)anthracene	56-55-3	6,900	< 6,900	
Benzo(a)pyrene	50-32-8	6,900	< 6,900	
Benzo(b)fluoranthene	205-99-2	6,900	< 6,900	
Benzo(g,h,i)perylene	191-24-2	6,900	< 6,900	
Benzo(k)fluoranthene	207-08-9	6,900	< 6,900	
C17-C32 Aromatic hydrocarbons		6,900	< 6,900	
C19-C32 Aliphatic hydrocarbons		6,900	<b>610,000</b>	
C9-C18 Aliphatic hydrocarbons		6,900	<b>74,100</b>	
Chrysene	218-01-9	6,900	< 6,900	
Dibenz(a,h)anthracene	53-70-3	6,900	< 6,900	
Fluoranthene	206-44-0	6,900	< 6,900	
Fluorene	86-73-7	6,900	< 6,900	
Indene	95-13-6	6,900	< 6,900	
Indeno(1,2,3-cd)pyrene	193-39-5	6,900	< 6,900	
Phenanthrene	85-01-8	6,900	< 6,900	
Pyrene	129-00-0	6,900	< 6,900	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	423	676.7	62.6	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.  
The reporting limits were raised due to high analyte concentrations.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-047A  
**Client Sample ID:** RC4-SC-230(3)  
**Collection Date:** 9/25/2018 1141h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1738h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,900	< 6,900	
1-Methylnaphthalene	90-12-0	6,900	< 6,900	
2-Methylnaphthalene	91-57-6	6,900	< 6,900	
Acenaphthene	83-32-9	6,900	< 6,900	
Acenaphthylene	208-96-8	6,900	< 6,900	
Anthracene	120-12-7	6,900	< 6,900	
Benz(a)anthracene	56-55-3	6,900	< 6,900	
Benzo(a)pyrene	50-32-8	6,900	< 6,900	
Benzo(b)fluoranthene	205-99-2	6,900	< 6,900	
Benzo(g,h,i)perylene	191-24-2	6,900	< 6,900	
Benzo(k)fluoranthene	207-08-9	6,900	< 6,900	
C17-C32 Aromatic hydrocarbons		6,900	< 6,900	
C19-C32 Aliphatic hydrocarbons		6,900	<b>368,000</b>	
C9-C18 Aliphatic hydrocarbons		6,900	<b>35,300</b>	
Chrysene	218-01-9	6,900	< 6,900	
Dibenz(a,h)anthracene	53-70-3	6,900	< 6,900	
Fluoranthene	206-44-0	6,900	< 6,900	
Fluorene	86-73-7	6,900	< 6,900	
Indene	95-13-6	6,900	< 6,900	
Indeno(1,2,3-cd)pyrene	193-39-5	6,900	< 6,900	
Phenanthrene	85-01-8	6,900	< 6,900	
Pyrene	129-00-0	6,900	< 6,900	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	419	676.7	61.9	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.  
The reporting limits were raised due to high analyte concentrations.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-048A  
**Client Sample ID:** RC4-SC-222(3)  
**Collection Date:** 9/25/2018 1142h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1800h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,820	< 6,820	
1-Methylnaphthalene	90-12-0	6,820	< 6,820	
2-Methylnaphthalene	91-57-6	6,820	< 6,820	
Acenaphthene	83-32-9	6,820	< 6,820	
Acenaphthylene	208-96-8	6,820	< 6,820	
Anthracene	120-12-7	6,820	< 6,820	
Benz(a)anthracene	56-55-3	6,820	< 6,820	
Benzo(a)pyrene	50-32-8	6,820	< 6,820	
Benzo(b)fluoranthene	205-99-2	6,820	< 6,820	
Benzo(g,h,i)perylene	191-24-2	6,820	< 6,820	
Benzo(k)fluoranthene	207-08-9	6,820	< 6,820	
C17-C32 Aromatic hydrocarbons		6,820	< 6,820	
C19-C32 Aliphatic hydrocarbons		6,820	<b>593,000</b>	
C9-C18 Aliphatic hydrocarbons		6,820	<b>75,500</b>	
Chrysene	218-01-9	6,820	< 6,820	
Dibenz(a,h)anthracene	53-70-3	6,820	< 6,820	
Fluoranthene	206-44-0	6,820	< 6,820	
Fluorene	86-73-7	6,820	< 6,820	
Indene	95-13-6	6,820	< 6,820	
Indeno(1,2,3-cd)pyrene	193-39-5	6,820	< 6,820	
Phenanthrene	85-01-8	6,820	< 6,820	
Pyrene	129-00-0	6,820	< 6,820	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	376	668.6	56.2	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.  
The reporting limits were raised due to high analyte concentrations.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-049A  
**Client Sample ID:** RC4-SC-224(3)  
**Collection Date:** 9/25/2018 1144h  
**Received Date:** 9/26/2018 1107h

Test Code: 8270-S-3546

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/5/2018 1821h **Extracted:** 9/28/2018 1401h  
**Units:** µg/kg-dry **Dilution Factor:** 20 **Method:** SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,1'-Biphenyl	92-52-4	6,870	< 6,870	
1-Methylnaphthalene	90-12-0	6,870	< 6,870	
2-Methylnaphthalene	91-57-6	6,870	< 6,870	
Acenaphthene	83-32-9	6,870	< 6,870	
Acenaphthylene	208-96-8	6,870	< 6,870	
Anthracene	120-12-7	6,870	< 6,870	
Benz(a)anthracene	56-55-3	6,870	< 6,870	
Benzo(a)pyrene	50-32-8	6,870	< 6,870	
Benzo(b)fluoranthene	205-99-2	6,870	< 6,870	
Benzo(g,h,i)perylene	191-24-2	6,870	< 6,870	
Benzo(k)fluoranthene	207-08-9	6,870	< 6,870	
C17-C32 Aromatic hydrocarbons		6,870	< 6,870	
C19-C32 Aliphatic hydrocarbons		6,870	<b>424,000</b>	
C9-C18 Aliphatic hydrocarbons		6,870	<b>44,600</b>	
Chrysene	218-01-9	6,870	< 6,870	
Dibenz(a,h)anthracene	53-70-3	6,870	< 6,870	
Fluoranthene	206-44-0	6,870	< 6,870	
Fluorene	86-73-7	6,870	< 6,870	
Indene	95-13-6	6,870	< 6,870	
Indeno(1,2,3-cd)pyrene	193-39-5	6,870	< 6,870	
Phenanthrene	85-01-8	6,870	< 6,870	
Pyrene	129-00-0	6,870	< 6,870	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14		1718-51-0	387	673.5	57.4	10-265	

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.  
The reporting limits were raised due to high analyte concentrations.*

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Kyle F. Gross  
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Jose Rocha  
QA Officer





# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-001A  
**Client Sample ID:** RC4-SC-41(5)  
**Collection Date:** 9/25/2018 844h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 1532h

**Units:** µg/kg-dry

**Dilution Factor:** 9.62

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	19.6	<b>1,570</b>	~
1,3,5-Trimethylbenzene	108-67-8	19.6	<b>1,120</b>	~
Xylenes, Total	1330-20-7	19.6	<b>990</b>	~

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	494	489.8	101	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	485	489.8	99.0	50-140	
Surr: Dibromofluoromethane		1868-53-7	583	489.8	119	50-140	
Surr: Toluene-d8		2037-26-5	513	489.8	105	50-140	

~ - The reporting limits were raised due to high analyte concentrations.

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Analyzed:** 9/27/2018 200h

**Units:** µg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trimethylbenzene	95-63-6	5.15	<b>165</b>	
4-Isopropyltoluene	99-87-6	5.15	<b>101</b>	
Benzene	71-43-2	5.15	<b>46.7</b>	
C5&C6 Aliphatic hydrocarbons		51.5	<b>59.6</b>	
C5-C8 Aliphatic hydrocarbons		51.5	<b>1,050</b>	
C6-C8 Aromatic hydrocarbons		51.5	<b>1,120</b>	
C7&C8 Aliphatic hydrocarbons		51.5	<b>986</b>	
Ethylbenzene	100-41-4	5.15	<b>40.9</b>	
Isopropylbenzene	98-82-8	5.15	<b>16.7</b>	
Naphthalene	91-20-3	5.15	<b>74.4</b>	
n-Butylbenzene	104-51-8	5.15	< 5.15	
n-Propylbenzene	103-65-1	5.15	< 5.15	
sec-Butylbenzene	135-98-8	5.15	<b>22.2</b>	
tert-Butylbenzene	98-06-6	5.15	<b>32.7</b>	
Toluene	108-88-3	5.15	<b>176</b>	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



**Lab Sample ID:** 1809577-001A

**Client Sample ID:** RC4-SC-41(5)

**Analyzed:** 9/27/2018 200h

**Units:** µg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	134	128.8	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	138	128.8	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	148	128.8	115	50-140	
Surr: Toluene-d8		2037-26-5	134	128.8	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

**Collection Date:** 9/25/2018 844h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

**Analytical Results**

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1532h

**Units:** mg/kg-dry

**Dilution Factor:** 9.62

**Method:** SW8260C

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.494	0.4898	101	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.485	0.4898	99.0	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.583	0.4898	119	50-140	
Surr: Toluene-d8		2037-26-5	0.513	0.4898	105	50-140	

**Analyzed:** 9/27/2018 200h

**Units:** mg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0515	4.60		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.134	0.1288	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.138	0.1288	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.148	0.1288	115	50-140	
Surr: Toluene-d8		2037-26-5	0.134	0.1288	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Laboratory Director

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-002A  
**Client Sample ID:** RC4-SC-44(5)  
**Collection Date:** 9/25/2018 847h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 1654h

**Units:** µg/kg-dry

**Dilution Factor:** 10

**Method:** SW8260C

Compound			CAS Number		Reporting Limit	Analytical Result	Qual
1,2,4-Trimethylbenzene			95-63-6		20.5	824	~
Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	534	513.0	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	543	513.0	106	50-140	
Surr: Dibromofluoromethane		1868-53-7	553	513.0	108	50-140	
Surr: Toluene-d8		2037-26-5	528	513.0	103	50-140	

~ - The reporting limits were raised due to high analyte concentrations.

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Analyzed:** 9/27/2018 301h

**Units:** µg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	4.99	554	
1,3,5-Trimethylbenzene	108-67-8	4.99	473	
4-Isopropyltoluene	99-87-6	4.99	133	
Benzene	71-43-2	4.99	< 4.99	
C5&C6 Aliphatic hydrocarbons		49.9	< 49.9	
C5-C8 Aliphatic hydrocarbons		49.9	1,170	
C6-C8 Aromatic hydrocarbons		49.9	1,080	
C7&C8 Aliphatic hydrocarbons		49.9	1,170	
Ethylbenzene	100-41-4	4.99	97.2	
Isopropylbenzene	98-82-8	4.99	55.5	
Naphthalene	91-20-3	4.99	75.8	
n-Butylbenzene	104-51-8	4.99	< 4.99	
n-Propylbenzene	103-65-1	4.99	92.4	
sec-Butylbenzene	135-98-8	4.99	52.2	
tert-Butylbenzene	98-06-6	4.99	26.0	
Toluene	108-88-3	4.99	41.7	
Xylenes, Total	1330-20-7	4.99	936	

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**Lab Sample ID:** 1809577-002A

**Client Sample ID:** RC4-SC-44(5)

**Analyzed:** 9/27/2018 301h

**Units:** µg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	122	124.6	97.8	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	149	124.6	119	50-140	
Surr: Dibromofluoromethane		1868-53-7	125	124.6	100	50-140	
Surr: Toluene-d8		2037-26-5	131	124.6	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

**Collection Date:** 9/25/2018 847h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

**Analytical Results**

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 301h

**Units:** mg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
TPH C6-C10 (GRO)		0.0499	6.18	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.122	0.1246	97.8	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.149	0.1246	119	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.125	0.1246	100	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1246	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-003A  
**Client Sample ID:** RC4-SC-47(4)  
**Collection Date:** 9/25/2018 848h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1714h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0513	0.152		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.130	0.1283	102	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.139	0.1283	109	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.139	0.1283	108	50-140	
Surr: Toluene-d8		2037-26-5	0.134	0.1283	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-004A  
**Client Sample ID:** RC4-SC-182(3)  
**Collection Date:** 9/25/2018 850h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 343h

**Units:** µg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	4.95	179	
1,2,4-Trimethylbenzene	95-63-6	4.95	62.7	
1,3,5-Trimethylbenzene	108-67-8	4.95	122	
4-Isopropyltoluene	99-87-6	4.95	7.38	
Benzene	71-43-2	4.95	< 4.95	
C5&C6 Aliphatic hydrocarbons		49.5	< 49.5	
C5-C8 Aliphatic hydrocarbons		49.5	< 49.5	
C6-C8 Aromatic hydrocarbons		49.5	< 49.5	
C7&C8 Aliphatic hydrocarbons		49.5	< 49.5	
Ethylbenzene	100-41-4	4.95	< 4.95	
Isopropylbenzene	98-82-8	4.95	< 4.95	
Naphthalene	91-20-3	4.95	17.6	
n-Butylbenzene	104-51-8	4.95	< 4.95	
n-Propylbenzene	103-65-1	4.95	< 4.95	
sec-Butylbenzene	135-98-8	4.95	< 4.95	
tert-Butylbenzene	98-06-6	4.95	8.17	
Toluene	108-88-3	4.95	< 4.95	
Xylenes, Total	1330-20-7	4.95	40.2	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	120	123.8	97.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	155	123.8	125	50-140	
Surr: Dibromofluoromethane		1868-53-7	129	123.8	104	50-140	
Surr: Toluene-d8		2037-26-5	131	123.8	106	50-140	

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Collection Date:** 9/25/2018 850h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 343h

**Units:** mg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

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Jose Rocha  
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**Lab Sample ID:** 1809577-004A

**Client Sample ID:** RC4-SC-182(3)

**Analyzed:** 9/27/2018 343h

**Units:** mg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
TPH C6-C10 (GRO)		0.0495	<b>0.757</b>	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.120	0.1238	97.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.155	0.1238	125	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.129	0.1238	104	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1238	106	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-005A  
**Client Sample ID:** RC4-SC-50(4)  
**Collection Date:** 9/25/2018 851h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 404h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0502	2.71		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1255	98.7	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.149	0.1255	119	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.131	0.1255	104	50-140	
Surr: Toluene-d8		2037-26-5	0.132	0.1255	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-006A  
**Client Sample ID:** RC4-SC-55(4)  
**Collection Date:** 9/25/2018 852h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1735h

**Units:** mg/kg-dry

**Dilution Factor:** 2.45

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0499	0.270		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.120	0.1248	96.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.129	0.1248	103	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.132	0.1248	106	50-140	
Surr: Toluene-d8		2037-26-5	0.126	0.1248	101	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-007A  
**Client Sample ID:** RC4-SC-231(1)  
**Collection Date:** 9/25/2018 854h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 445h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00507	<b>0.00814</b>	
Toluene	108-88-3	0.00507	< 0.00507	
TPH C6-C10 (GRO)		0.0507	<b>0.954</b>	
Xylenes, Total	1330-20-7	0.00507	<b>0.156</b>	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.125	0.1269	98.4	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.137	0.1269	108	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.133	0.1269	105	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1269	102	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-008A  
**Client Sample ID:** RC4-SC-186(3)  
**Collection Date:** 9/25/2018 855h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 506h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	< 0.0501	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1252	98.9	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.140	0.1252	112	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.124	0.1252	99.1	50-140	
Surr: Toluene-d8		2037-26-5	0.127	0.1252	102	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-009A  
**Client Sample ID:** RC4-SC-232(1)  
**Collection Date:** 9/25/2018 857h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1755h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	< 0.0501	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.128	0.1252	102	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.132	0.1252	105	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1252	109	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1252	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-010A  
**Client Sample ID:** RC4-SC-188(3)  
**Collection Date:** 9/25/2018 858h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 548h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00508	<b>0.0441</b>	
Toluene	108-88-3	0.00508	<b>0.0223</b>	
TPH C6-C10 (GRO)		0.0508	<b>2.19</b>	
Xylenes, Total	1330-20-7	0.00508	<b>0.468</b>	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1269	98.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.151	0.1269	119	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1269	108	50-140	
Surr: Toluene-d8		2037-26-5	0.137	0.1269	108	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-011A  
**Client Sample ID:** RC4-SC-233(1)  
**Collection Date:** 9/25/2018 900h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 608h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	<b>0.217</b>	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.125	0.1252	100	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.145	0.1252	116	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.132	0.1252	106	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1252	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-012A  
**Client Sample ID:** RC4-SC-234(1)  
**Collection Date:** 9/25/2018 902h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 629h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00257	< 0.00257	
Ethylbenzene	100-41-4	0.00514	< 0.00514	
Toluene	108-88-3	0.00514	< 0.00514	
TPH C6-C10 (GRO)		0.0514	< 0.0514	
Xylenes, Total	1330-20-7	0.00514	< 0.00514	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.130	0.1285	101	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.138	0.1285	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1285	106	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1285	101	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-013A  
**Client Sample ID:** RC4-SC-235(1)  
**Collection Date:** 9/25/2018 905h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1815h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00253	< 0.00253	
Ethylbenzene	100-41-4	0.00506	< 0.00506	
Toluene	108-88-3	0.00506	< 0.00506	
TPH C6-C10 (GRO)		0.0506	< 0.0506	
Xylenes, Total	1330-20-7	0.00506	< 0.00506	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.130	0.1264	103	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.140	0.1264	111	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.142	0.1264	112	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1264	104	50-140	

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-014A  
**Client Sample ID:** RC4-SC-236(1)  
**Collection Date:** 9/25/2018 906h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 711h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00257	< 0.00257	
Ethylbenzene	100-41-4	0.00513	< 0.00513	
Toluene	108-88-3	0.00513	< 0.00513	
TPH C6-C10 (GRO)		0.0513	< 0.0513	
Xylenes, Total	1330-20-7	0.00513	< 0.00513	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.125	0.1283	97.4	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.144	0.1283	112	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.137	0.1283	107	50-140	
Surr: Toluene-d8		2037-26-5	0.133	0.1283	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-015A  
**Client Sample ID:** RC4-SC-237(1)  
**Collection Date:** 9/25/2018 908h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 732h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00251	< 0.00251	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	< 0.0501	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1253	98.9	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.133	0.1253	106	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.135	0.1253	108	50-140	
Surr: Toluene-d8		2037-26-5	0.128	0.1253	102	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-016A  
**Client Sample ID:** RC4-SC-238(1)  
**Collection Date:** 9/25/2018 910h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 753h

**Units:** mg/kg-dry

**Dilution Factor:** 2.45

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00252	< 0.00252	
Ethylbenzene	100-41-4	0.00504	< 0.00504	
Toluene	108-88-3	0.00504	< 0.00504	
TPH C6-C10 (GRO)		0.0504	< 0.0504	
Xylenes, Total	1330-20-7	0.00504	< 0.00504	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1260	100	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.136	0.1260	108	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.140	0.1260	111	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1260	102	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-017A  
**Client Sample ID:** RC4-SC-239(1)  
**Collection Date:** 9/25/2018 912h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 813h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00508	< 0.00508	
Toluene	108-88-3	0.00508	< 0.00508	
TPH C6-C10 (GRO)		0.0508	< 0.0508	
Xylenes, Total	1330-20-7	0.00508	< 0.00508	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1269	99.3	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.137	0.1269	108	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.131	0.1269	103	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1269	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-018A  
**Client Sample ID:** RC4-SC-240(1)  
**Collection Date:** 9/25/2018 913h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1836h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00261	< 0.00261	
Ethylbenzene	100-41-4	0.00521	< 0.00521	
Toluene	108-88-3	0.00521	< 0.00521	
TPH C6-C10 (GRO)		0.0521	< 0.0521	
Xylenes, Total	1330-20-7	0.00521	< 0.00521	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.122	0.1303	93.4	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.140	0.1303	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.142	0.1303	109	50-140	
Surr: Toluene-d8		2037-26-5	0.138	0.1303	106	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Laboratory Director

Jose Rocha  
QA Officer





# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-019A  
**Client Sample ID:** RC4-SC-241(1)  
**Collection Date:** 9/25/2018 915h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 855h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	< 0.0501	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1252	100	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.137	0.1252	109	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.141	0.1252	113	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1252	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-020A  
**Client Sample ID:** RC4-SC-196(3)  
**Collection Date:** 9/25/2018 919h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 916h

**Units:** mg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00257	< 0.00257	
Ethylbenzene	100-41-4	0.00514	< 0.00514	
Toluene	108-88-3	0.00514	< 0.00514	
TPH C6-C10 (GRO)		0.0514	<b>0.146</b>	
Xylenes, Total	1330-20-7	0.00514	< 0.00514	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1284	98.1	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.143	0.1284	111	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.143	0.1284	111	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1284	101	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-021A  
**Client Sample ID:** RC4-SC-242(1)  
**Collection Date:** 9/25/2018 917h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1856h

**Units:** mg/kg-dry

**Dilution Factor:** 2.44

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00248	< 0.00248	
Ethylbenzene	100-41-4	0.00496	< 0.00496	
Toluene	108-88-3	0.00496	<b>0.00975</b>	
TPH C6-C10 (GRO)		0.0496	<b>0.290</b>	
Xylenes, Total	1330-20-7	0.00496	<b>0.0104</b>	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.123	0.1240	99.5	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.132	0.1240	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.135	0.1240	109	50-140	
Surr: Toluene-d8		2037-26-5	0.128	0.1240	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-022A  
**Client Sample ID:** RC4-SC-199(3)  
**Collection Date:** 9/25/2018 923h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 258h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00501	< 0.00501	
Toluene	108-88-3	0.00501	< 0.00501	
TPH C6-C10 (GRO)		0.0501	< 0.0501	
Xylenes, Total	1330-20-7	0.00501	< 0.00501	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.121	0.1252	96.8	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.142	0.1252	113	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.126	0.1252	100	50-140	
Surr: Toluene-d8		2037-26-5	0.128	0.1252	102	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-023A  
**Client Sample ID:** RC4-SC-200(3)  
**Collection Date:** 9/25/2018 924h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1916h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00253	< 0.00253	
Ethylbenzene	100-41-4	0.00506	< 0.00506	
Toluene	108-88-3	0.00506	<b>0.00609</b>	
TPH C6-C10 (GRO)		0.0506	< 0.0506	
Xylenes, Total	1330-20-7	0.00506	< 0.00506	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.127	0.1264	101	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.142	0.1264	113	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1264	108	50-140	
Surr: Toluene-d8		2037-26-5	0.132	0.1264	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-024A  
**Client Sample ID:** RC4-SC-243(1)  
**Collection Date:** 9/25/2018 926h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 339h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00508	< 0.00508	
Toluene	108-88-3	0.00508	< 0.00508	
TPH C6-C10 (GRO)		0.0508	<b>0.285</b>	
Xylenes, Total	1330-20-7	0.00508	< 0.00508	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1269	99.3	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.138	0.1269	109	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.135	0.1269	106	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1269	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-025A  
**Client Sample ID:** RC4-SC-244(1)  
**Collection Date:** 9/25/2018 1040h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 400h

**Units:** mg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00256	< 0.00256	
Ethylbenzene	100-41-4	0.00513	< 0.00513	
Toluene	108-88-3	0.00513	< 0.00513	
TPH C6-C10 (GRO)		0.0513	< 0.0513	
Xylenes, Total	1330-20-7	0.00513	< 0.00513	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1282	98.6	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.150	0.1282	117	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.133	0.1282	104	50-140	
Surr: Toluene-d8		2037-26-5	0.135	0.1282	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-026A  
**Client Sample ID:** RC4-SC-202(3)  
**Collection Date:** 9/25/2018 1051h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 420h

**Units:** mg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00256	< 0.00256	
Ethylbenzene	100-41-4	0.00512	< 0.00512	
Toluene	108-88-3	0.00512	< 0.00512	
TPH C6-C10 (GRO)		0.0512	< 0.0512	
Xylenes, Total	1330-20-7	0.00512	< 0.00512	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.125	0.1281	98.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.149	0.1281	116	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.133	0.1281	104	50-140	
Surr: Toluene-d8		2037-26-5	0.135	0.1281	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-027A  
**Client Sample ID:** RC4-SC-203(3)  
**Collection Date:** 9/25/2018 1053h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1937h

**Units:** mg/kg-dry

**Dilution Factor:** 2.48

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00252	< 0.00252	
Ethylbenzene	100-41-4	0.00503	< 0.00503	
Toluene	108-88-3	0.00503	< 0.00503	
TPH C6-C10 (GRO)		0.0503	< 0.0503	
Xylenes, Total	1330-20-7	0.00503	< 0.00503	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.131	0.1258	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.145	0.1258	115	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1258	108	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1258	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-028A  
**Client Sample ID:** RC4-SC-204(3)  
**Collection Date:** 9/25/2018 1055h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 502h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00249	< 0.00249	
Ethylbenzene	100-41-4	0.00498	< 0.00498	
Toluene	108-88-3	0.00498	< 0.00498	
TPH C6-C10 (GRO)		0.0498	< 0.0498	
Xylenes, Total	1330-20-7	0.00498	< 0.00498	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1244	99.9	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.144	0.1244	115	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.130	0.1244	104	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1244	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-029A  
**Client Sample ID:** RC4-SC-245(1)  
**Collection Date:** 9/25/2018 1057h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1957h

**Units:** mg/kg-dry

**Dilution Factor:** 2.44

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00246	< 0.00246	
Ethylbenzene	100-41-4	0.00493	< 0.00493	
Toluene	108-88-3	0.00493	<b>0.00520</b>	
TPH C6-C10 (GRO)		0.0493	< 0.0493	
Xylenes, Total	1330-20-7	0.00493	< 0.00493	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.128	0.1232	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.147	0.1232	119	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.136	0.1232	110	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1232	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-030A  
**Client Sample ID:** RC4-SC-246(1)  
**Collection Date:** 9/25/2018 1100h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 543h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00252	< 0.00252	
Ethylbenzene	100-41-4	0.00504	< 0.00504	
Toluene	108-88-3	0.00504	< 0.00504	
TPH C6-C10 (GRO)		0.0504	<b>0.218</b>	
Xylenes, Total	1330-20-7	0.00504	< 0.00504	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.125	0.1260	99.2	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.147	0.1260	117	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.128	0.1260	101	50-140	
Surr: Toluene-d8		2037-26-5	0.132	0.1260	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-031A  
**Client Sample ID:** RC4-SC-206(3)  
**Collection Date:** 9/25/2018 1101h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 2018h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00508	< 0.00508	
Toluene	108-88-3	0.00508	< 0.00508	
TPH C6-C10 (GRO)		0.0508	< 0.0508	
Xylenes, Total	1330-20-7	0.00508	< 0.00508	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.126	0.1270	99.0	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.154	0.1270	122	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.137	0.1270	108	50-140	
Surr: Toluene-d8		2037-26-5	0.135	0.1270	106	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-032A  
**Client Sample ID:** RC4-SC-207(3)  
**Collection Date:** 9/25/2018 1103h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 624h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00250	< 0.00250	
Ethylbenzene	100-41-4	0.00500	< 0.00500	
Toluene	108-88-3	0.00500	< 0.00500	
TPH C6-C10 (GRO)		0.0500	< 0.0500	
Xylenes, Total	1330-20-7	0.00500	< 0.00500	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.119	0.1249	95.2	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.148	0.1249	118	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.124	0.1249	98.9	50-140	
Surr: Toluene-d8		2037-26-5	0.131	0.1249	105	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer





# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-033A  
**Client Sample ID:** RC4-SC-208(3)  
**Collection Date:** 9/25/2018 1104h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 645h

**Units:** mg/kg-dry

**Dilution Factor:** 2.53

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00257	< 0.00257	
Ethylbenzene	100-41-4	0.00515	< 0.00515	
Toluene	108-88-3	0.00515	< 0.00515	
TPH C6-C10 (GRO)		0.0515	< 0.0515	
Xylenes, Total	1330-20-7	0.00515	< 0.00515	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.121	0.1286	94.2	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.146	0.1286	114	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.130	0.1286	101	50-140	
Surr: Toluene-d8		2037-26-5	0.133	0.1286	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-034A  
**Client Sample ID:** RC4-SC-93(5)  
**Collection Date:** 9/25/2018 1106h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 706h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00255	< 0.00255	
Ethylbenzene	100-41-4	0.00509	< 0.00509	
Toluene	108-88-3	0.00509	< 0.00509	
TPH C6-C10 (GRO)		0.0509	< 0.0509	
Xylenes, Total	1330-20-7	0.00509	< 0.00509	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.129	0.1273	102	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.134	0.1273	105	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.128	0.1273	100	50-140	
Surr: Toluene-d8		2037-26-5	0.129	0.1273	101	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-035A  
**Client Sample ID:** RC4-SC-247(1)  
**Collection Date:** 9/25/2018 1108h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 726h

**Units:** mg/kg-dry

**Dilution Factor:** 2.46

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00249	< 0.00249	
Ethylbenzene	100-41-4	0.00498	< 0.00498	
Toluene	108-88-3	0.00498	< 0.00498	
TPH C6-C10 (GRO)		0.0498	< 0.0498	
Xylenes, Total	1330-20-7	0.00498	< 0.00498	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.119	0.1246	95.8	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.136	0.1246	109	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.126	0.1246	101	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1246	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-036A  
**Client Sample ID:** RC4-SC-155(3)  
**Collection Date:** 9/25/2018 1112h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 747h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00254	< 0.00254	
Ethylbenzene	100-41-4	0.00508	< 0.00508	
Toluene	108-88-3	0.00508	< 0.00508	
TPH C6-C10 (GRO)		0.0508	<b>0.310</b>	
Xylenes, Total	1330-20-7	0.00508	< 0.00508	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1271	97.4	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.134	0.1271	105	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.127	0.1271	99.9	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1271	103	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-037A  
**Client Sample ID:** RC4-SC-156(4)  
**Collection Date:** 9/25/2018 1114h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 2038h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00257	< 0.00257	
Ethylbenzene	100-41-4	0.00514	< 0.00514	
Toluene	108-88-3	0.00514	< 0.00514	
TPH C6-C10 (GRO)		0.0514	< 0.0514	
Xylenes, Total	1330-20-7	0.00514	< 0.00514	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.130	0.1285	101	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.143	0.1285	111	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.139	0.1285	109	50-140	
Surr: Toluene-d8		2037-26-5	0.133	0.1285	104	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-038A  
**Client Sample ID:** RC4-SC-248(1)  
**Collection Date:** 9/25/2018 1115h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 2058h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00252	< 0.00252	
Ethylbenzene	100-41-4	0.00504	< 0.00504	
Toluene	108-88-3	0.00504	< 0.00504	
TPH C6-C10 (GRO)		0.0504	< 0.0504	
Xylenes, Total	1330-20-7	0.00504	< 0.00504	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.138	0.1261	109	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.134	0.1261	107	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.0720	0.1261	57.1	50-140	
Surr: Toluene-d8		2037-26-5	0.127	0.1261	100	50-140	

*Internal standard areas were outside of the QC limits. Reanalysis of sample yielded similar results indicating matrix interference. Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-039A  
**Client Sample ID:** RC4-SC-249(1)  
**Collection Date:** 9/25/2018 1117h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 849h

**Units:** mg/kg-dry

**Dilution Factor:** 2.45

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzene	71-43-2	0.00251	< 0.00251	
Ethylbenzene	100-41-4	0.00503	< 0.00503	
Toluene	108-88-3	0.00503	< 0.00503	
TPH C6-C10 (GRO)		0.0503	< 0.0503	
Xylenes, Total	1330-20-7	0.00503	< 0.00503	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.121	0.1256	96.2	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.140	0.1256	112	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.124	0.1256	98.8	50-140	
Surr: Toluene-d8		2037-26-5	0.130	0.1256	104	50-140	

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

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Jose Rocha  
QA Officer





## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-040A  
**Client Sample ID:** RC4-SC-215(3)  
**Collection Date:** 9/25/2018 1125h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 910h

**Units:** mg/kg-dry

**Dilution Factor:** 2.44

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0497	< 0.0497		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.119	0.1243	95.3	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.153	0.1243	123	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.123	0.1243	98.7	50-140	
Surr: Toluene-d8		2037-26-5	0.132	0.1243	106	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-041A  
**Client Sample ID:** RC4-SC-250(1)  
**Collection Date:** 9/25/2018 1128h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 254h

**Units:** mg/kg-dry

**Dilution Factor:** 2.45

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0500	< 0.0500		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.135	0.1250	108	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.137	0.1250	110	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.127	0.1250	102	50-140	
Surr: Toluene-d8		2037-26-5	0.121	0.1250	96.5	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-042A  
**Client Sample ID:** RC4-SC-110(5)  
**Collection Date:** 9/25/2018 1130h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 356h

**Units:** mg/kg-dry

**Dilution Factor:** 2.43

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0501	0.167		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.135	0.1251	108	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.145	0.1251	116	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.121	0.1251	96.4	50-140	
Surr: Toluene-d8		2037-26-5	0.121	0.1251	96.5	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-043A  
**Client Sample ID:** RC4-SC-251(1)  
**Collection Date:** 9/25/2018 1132h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 417h

**Units:** mg/kg-dry

**Dilution Factor:** 2.48

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0504	< 0.0504		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.131	0.1260	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.141	0.1260	112	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.116	0.1260	91.8	50-140	
Surr: Toluene-d8		2037-26-5	0.122	0.1260	97.1	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-044A  
**Client Sample ID:** RC4-SC-219(3)  
**Collection Date:** 9/25/2018 1135h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 438h

**Units:** mg/kg-dry

**Dilution Factor:** 2.51

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0513	0.0736		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.134	0.1283	105	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.140	0.1283	109	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.127	0.1283	98.8	50-140	
Surr: Toluene-d8		2037-26-5	0.126	0.1283	98.3	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-045A  
**Client Sample ID:** RC4-SC-227(3)  
**Collection Date:** 9/25/2018 1139h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 458h

**Units:** mg/kg-dry

**Dilution Factor:** 2.44

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0499	0.0872		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.140	0.1248	112	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.125	0.1248	99.8	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.120	0.1248	96.1	50-140	
Surr: Toluene-d8		2037-26-5	0.116	0.1248	92.7	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-046A  
**Client Sample ID:** RC4-SC-228(3)  
**Collection Date:** 9/25/2018 1140h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

### Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 519h

**Units:** mg/kg-dry

**Dilution Factor:** 2.42

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0490	0.346		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.124	0.1224	102	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.130	0.1224	106	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.117	0.1224	95.5	50-140	
Surr: Toluene-d8		2037-26-5	0.112	0.1224	91.7	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-047A  
**Client Sample ID:** RC4-SC-230(3)  
**Collection Date:** 9/25/2018 1141h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 540h

**Units:** µg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	5.08	126	
1,2,4-Trimethylbenzene	95-63-6	5.08	12.3	
1,3,5-Trimethylbenzene	108-67-8	5.08	108	
4-Isopropyltoluene	99-87-6	5.08	20.3	
Benzene	71-43-2	5.08	< 5.08	
C5&C6 Aliphatic hydrocarbons		50.8	< 50.8	
C5-C8 Aliphatic hydrocarbons		50.8	< 50.8	
C6-C8 Aromatic hydrocarbons		50.8	< 50.8	
C7&C8 Aliphatic hydrocarbons		50.8	< 50.8	
Ethylbenzene	100-41-4	5.08	< 5.08	
Isopropylbenzene	98-82-8	5.08	< 5.08	
Naphthalene	91-20-3	5.08	< 5.08	
n-Butylbenzene	104-51-8	5.08	< 5.08	
n-Propylbenzene	103-65-1	5.08	< 5.08	
sec-Butylbenzene	135-98-8	5.08	< 5.08	
tert-Butylbenzene	98-06-6	5.08	8.45	
Toluene	108-88-3	5.08	< 5.08	
Xylenes, Total	1330-20-7	5.08	< 5.08	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	140	126.9	110	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	137	126.9	108	50-140	
Surr: Dibromofluoromethane		1868-53-7	122	126.9	96.2	50-140	
Surr: Toluene-d8		2037-26-5	119	126.9	94.0	50-140	

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Collection Date:** 9/25/2018 1141h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 540h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

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**Lab Sample ID:** 1809577-047A

**Client Sample ID:** RC4-SC-230(3)

**Analyzed:** 9/27/2018 540h

**Units:** mg/kg-dry

**Dilution Factor:** 2.5

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0508	0.497		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.140	0.1269	110	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.137	0.1269	108	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.122	0.1269	96.2	50-140	
Surr: Toluene-d8		2037-26-5	0.119	0.1269	94.0	50-140	

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-048A  
**Client Sample ID:** RC4-SC-222(3)  
**Collection Date:** 9/25/2018 1142h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 1241h

**Units:** µg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	5.03	<b>59.6</b>	
1,2,4-Trimethylbenzene	95-63-6	5.03	<b>13.4</b>	
1,3,5-Trimethylbenzene	108-67-8	5.03	<b>59.1</b>	
4-Isopropyltoluene	99-87-6	5.03	<b>16.3</b>	
Benzene	71-43-2	5.03	< 5.03	
C5&C6 Aliphatic hydrocarbons		50.3	< 50.3	
C5-C8 Aliphatic hydrocarbons		50.3	< 50.3	
C6-C8 Aromatic hydrocarbons		50.3	< 50.3	
C7&C8 Aliphatic hydrocarbons		50.3	< 50.3	
Ethylbenzene	100-41-4	5.03	< 5.03	
Isopropylbenzene	98-82-8	5.03	< 5.03	
Naphthalene	91-20-3	5.03	< 5.03	
n-Butylbenzene	104-51-8	5.03	< 5.03	
n-Propylbenzene	103-65-1	5.03	< 5.03	
sec-Butylbenzene	135-98-8	5.03	< 5.03	
tert-Butylbenzene	98-06-6	5.03	< 5.03	
Toluene	108-88-3	5.03	< 5.03	
Xylenes, Total	1330-20-7	5.03	<b>7.88</b>	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	133	125.9	105	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	145	125.9	116	50-140	
Surr: Dibromofluoromethane		1868-53-7	123	125.9	97.6	50-140	
Surr: Toluene-d8		2037-26-5	123	125.9	98.1	50-140	

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Collection Date:** 9/25/2018 1142h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 1241h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

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Jose Rocha  
QA Officer



**Lab Sample ID:** 1809577-048A

**Client Sample ID:** RC4-SC-222(3)

**Analyzed:** 9/27/2018 1241h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
TPH C6-C10 (GRO)		0.0503	<b>0.412</b>	

Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.133	0.1259	105	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.145	0.1259	116	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.123	0.1259	97.6	50-140	
Surr: Toluene-d8		2037-26-5	0.123	0.1259	98.1	50-140	

*Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.*

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# ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-049A  
**Client Sample ID:** RC4-SC-224(3)  
**Collection Date:** 9/25/2018 1144h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-S

## Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 9/27/2018 621h

**Units:** µg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,3-Trimethylbenzene	526-73-8	5.04	7.31	
1,2,4-Trimethylbenzene	95-63-6	5.04	< 5.04	
1,3,5-Trimethylbenzene	108-67-8	5.04	6.98	
4-Isopropyltoluene	99-87-6	5.04	< 5.04	
Benzene	71-43-2	5.04	< 5.04	
C5&C6 Aliphatic hydrocarbons		50.4	< 50.4	
C5-C8 Aliphatic hydrocarbons		50.4	< 50.4	
C6-C8 Aromatic hydrocarbons		50.4	< 50.4	
C7&C8 Aliphatic hydrocarbons		50.4	< 50.4	
Ethylbenzene	100-41-4	5.04	< 5.04	
Isopropylbenzene	98-82-8	5.04	< 5.04	
Naphthalene	91-20-3	5.04	< 5.04	
n-Butylbenzene	104-51-8	5.04	< 5.04	
n-Propylbenzene	103-65-1	5.04	< 5.04	
sec-Butylbenzene	135-98-8	5.04	< 5.04	
tert-Butylbenzene	98-06-6	5.04	< 5.04	
Toluene	108-88-3	5.04	< 5.04	
Xylenes, Total	1330-20-7	5.04	< 5.04	

Surrogate	Units: µg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	131	125.9	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	144	125.9	114	50-140	
Surr: Dibromofluoromethane		1868-53-7	116	125.9	91.8	50-140	
Surr: Toluene-d8		2037-26-5	119	125.9	94.5	50-140	

Sampling and analytical preparation performed by method 5030A modified for analysis of soil samples collected in 2 or 4 oz jars.

**Collection Date:** 9/25/2018 1144h

**Received Date:** 9/26/2018 1107h

Test Code: 8260-S-PPM

## Analytical Results

VOAs MBTEXN/GRO by GC/MS Method 8260C

**Analyzed:** 9/27/2018 621h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

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**Lab Sample ID:** 1809577-049A

**Client Sample ID:** RC4-SC-224(3)

**Analyzed:** 9/27/2018 621h

**Units:** mg/kg-dry

**Dilution Factor:** 2.49

**Method:** SW8260C

Compound			CAS Number	Reporting Limit	Analytical Result	Qual	
TPH C6-C10 (GRO)				0.0504	0.365		
Surrogate	Units: mg/kg-dry	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4		17060-07-0	0.131	0.1259	104	51-170	
Surr: 4-Bromofluorobenzene		460-00-4	0.144	0.1259	114	50-140	
Surr: Dibromofluoromethane		1868-53-7	0.116	0.1259	91.8	50-140	
Surr: Toluene-d8		2037-26-5	0.119	0.1259	94.5	50-140	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-001A  
**Client Sample ID:** RC4-SC-41(5)  
**Collection Date:** 9/25/2018 844h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h **Extracted:**  
**Units:** µg/kg **Dilution Factor:** 1 **Method:** SW8260C-8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
C9-C16 Aromatic hydrocarbons		20.0	3,100	

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## **ORGANIC ANALYTICAL REPORT**

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-002A  
**Client Sample ID:** RC4-SC-44(5)  
**Collection Date:** 9/25/2018 847h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### **Analytical Results**

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h **Extracted:**  
**Units:** µg/kg **Dilution Factor:** 1 **Method:** SW8260C-8270D

<b>Compound</b>	<b>CAS Number</b>	<b>Reporting Limit</b>	<b>Analytical Result</b>	<b>Qual</b>
C9-C16 Aromatic hydrocarbons		20.0	<b>2,280</b>	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-004A  
**Client Sample ID:** RC4-SC-182(3)  
**Collection Date:** 9/25/2018 850h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### **Analytical Results**

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h **Extracted:**  
**Units:** µg/kg **Dilution Factor:** 1 **Method:** SW8260C-8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
C9-C16 Aromatic hydrocarbons		20.0	397	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-047A  
**Client Sample ID:** RC4-SC-230(3)  
**Collection Date:** 9/25/2018 1141h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h

**Extracted:**

**Units:** µg/kg

**Dilution Factor:** 1

**Method:** SW8260C-8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
C9-C16 Aromatic hydrocarbons		20.0	275	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-048A  
**Client Sample ID:** RC4-SC-222(3)  
**Collection Date:** 9/25/2018 1142h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h **Extracted:**  
**Units:** µg/kg **Dilution Factor:** 1 **Method:** SW8260C-8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
C9-C16 Aromatic hydrocarbons		20.0	148	

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## ORGANIC ANALYTICAL REPORT

**Client:** Stantec Consulting, Inc. **Contact:** Tom Madsen  
**Project:** Chevron Rangely C4 / 203720102.300.0001  
**Lab Sample ID:** 1809577-049A  
**Client Sample ID:** RC4-SC-224(3)  
**Collection Date:** 9/25/2018 1144h  
**Received Date:** 9/26/2018 1107h

Test Code: 8260-70-S-EPA-C9-C16

### Analytical Results

EPA Fractionation by 8260C and 8270D/3546

**Analyzed:** 10/9/2018 1339h **Extracted:**  
**Units:** µg/kg **Dilution Factor:** 1 **Method:** SW8260C-8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
C9-C16 Aromatic hydrocarbons		20.0	< 20.0	

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## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** GC

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> LCS-58340	Date Analyzed:	09/28/2018 902h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1248h											
Diesel Range Organics (DRO) (C10-C28)	123	mg/kg	SW8015D	10.8	20.0	166.7	0	73.7	48 - 115				
Surr: 4-Bromofluorobenzene	26.3	mg/kg	SW8015D			33.33		78.9	24 - 112				
<b>Lab Sample ID:</b> LCS-58365	Date Analyzed:	09/28/2018 1657h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1317h											
Diesel Range Organics (DRO) (C10-C28)	106	mg/kg	SW8015D	10.8	20.0	166.7	0	63.4	48 - 115				
Surr: 4-Bromofluorobenzene	18.7	mg/kg	SW8015D			33.33		56.1	24 - 112				
<b>Lab Sample ID:</b> LCS-58368	Date Analyzed:	10/02/2018 1120h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/28/2018 1408h											
Diesel Range Organics (DRO) (C10-C28)	124	mg/kg	SW8015D	10.8	20.0	166.7	0	74.5	48 - 115				
Surr: 4-Bromofluorobenzene	27.1	mg/kg	SW8015D			33.33		81.4	24 - 112				



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** GC

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-58340	Date Analyzed:	09/28/2018 824h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1248h											
Diesel Range Organics (DRO) (C10-C28)	< 20.0	mg/kg	SW8015D	10.8	20.0								
Surr: 4-Bromofluorobenzene	22.1	mg/kg	SW8015D			33.33		66.2	24 - 112				
<b>Lab Sample ID:</b> MB-58365	Date Analyzed:	09/28/2018 1638h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1317h											
Diesel Range Organics (DRO) (C10-C28)	< 20.0	mg/kg	SW8015D	10.8	20.0								
Surr: 4-Bromofluorobenzene	22.0	mg/kg	SW8015D			33.33		66.1	24 - 112				
<b>Lab Sample ID:</b> MB-58368	Date Analyzed:	10/02/2018 1101h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/28/2018 1408h											
Diesel Range Organics (DRO) (C10-C28)	< 20.0	mg/kg	SW8015D	10.8	20.0								
Surr: 4-Bromofluorobenzene	20.7	mg/kg	SW8015D			33.33		62.0	24 - 112				





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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** GC

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1809577-001BMS	Date Analyzed:	09/28/2018 1716h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1248h											
Diesel Range Organics (DRO) (C10-C28)	3,240	mg/kg-dry	SW8015D	438	811	168.9	3160	50.3	10 - 230				
Surr: 4-Bromofluorobenzene	13.2	mg/kg-dry	SW8015D			33.77		39.1	10 - 122				
<b>Lab Sample ID:</b> 1809577-018BMS	Date Analyzed:	09/28/2018 1754h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1317h											
Diesel Range Organics (DRO) (C10-C28)	371	mg/kg-dry	SW8015D	11.4	21.0	175.2	233	78.9	10 - 230				
Surr: 4-Bromofluorobenzene	16.7	mg/kg-dry	SW8015D			35.04		47.6	10 - 122				
<b>Lab Sample ID:</b> 1809577-038BMS	Date Analyzed:	10/02/2018 1216h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/28/2018 1408h											
Diesel Range Organics (DRO) (C10-C28)	464	mg/kg-dry	SW8015D	10.9	20.2	168.5	351	67.0	10 - 230				
Surr: 4-Bromofluorobenzene	17.6	mg/kg-dry	SW8015D			33.69		52.3	10 - 122				

1809577-001BMS: The reporting limits were raised due to sample matrix interferences.



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## QC SUMMARY REPORT

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**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** GC

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1809577-001BMSD	Date Analyzed:	09/28/2018 1754h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1248h											
Diesel Range Organics (DRO) (C10-C28)	2,980	mg/kg-dry	SW8015D	437	810	168.7	3160	-109	10 - 230	3240	8.63	25	<sup>2</sup>
Surr: 4-Bromofluorobenzene	12.6	mg/kg-dry	SW8015D			33.74		37.3	10 - 122				
<b>Lab Sample ID:</b> 1809577-018BMSD	Date Analyzed:	09/28/2018 1831h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/27/2018 1317h											
Diesel Range Organics (DRO) (C10-C28)	375	mg/kg-dry	SW8015D	11.4	21.1	175.5	233	80.7	10 - 230	371	0.909	25	
Surr: 4-Bromofluorobenzene	16.0	mg/kg-dry	SW8015D			35.10		45.6	10 - 122				
<b>Lab Sample ID:</b> 1809577-038BMSD	Date Analyzed:	10/02/2018 1254h											
Test Code: 8015-S-TPH-3546	Date Prepared:	09/28/2018 1408h											
Diesel Range Organics (DRO) (C10-C28)	468	mg/kg-dry	SW8015D	10.9	20.2	168.0	351	69.4	10 - 230	464	0.807	25	
Surr: 4-Bromofluorobenzene	14.8	mg/kg-dry	SW8015D			33.61		43.9	10 - 122				

1809577-001BMSD: The reporting limits were raised due to sample matrix interferences.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery.



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## QC SUMMARY REPORT

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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSSV

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> LCS-58366	Date Analyzed:	10/04/2018 1548h											
Test Code: 8270-S-3546	Date Prepared:	09/28/2018 1401h											
Acenaphthene	416	µg/kg	SW8270D	78.6	340	1,333	0	31.2	24 - 101				
Benzo(a)pyrene	446	µg/kg	SW8270D	68.7	340	1,333	0	33.4	15 - 101				
Pyrene	447	µg/kg	SW8270D	62.6	340	1,333	0	33.5	22 - 109				
Surr: Terphenyl-d14	329	µg/kg	SW8270D			666.7		49.4	26 - 104				



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## QC SUMMARY REPORT

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**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSSV

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-58366	Date Analyzed:	10/04/2018 1527h											
Test Code: 8270-S-3546	Date Prepared:	09/28/2018 1401h											
1,1'-Biphenyl	< 340	µg/kg	SW8270D	82.2	340								
1-Methylnaphthalene	< 340	µg/kg	SW8270D	157	340								
2-Methylnaphthalene	< 340	µg/kg	SW8270D	133	340								
Acenaphthene	< 340	µg/kg	SW8270D	78.6	340								
Acenaphthylene	< 340	µg/kg	SW8270D	102	340								
Anthracene	< 340	µg/kg	SW8270D	89.8	340								
Benz(a)anthracene	< 340	µg/kg	SW8270D	72.1	340								
Benzo(a)pyrene	< 340	µg/kg	SW8270D	68.7	340								
Benzo(b)fluoranthene	< 340	µg/kg	SW8270D	120	340								
Benzo(g,h,i)perylene	< 340	µg/kg	SW8270D	78.6	340								
Benzo(k)fluoranthene	< 340	µg/kg	SW8270D	83.5	340								
C17-C32 Aromatic hydrocarbons	< 340	µg/kg	SW8270D	68.0	340								
C19-C32 Aliphatic hydrocarbons	< 340	µg/kg	SW8270D	68.0	340								
C9-C18 Aliphatic hydrocarbons	< 340	µg/kg	SW8270D	68.0	340								
Chrysene	< 340	µg/kg	SW8270D	67.4	340								
Dibenz(a,h)anthracene	< 340	µg/kg	SW8270D	72.9	340								
Fluoranthene	< 340	µg/kg	SW8270D	103	340								
Fluorene	< 340	µg/kg	SW8270D	61.5	340								
Indene	< 340	µg/kg	SW8270D	83.0	340								
Indeno(1,2,3-cd)pyrene	< 340	µg/kg	SW8270D	76.4	340								
Phenanthrene	< 340	µg/kg	SW8270D	97.9	340								
Pyrene	< 340	µg/kg	SW8270D	62.6	340								
Surr: Terphenyl-d14	374	µg/kg	SW8270D			666.7		56.1	26 - 104				



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## QC SUMMARY REPORT

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**Contact:** Tom Madsen

**Dept:** MSSV

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1809577-001AMS	Date Analyzed:	10/05/2018	1611h										
Test Code: 8270-S-3546	Date Prepared:	09/28/2018	1401h										
Acenaphthene	< 6,890	µg/kg-dry	SW8270D	1,590	6,890	1,351	0	0	31 - 113				S
Benzo(a)pyrene	< 6,890	µg/kg-dry	SW8270D	1,390	6,890	1,351	0	0	38 - 169				S
Pyrene	< 6,890	µg/kg-dry	SW8270D	1,270	6,890	1,351	0	0	31 - 150				S
Surr: Terphenyl-d14	384	µg/kg-dry	SW8270D			675.7		56.9	10 - 265				

*S - Sample dilution required due to sample matrix. MS spiking compound recoveries are outside of the control limits as expected due to being diluted out.*



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**Contact:** Tom Madsen

**Dept:** MSSV

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1809577-001AMSD	Date Analyzed:	10/05/2018 1632h											
Test Code: 8270-S-3546	Date Prepared:	09/28/2018 1401h											
Acenaphthene	< 6,910	µg/kg-dry	SW8270D	1,600	6,910	1,356	0	0	31 - 113	0	0	35	S
Benzo(a)pyrene	< 6,910	µg/kg-dry	SW8270D	1,400	6,910	1,356	0	0	38 - 169	0	0	35	S
Pyrene	< 6,910	µg/kg-dry	SW8270D	1,270	6,910	1,356	0	0	31 - 150	0	0	35	S
Surr: Terphenyl-d14	372	µg/kg-dry	SW8270D			677.9		54.8	10 - 265				

*S - Sample dilution required due to sample matrix. MS spiking compound recoveries are outside of the control limits as expected due to being diluted out.*



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## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC-3 092618B</b>													
Test Code: 8260-S		Date Analyzed:	09/27/2018 153h										
Benzene	16.3	µg/kg	SW8260C	0.174	2.00	20.00	0	81.3	69 - 135				
Ethylbenzene	14.0	µg/kg	SW8260C	1.95	2.00	20.00	0	69.8	52 - 147				
Isopropylbenzene	14.4	µg/kg	SW8260C	0.131	2.00	20.00	0	72.2	44 - 140				
Naphthalene	16.7	µg/kg	SW8260C	0.272	2.00	20.00	0	83.5	57 - 140				
Toluene	14.6	µg/kg	SW8260C	0.393	2.00	20.00	0	73.2	63 - 135				
Xylenes, Total	43.5	µg/kg	SW8260C	0.393	2.00	60.00	0	72.6	50 - 145				
Surr: 1,2-Dichloroethane-d4	52.7	µg/kg	SW8260C			50.00		105	72 - 140				
Surr: 4-Bromofluorobenzene	48.1	µg/kg	SW8260C			50.00		96.2	67 - 145				
Surr: Dibromofluoromethane	47.2	µg/kg	SW8260C			50.00		94.4	70 - 130				
Surr: Toluene-d8	48.4	µg/kg	SW8260C			50.00		96.8	61 - 134				
<b>Lab Sample ID: LCS VOC-2 092618B</b>													
Test Code: 8260-S		Date Analyzed:	09/27/2018 058h										
Benzene	17.2	µg/kg	SW8260C	0.174	2.00	20.00	0	85.9	69 - 135				
Ethylbenzene	14.9	µg/kg	SW8260C	1.95	2.00	20.00	0	74.5	52 - 147				
Isopropylbenzene	14.9	µg/kg	SW8260C	0.131	2.00	20.00	0	74.5	44 - 140				
Naphthalene	15.0	µg/kg	SW8260C	0.272	2.00	20.00	0	74.9	57 - 140				
Toluene	15.8	µg/kg	SW8260C	0.393	2.00	20.00	0	79.2	63 - 135				
Xylenes, Total	44.2	µg/kg	SW8260C	0.393	2.00	60.00	0	73.6	50 - 145				
Surr: 1,2-Dichloroethane-d4	51.3	µg/kg	SW8260C			50.00		103	72 - 140				
Surr: 4-Bromofluorobenzene	51.2	µg/kg	SW8260C			50.00		102	67 - 145				
Surr: Dibromofluoromethane	55.2	µg/kg	SW8260C			50.00		110	70 - 130				
Surr: Toluene-d8	51.3	µg/kg	SW8260C			50.00		103	61 - 134				
<b>Lab Sample ID: LCS VOC-2 092718A</b>													
Test Code: 8260-S		Date Analyzed:	09/27/2018 1139h										
Benzene	21.7	µg/kg	SW8260C	0.174	2.00	20.00	0	108	69 - 135				
Ethylbenzene	19.4	µg/kg	SW8260C	1.95	2.00	20.00	0	97.2	52 - 147				





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## QC SUMMARY REPORT

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**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC-2 092718A</b> Date Analyzed: 09/27/2018 1139h													
Test Code: 8260-S													
Toluene	19.0	µg/kg	SW8260C	0.393	2.00	20.00	0	95.0	63 - 135				
Xylenes, Total	58.0	µg/kg	SW8260C	0.393	2.00	60.00	0	96.7	50 - 145				
Surr: 1,2-Dichloroethane-d4	50.4	µg/kg	SW8260C			50.00		101	72 - 140				
Surr: 4-Bromofluorobenzene	50.8	µg/kg	SW8260C			50.00		102	67 - 145				
Surr: Dibromofluoromethane	54.9	µg/kg	SW8260C			50.00		110	70 - 130				
Surr: Toluene-d8	51.0	µg/kg	SW8260C			50.00		102	61 - 134				
<b>Lab Sample ID: LCS VOC-3 092718A</b> Date Analyzed: 09/27/2018 1137h													
Test Code: 8260-S													
Benzene	19.2	µg/kg	SW8260C	0.174	2.00	20.00	0	95.9	69 - 135				
Ethylbenzene	20.7	µg/kg	SW8260C	1.95	2.00	20.00	0	103	52 - 147				
Isopropylbenzene	22.5	µg/kg	SW8260C	0.131	2.00	20.00	0	113	44 - 140				
Naphthalene	18.5	µg/kg	SW8260C	0.272	2.00	20.00	0	92.6	57 - 140				
Toluene	19.8	µg/kg	SW8260C	0.393	2.00	20.00	0	98.9	63 - 135				
Xylenes, Total	64.2	µg/kg	SW8260C	0.393	2.00	60.00	0	107	50 - 145				
Surr: 1,2-Dichloroethane-d4	50.2	µg/kg	SW8260C			50.00		100	72 - 140				
Surr: 4-Bromofluorobenzene	48.5	µg/kg	SW8260C			50.00		97.0	67 - 145				
Surr: Dibromofluoromethane	46.0	µg/kg	SW8260C			50.00		92.1	70 - 130				
Surr: Toluene-d8	48.3	µg/kg	SW8260C			50.00		96.7	61 - 134				



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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC-2 092618B</b>													
Test Code: 8260-S		Date Analyzed:	09/27/2018 139h										
1,2,3-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.0887	2.00								
1,2,4-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.224	2.00								
1,3,5-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.122	2.00								
4-Isopropyltoluene	< 2.00	µg/kg	SW8260C	0.477	2.00								
Benzene	< 2.00	µg/kg	SW8260C	0.174	2.00								
C5&C6 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C5-C8 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C6-C8 Aromatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C7&C8 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
Ethylbenzene	< 2.00	µg/kg	SW8260C	1.95	2.00								
Isopropylbenzene	< 2.00	µg/kg	SW8260C	0.131	2.00								
Naphthalene	< 2.00	µg/kg	SW8260C	0.272	2.00								
n-Butylbenzene	< 2.00	µg/kg	SW8260C	0.497	2.00								
n-Propylbenzene	< 2.00	µg/kg	SW8260C	0.114	2.00								
sec-Butylbenzene	< 2.00	µg/kg	SW8260C	0.118	2.00								
tert-Butylbenzene	< 2.00	µg/kg	SW8260C	1.67	2.00								
Toluene	< 2.00	µg/kg	SW8260C	0.393	2.00								
Xylenes, Total	< 2.00	µg/kg	SW8260C	0.393	2.00								
Surr: 1,2-Dichloroethane-d4	53.2	µg/kg	SW8260C			50.00		106	72 - 140				
Surr: 4-Bromofluorobenzene	51.2	µg/kg	SW8260C			50.00		102	67 - 145				
Surr: Dibromofluoromethane	53.2	µg/kg	SW8260C			50.00		106	70 - 130				
Surr: Toluene-d8	50.6	µg/kg	SW8260C			50.00		101	61 - 134				
<b>Lab Sample ID: MB VOC-2 092718A</b>													
Test Code: 8260-S		Date Analyzed:	09/27/2018 1220h										
1,2,3-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.0887	2.00								
1,2,4-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.224	2.00								
1,3,5-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.122	2.00								



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**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC-2 092718A</b>													
Date Analyzed:		09/27/2018 1220h											
Test Code:		8260-S											
Benzene	< 2.00	µg/kg	SW8260C	0.174	2.00								
Ethylbenzene	< 2.00	µg/kg	SW8260C	1.95	2.00								
Toluene	< 2.00	µg/kg	SW8260C	0.393	2.00								
Xylenes, Total	< 2.00	µg/kg	SW8260C	0.393	2.00								
Surr: 1,2-Dichloroethane-d4	52.1	µg/kg	SW8260C			50.00		104	72 - 140				
Surr: 4-Bromofluorobenzene	52.0	µg/kg	SW8260C			50.00		104	67 - 145				
Surr: Dibromofluoromethane	56.9	µg/kg	SW8260C			50.00		114	70 - 130				
Surr: Toluene-d8	51.3	µg/kg	SW8260C			50.00		103	61 - 134				
<b>Lab Sample ID: MB VOC-3 092618B</b>													
Date Analyzed:		09/27/2018 234h											
Test Code:		8260-S											
1,2,3-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.0887	2.00								
1,2,4-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.224	2.00								
1,3,5-Trimethylbenzene	< 2.00	µg/kg	SW8260C	0.122	2.00								
4-Isopropyltoluene	< 2.00	µg/kg	SW8260C	0.477	2.00								
Benzene	< 2.00	µg/kg	SW8260C	0.174	2.00								
C5&C6 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C5-C8 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C6-C8 Aromatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
C7&C8 Aliphatic hydrocarbons	< 20.0	µg/kg	SW8260C	4.00	20.0								
Ethylbenzene	< 2.00	µg/kg	SW8260C	1.95	2.00								
Isopropylbenzene	< 2.00	µg/kg	SW8260C	0.131	2.00								
Naphthalene	< 2.00	µg/kg	SW8260C	0.272	2.00								
n-Butylbenzene	< 2.00	µg/kg	SW8260C	0.497	2.00								
n-Propylbenzene	< 2.00	µg/kg	SW8260C	0.114	2.00								
sec-Butylbenzene	< 2.00	µg/kg	SW8260C	0.118	2.00								
tert-Butylbenzene	< 2.00	µg/kg	SW8260C	1.67	2.00								
Toluene	< 2.00	µg/kg	SW8260C	0.393	2.00								



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB VOC-3 092618B		Date Analyzed:	09/27/2018 234h											
Test Code: 8260-S														
Xylenes, Total		< 2.00	µg/kg	SW8260C	0.393	2.00								
Surr: 1,2-Dichloroethane-d4		52.2	µg/kg	SW8260C			50.00		104	72 - 140				
Surr: 4-Bromofluorobenzene		48.8	µg/kg	SW8260C			50.00		97.6	67 - 145				
Surr: Dibromofluoromethane		49.2	µg/kg	SW8260C			50.00		98.4	70 - 130				
Surr: Toluene-d8		48.5	µg/kg	SW8260C			50.00		96.9	61 - 134				
Lab Sample ID: MB VOC-3 092718A		Date Analyzed:	09/27/2018 1218h											
Test Code: 8260-S														
1,2,3-Trimethylbenzene		< 2.00	µg/kg	SW8260C	0.0887	2.00								
1,2,4-Trimethylbenzene		< 2.00	µg/kg	SW8260C	0.224	2.00								
1,3,5-Trimethylbenzene		< 2.00	µg/kg	SW8260C	0.122	2.00								
4-Isopropyltoluene		< 2.00	µg/kg	SW8260C	0.477	2.00								
Benzene		< 2.00	µg/kg	SW8260C	0.174	2.00								
C5&C6 Aliphatic hydrocarbons		< 20.0	µg/kg	SW8260C	4.00	20.0								
C5-C8 Aliphatic hydrocarbons		< 20.0	µg/kg	SW8260C	4.00	20.0								
C6-C8 Aromatic hydrocarbons		< 20.0	µg/kg	SW8260C	4.00	20.0								
C7&C8 Aliphatic hydrocarbons		< 20.0	µg/kg	SW8260C	4.00	20.0								
Ethylbenzene		< 2.00	µg/kg	SW8260C	1.95	2.00								
Isopropylbenzene		< 2.00	µg/kg	SW8260C	0.131	2.00								
Naphthalene		< 2.00	µg/kg	SW8260C	0.272	2.00								
n-Butylbenzene		< 2.00	µg/kg	SW8260C	0.497	2.00								
n-Propylbenzene		< 2.00	µg/kg	SW8260C	0.114	2.00								
sec-Butylbenzene		< 2.00	µg/kg	SW8260C	0.118	2.00								
tert-Butylbenzene		< 2.00	µg/kg	SW8260C	1.67	2.00								
Toluene		< 2.00	µg/kg	SW8260C	0.393	2.00								
Xylenes, Total		< 2.00	µg/kg	SW8260C	0.393	2.00								
Surr: 1,2-Dichloroethane-d4		57.3	µg/kg	SW8260C			50.00		115	72 - 140				
Surr: 4-Bromofluorobenzene		49.0	µg/kg	SW8260C			50.00		98.0	67 - 145				



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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	MB VOC-3 092718A	Date Analyzed:	09/27/2018 1218h											
Test Code:	8260-S													
Surr: Dibromofluoromethane		48.5	µg/kg	SW8260C			50.00		97.1	70 - 130				
Surr: Toluene-d8		48.3	µg/kg	SW8260C			50.00		96.6	61 - 134				



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## QC SUMMARY REPORT

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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809484-001AMS</b> Date Analyzed: 09/27/2018 702h													
Test Code: 8260-S													
Benzene	52.6	µg/kg-dry	SW8260C	0.533	6.12	61.21	15	61.5	17 - 138				
Ethylbenzene	45.5	µg/kg-dry	SW8260C	5.97	6.12	61.21	12.5	53.9	10 - 164				
Isopropylbenzene	42.4	µg/kg-dry	SW8260C	0.401	6.12	61.21	6.22	59.1	26 - 146				
Naphthalene	16.8	µg/kg-dry	SW8260C	0.832	6.12	61.21	0	27.4	13 - 156				
Toluene	87.8	µg/kg-dry	SW8260C	1.20	6.12	61.21	92.3	-7.30	23 - 168				1
Xylenes, Total	159	µg/kg-dry	SW8260C	1.20	6.12	183.6	92.5	36.1	10 - 160				
Surr: 1,2-Dichloroethane-d4	155	µg/kg-dry	SW8260C			153.0		101	51 - 170				
Surr: 4-Bromofluorobenzene	165	µg/kg-dry	SW8260C			153.0		108	50 - 140				
Surr: Dibromofluoromethane	139	µg/kg-dry	SW8260C			153.0		90.8	50 - 140				
Surr: Toluene-d8	151	µg/kg-dry	SW8260C			153.0		98.5	50 - 140				
<b>Lab Sample ID: 1809577-001AMS</b> Date Analyzed: 09/27/2018 1613h													
Test Code: 8260-S													
Xylenes, Total	1,480	µg/kg-dry	SW8260C	3.92	20.0	598.7	990	81.5	10 - 160				~
Surr: 1,2-Dichloroethane-d4	480	µg/kg-dry	SW8260C			498.9		96.1	51 - 170				
Surr: 4-Bromofluorobenzene	509	µg/kg-dry	SW8260C			498.9		102	50 - 140				
Surr: Dibromofluoromethane	534	µg/kg-dry	SW8260C			498.9		107	50 - 140				
Surr: Toluene-d8	522	µg/kg-dry	SW8260C			498.9		105	50 - 140				
<b>Lab Sample ID: 1809577-001AMS</b> Date Analyzed: 09/27/2018 1553h													
Test Code: 8260-S													
Benzene	96.3	µg/kg-dry	SW8260C	0.434	4.99	49.89	46.7	99.5	17 - 138				
Ethylbenzene	88.7	µg/kg-dry	SW8260C	4.86	4.99	49.89	40.9	95.8	10 - 164				
Toluene	248	µg/kg-dry	SW8260C	0.980	4.99	49.89	176	143	23 - 168				
Xylenes, Total	1,060	µg/kg-dry	SW8260C	0.980	4.99	149.7	853	140	10 - 160				
Surr: 1,2-Dichloroethane-d4	123	µg/kg-dry	SW8260C			124.7		98.5	51 - 170				
Surr: 4-Bromofluorobenzene	137	µg/kg-dry	SW8260C			124.7		110	50 - 140				
Surr: Dibromofluoromethane	139	µg/kg-dry	SW8260C			124.7		111	50 - 140				



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## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-001AMS</b>													
Date Analyzed:		09/27/2018 1553h											
Test Code:		8260-S											
Surr: Toluene-d8	133	µg/kg-dry	SW8260C			124.7		106	50 - 140				
<b>Lab Sample ID: 1809577-048AMS</b>													
Date Analyzed:		09/27/2018 1301h											
Test Code:		8260-S											
Benzene	47.5	µg/kg-dry	SW8260C	0.436	5.01	50.14	0	94.8	17 - 138				
Ethylbenzene	44.4	µg/kg-dry	SW8260C	4.89	5.01	50.14	0	88.6	10 - 164				
Isopropylbenzene	38.5	µg/kg-dry	SW8260C	0.328	5.01	50.14	0	76.8	26 - 146				
Naphthalene	39.4	µg/kg-dry	SW8260C	0.682	5.01	50.14	0	78.5	13 - 156				
Toluene	50.8	µg/kg-dry	SW8260C	0.985	5.01	50.14	0	101	23 - 168				
Xylenes, Total	145	µg/kg-dry	SW8260C	0.985	5.01	150.4	7.88	91.5	10 - 160				
Surr: 1,2-Dichloroethane-d4	131	µg/kg-dry	SW8260C			125.4		104	51 - 170				
Surr: 4-Bromofluorobenzene	155	µg/kg-dry	SW8260C			125.4		123	50 - 140				
Surr: Dibromofluoromethane	122	µg/kg-dry	SW8260C			125.4		97.1	50 - 140				
Surr: Toluene-d8	124	µg/kg-dry	SW8260C			125.4		98.6	50 - 140				

~ - The reporting limits were raised due to high analyte concentrations.

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.





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## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-001AMSD</b> Date Analyzed: 09/27/2018 240h													
Test Code: 8260-S													
Benzene	78.5	µg/kg-dry	SW8260C	0.434	4.99	49.89	46.7	63.7	17 - 138	96.3	20.4	35	
Ethylbenzene	78.0	µg/kg-dry	SW8260C	4.86	4.99	49.89	40.9	74.2	10 - 164	88.7	12.9	35	
Isopropylbenzene	48.7	µg/kg-dry	SW8260C	0.327	4.99	49.89	16.7	64.1	26 - 146	54.6	11.5	35	
Naphthalene	91.5	µg/kg-dry	SW8260C	0.679	4.99	49.89	74.4	34.2	13 - 156	108	17.0	35	
Toluene	203	µg/kg-dry	SW8260C	0.980	4.99	49.89	176	54.5	23 - 168	248	19.7	35	
Surr: 1,2-Dichloroethane-d4	123	µg/kg-dry	SW8260C			124.7		98.3	51 - 170				
Surr: 4-Bromofluorobenzene	139	µg/kg-dry	SW8260C			124.7		111	50 - 140				
Surr: Dibromofluoromethane	132	µg/kg-dry	SW8260C			124.7		105	50 - 140				
Surr: Toluene-d8	136	µg/kg-dry	SW8260C			124.7		109	50 - 140				
<b>Lab Sample ID: 1809484-001AMSD</b> Date Analyzed: 09/27/2018 723h													
Test Code: 8260-S													
Benzene	55.3	µg/kg-dry	SW8260C	0.526	6.05	60.49	15	66.6	17 - 138	52.6	4.84	35	
Ethylbenzene	50.2	µg/kg-dry	SW8260C	5.90	6.05	60.49	12.5	62.4	10 - 164	45.5	9.87	35	
Isopropylbenzene	48.4	µg/kg-dry	SW8260C	0.396	6.05	60.49	6.22	69.8	26 - 146	42.4	13.3	35	
Naphthalene	17.5	µg/kg-dry	SW8260C	0.823	6.05	60.49	0	29.0	13 - 156	16.8	4.31	35	
Toluene	99.1	µg/kg-dry	SW8260C	1.19	6.05	60.49	92.3	11.3	23 - 168	87.8	12.1	35	1
Xylenes, Total	181	µg/kg-dry	SW8260C	1.19	6.05	181.5	92.5	48.9	10 - 160	159	13.2	35	
Surr: 1,2-Dichloroethane-d4	154	µg/kg-dry	SW8260C			151.2		102	51 - 170				
Surr: 4-Bromofluorobenzene	172	µg/kg-dry	SW8260C			151.2		114	50 - 140				
Surr: Dibromofluoromethane	143	µg/kg-dry	SW8260C			151.2		94.5	50 - 140				
Surr: Toluene-d8	155	µg/kg-dry	SW8260C			151.2		102	50 - 140				
<b>Lab Sample ID: 1809577-001AMSD</b> Date Analyzed: 09/27/2018 1633h													
Test Code: 8260-S													
Xylenes, Total	1,570	µg/kg-dry	SW8260C	3.85	19.6	587.7	990	97.9	10 - 160	1480	5.75	35	~
Surr: 1,2-Dichloroethane-d4	479	µg/kg-dry	SW8260C			489.8		97.7	51 - 170				
Surr: 4-Bromofluorobenzene	498	µg/kg-dry	SW8260C			489.8		102	50 - 140				



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## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-001AMSD</b>													
Test Code: 8260-S		Date Analyzed: 09/27/2018 1633h											
Surr: Dibromofluoromethane	527	µg/kg-dry	SW8260C			489.8		108	50 - 140				
Surr: Toluene-d8	524	µg/kg-dry	SW8260C			489.8		107	50 - 140				
<b>Lab Sample ID: 1809577-048AMSD</b>													
Test Code: 8260-S		Date Analyzed: 09/27/2018 1322h											
Benzene	45.5	µg/kg-dry	SW8260C	0.426	4.89	48.93	0	92.9	17 - 138	47.5	4.47	35	
Ethylbenzene	43.6	µg/kg-dry	SW8260C	4.77	4.89	48.93	0	89.2	10 - 164	44.4	1.83	35	
Isopropylbenzene	38.0	µg/kg-dry	SW8260C	0.320	4.89	48.93	0	77.6	26 - 146	38.5	1.35	35	
Naphthalene	38.1	µg/kg-dry	SW8260C	0.665	4.89	48.93	0	77.8	13 - 156	39.4	3.34	35	
Toluene	46.7	µg/kg-dry	SW8260C	0.961	4.89	48.93	0	95.5	23 - 168	50.8	8.34	35	
Xylenes, Total	142	µg/kg-dry	SW8260C	0.961	4.89	146.8	7.88	91.3	10 - 160	145	2.48	35	
Surr: 1,2-Dichloroethane-d4	124	µg/kg-dry	SW8260C			122.3		102	51 - 170				
Surr: 4-Bromofluorobenzene	150	µg/kg-dry	SW8260C			122.3		122	50 - 140				
Surr: Dibromofluoromethane	117	µg/kg-dry	SW8260C			122.3		95.5	50 - 140				
Surr: Toluene-d8	122	µg/kg-dry	SW8260C			122.3		99.7	50 - 140				

~ - The reporting limits were raised due to high analyte concentrations.

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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## QC SUMMARY REPORT

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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC-2 092618B</b> Date Analyzed: 09/27/2018 058h													
Test Code: 8260-S-PPM													
Benzene	0.0172	mg/kg	SW8260C	0.000174	0.00100	0.02000	0	85.9	69 - 135				
Ethylbenzene	0.0149	mg/kg	SW8260C	0.00195	0.00200	0.02000	0	74.5	52 - 147				
Toluene	0.0158	mg/kg	SW8260C	0.000393	0.00200	0.02000	0	79.2	63 - 135				
Xylenes, Total	0.0442	mg/kg	SW8260C	0.000393	0.00200	0.06000	0	73.6	50 - 145				
Surr: 1,2-Dichloroethane-d4	0.0513	mg/kg	SW8260C			0.05000		103	72 - 140				
Surr: 4-Bromofluorobenzene	0.0512	mg/kg	SW8260C			0.05000		102	67 - 145				
Surr: Dibromofluoromethane	0.0552	mg/kg	SW8260C			0.05000		110	70 - 130				
Surr: Toluene-d8	0.0513	mg/kg	SW8260C			0.05000		103	61 - 134				
<b>Lab Sample ID: LCS VOC-3 092618B</b> Date Analyzed: 09/27/2018 153h													
Test Code: 8260-S-PPM													
Benzene	0.0163	mg/kg	SW8260C	0.000174	0.00100	0.02000	0	81.3	69 - 135				
Ethylbenzene	0.0140	mg/kg	SW8260C	0.00195	0.00200	0.02000	0	69.8	52 - 147				
Toluene	0.0146	mg/kg	SW8260C	0.000393	0.00200	0.02000	0	73.2	63 - 135				
Xylenes, Total	0.0435	mg/kg	SW8260C	0.000393	0.00200	0.06000	0	72.6	50 - 145				
Surr: 1,2-Dichloroethane-d4	0.0527	mg/kg	SW8260C			0.05000		105	72 - 140				
Surr: 4-Bromofluorobenzene	0.0481	mg/kg	SW8260C			0.05000		96.2	67 - 145				
Surr: Dibromofluoromethane	0.0472	mg/kg	SW8260C			0.05000		94.4	70 - 130				
Surr: Toluene-d8	0.0484	mg/kg	SW8260C			0.05000		96.8	61 - 134				
<b>Lab Sample ID: LCS VOC-1 092618B</b> Date Analyzed: 09/27/2018 055h													
Test Code: 8260-S-PPM													
Benzene	0.0171	mg/kg	SW8260C	0.000174	0.00100	0.02000	0	85.4	69 - 135				
Ethylbenzene	0.0154	mg/kg	SW8260C	0.00195	0.00200	0.02000	0	77.2	52 - 147				
Toluene	0.0161	mg/kg	SW8260C	0.000393	0.00200	0.02000	0	80.3	63 - 135				
Xylenes, Total	0.0457	mg/kg	SW8260C	0.000393	0.00200	0.06000	0	76.1	50 - 145				
Surr: 1,2-Dichloroethane-d4	0.0515	mg/kg	SW8260C			0.05000		103	72 - 140				
Surr: 4-Bromofluorobenzene	0.0511	mg/kg	SW8260C			0.05000		102	67 - 145				



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Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer

## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC-1 092618B</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 055h											
Surr: Dibromofluoromethane	0.0514	mg/kg	SW8260C			0.05000		103	70 - 130				
Surr: Toluene-d8	0.0509	mg/kg	SW8260C			0.05000		102	61 - 134				
<b>Lab Sample ID: LCS VOC-2 092718A</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 1139h											
Benzene	0.0217	mg/kg	SW8260C	0.000174	0.00100	0.02000	0	108	69 - 135				
Ethylbenzene	0.0194	mg/kg	SW8260C	0.00195	0.00200	0.02000	0	97.2	52 - 147				
Toluene	0.0190	mg/kg	SW8260C	0.000393	0.00200	0.02000	0	95.0	63 - 135				
Xylenes, Total	0.0580	mg/kg	SW8260C	0.000393	0.00200	0.06000	0	96.7	50 - 145				
Surr: 1,2-Dichloroethane-d4	0.0504	mg/kg	SW8260C			0.05000		101	72 - 140				
Surr: 4-Bromofluorobenzene	0.0508	mg/kg	SW8260C			0.05000		102	67 - 145				
Surr: Dibromofluoromethane	0.0549	mg/kg	SW8260C			0.05000		110	70 - 130				
Surr: Toluene-d8	0.0510	mg/kg	SW8260C			0.05000		102	61 - 134				
<b>Lab Sample ID: LCS VOC-3 092718A</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 1137h											
Benzene	0.0192	mg/kg	SW8260C	0.000174	0.00100	0.02000	0	95.9	69 - 135				
Ethylbenzene	0.0207	mg/kg	SW8260C	0.00195	0.00200	0.02000	0	103	52 - 147				
Toluene	0.0198	mg/kg	SW8260C	0.000393	0.00200	0.02000	0	98.9	63 - 135				
Xylenes, Total	0.0642	mg/kg	SW8260C	0.000393	0.00200	0.06000	0	107	50 - 145				
Surr: 1,2-Dichloroethane-d4	0.0502	mg/kg	SW8260C			0.05000		100	72 - 140				
Surr: 4-Bromofluorobenzene	0.0485	mg/kg	SW8260C			0.05000		97.0	67 - 145				
Surr: Dibromofluoromethane	0.0460	mg/kg	SW8260C			0.05000		92.1	70 - 130				
Surr: Toluene-d8	0.0483	mg/kg	SW8260C			0.05000		96.7	61 - 134				



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**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC-2 092618B</b> Date Analyzed: 09/27/2018 139h													
Test Code: 8260-S-PPM													
Benzene	< 0.00100	mg/kg	SW8260C	0.000174	0.00100								
Ethylbenzene	< 0.00200	mg/kg	SW8260C	0.00195	0.00200								
Toluene	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
TPH C6-C10 (GRO)	< 0.0200	mg/kg	SW8260C	0.00486	0.0200								
Xylenes, Total	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0532	mg/kg	SW8260C			0.05000		106	72 - 140				
Surr: 4-Bromofluorobenzene	0.0512	mg/kg	SW8260C			0.05000		102	67 - 145				
Surr: Dibromofluoromethane	0.0532	mg/kg	SW8260C			0.05000		106	70 - 130				
Surr: Toluene-d8	0.0506	mg/kg	SW8260C			0.05000		101	61 - 134				
<b>Lab Sample ID: MB VOC-3 092618B</b> Date Analyzed: 09/27/2018 234h													
Test Code: 8260-S-PPM													
Benzene	< 0.00100	mg/kg	SW8260C	0.000174	0.00100								
Ethylbenzene	< 0.00200	mg/kg	SW8260C	0.00195	0.00200								
Toluene	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
TPH C6-C10 (GRO)	< 0.0200	mg/kg	SW8260C	0.00486	0.0200								
Xylenes, Total	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0522	mg/kg	SW8260C			0.05000		104	72 - 140				
Surr: 4-Bromofluorobenzene	0.0488	mg/kg	SW8260C			0.05000		97.6	67 - 145				
Surr: Dibromofluoromethane	0.0492	mg/kg	SW8260C			0.05000		98.4	70 - 130				
Surr: Toluene-d8	0.0485	mg/kg	SW8260C			0.05000		96.9	61 - 134				
<b>Lab Sample ID: MB VOC-1 092618B</b> Date Analyzed: 09/27/2018 136h													
Test Code: 8260-S-PPM													
Benzene	< 0.00100	mg/kg	SW8260C	0.000174	0.00100								
Ethylbenzene	< 0.00200	mg/kg	SW8260C	0.00195	0.00200								
Toluene	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
TPH C6-C10 (GRO)	< 0.0200	mg/kg	SW8260C	0.00486	0.0200								



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**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC-1 092618B</b> Date Analyzed: 09/27/2018 136h													
Test Code: 8260-S-PPM													
Xylenes, Total	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0523	mg/kg	SW8260C			0.05000		105	72 - 140				
Surr: 4-Bromofluorobenzene	0.0520	mg/kg	SW8260C			0.05000		104	67 - 145				
Surr: Dibromofluoromethane	0.0515	mg/kg	SW8260C			0.05000		103	70 - 130				
Surr: Toluene-d8	0.0514	mg/kg	SW8260C			0.05000		103	61 - 134				
<b>Lab Sample ID: MB VOC-2 092718A</b> Date Analyzed: 09/27/2018 1220h													
Test Code: 8260-S-PPM													
Benzene	< 0.00100	mg/kg	SW8260C	0.000174	0.00100								
Ethylbenzene	< 0.00200	mg/kg	SW8260C	0.00195	0.00200								
Toluene	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
TPH C6-C10 (GRO)	< 0.0200	mg/kg	SW8260C	0.00486	0.0200								
Xylenes, Total	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0521	mg/kg	SW8260C			0.05000		104	72 - 140				
Surr: 4-Bromofluorobenzene	0.0520	mg/kg	SW8260C			0.05000		104	67 - 145				
Surr: Dibromofluoromethane	0.0569	mg/kg	SW8260C			0.05000		114	70 - 130				
Surr: Toluene-d8	0.0513	mg/kg	SW8260C			0.05000		103	61 - 134				
<b>Lab Sample ID: MB VOC-3 092718A</b> Date Analyzed: 09/27/2018 1218h													
Test Code: 8260-S-PPM													
Benzene	< 0.00100	mg/kg	SW8260C	0.000174	0.00100								
Ethylbenzene	< 0.00200	mg/kg	SW8260C	0.00195	0.00200								
Toluene	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
TPH C6-C10 (GRO)	< 0.0200	mg/kg	SW8260C	0.00486	0.0200								
Xylenes, Total	< 0.00200	mg/kg	SW8260C	0.000393	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0573	mg/kg	SW8260C			0.05000		115	72 - 140				
Surr: 4-Bromofluorobenzene	0.0490	mg/kg	SW8260C			0.05000		98.0	67 - 145				
Surr: Dibromofluoromethane	0.0485	mg/kg	SW8260C			0.05000		97.1	70 - 130				

Report Date: 10/10/2018 Page 139 of 144

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Stantec Consulting, Inc.

**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB VOC-3 092718A	Date Analyzed:	09/27/2018	1218h										
Test Code:	8260-S-PPM												
Surr: Toluene-d8	0.0483	mg/kg	SW8260C			0.05000		96.6	61 - 134				





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**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-021AMS</b> Date Analyzed: 09/27/2018 217h													
Test Code: 8260-S-PPM													
Benzene	0.0344	mg/kg-dry	SW8260C	0.000424	0.00244	0.04878	0	70.5	17 - 138				
Ethylbenzene	0.0326	mg/kg-dry	SW8260C	0.00476	0.00488	0.04878	0	66.8	10 - 164				
Toluene	0.0334	mg/kg-dry	SW8260C	0.000959	0.00488	0.04878	0	68.6	23 - 168				
Xylenes, Total	0.102	mg/kg-dry	SW8260C	0.000959	0.00488	0.1463	0	69.7	10 - 160				
Surr: 1,2-Dichloroethane-d4	0.122	mg/kg-dry	SW8260C			0.1220		99.9	51 - 170				
Surr: 4-Bromofluorobenzene	0.126	mg/kg-dry	SW8260C			0.1220		103	50 - 140				
Surr: Dibromofluoromethane	0.125	mg/kg-dry	SW8260C			0.1220		102	50 - 140				
Surr: Toluene-d8	0.125	mg/kg-dry	SW8260C			0.1220		102	50 - 140				
<b>Lab Sample ID: 1809577-001AMS</b> Date Analyzed: 09/27/2018 1613h													
Test Code: 8260-S-PPM													
Xylenes, Total	1.48	mg/kg-dry	SW8260C	0.00392	0.0200	0.5987	0.99	81.5	10 - 160				~
Surr: 1,2-Dichloroethane-d4	0.480	mg/kg-dry	SW8260C			0.4989		96.1	51 - 170				
Surr: 4-Bromofluorobenzene	0.509	mg/kg-dry	SW8260C			0.4989		102	50 - 140				
Surr: Dibromofluoromethane	0.534	mg/kg-dry	SW8260C			0.4989		107	50 - 140				
Surr: Toluene-d8	0.522	mg/kg-dry	SW8260C			0.4989		105	50 - 140				
<b>Lab Sample ID: 1809577-001AMS</b> Date Analyzed: 09/27/2018 1553h													
Test Code: 8260-S-PPM													
Benzene	0.0963	mg/kg-dry	SW8260C	0.000434	0.00249	0.04989	0.0467	99.5	17 - 138				
Ethylbenzene	0.0887	mg/kg-dry	SW8260C	0.00486	0.00499	0.04989	0.0409	95.8	10 - 164				
Toluene	0.248	mg/kg-dry	SW8260C	0.000980	0.00499	0.04989	0.176	143	23 - 168				
Surr: 1,2-Dichloroethane-d4	0.123	mg/kg-dry	SW8260C			0.1247		98.5	51 - 170				
Surr: 4-Bromofluorobenzene	0.137	mg/kg-dry	SW8260C			0.1247		110	50 - 140				
Surr: Dibromofluoromethane	0.139	mg/kg-dry	SW8260C			0.1247		111	50 - 140				
Surr: Toluene-d8	0.133	mg/kg-dry	SW8260C			0.1247		106	50 - 140				



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## QC SUMMARY REPORT

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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-048AMS</b>		Date Analyzed: 09/27/2018 1301h											
Test Code: 8260-S-PPM													
Benzene	0.0475	mg/kg-dry	SW8260C	0.000436	0.00251	0.05014	0	94.8	17 - 138				
Ethylbenzene	0.0444	mg/kg-dry	SW8260C	0.00489	0.00501	0.05014	0	88.6	10 - 164				
Toluene	0.0508	mg/kg-dry	SW8260C	0.000985	0.00501	0.05014	0	101	23 - 168				
Xylenes, Total	0.145	mg/kg-dry	SW8260C	0.000985	0.00501	0.1504	0.00788	91.5	10 - 160				
Surr: 1,2-Dichloroethane-d4	0.131	mg/kg-dry	SW8260C			0.1254		104	51 - 170				
Surr: 4-Bromofluorobenzene	0.155	mg/kg-dry	SW8260C			0.1254		123	50 - 140				
Surr: Dibromofluoromethane	0.122	mg/kg-dry	SW8260C			0.1254		97.1	50 - 140				
Surr: Toluene-d8	0.124	mg/kg-dry	SW8260C			0.1254		98.6	50 - 140				

~ - The reporting limits were raised due to high analyte concentrations.



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**Lab Set ID:** 1809577

**Project:** Chevron Rangely C4 / 203720102.300.0001

**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-001AMSD</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 240h											
Benzene	0.0785	mg/kg-dry	SW8260C	0.000434	0.00249	0.04989	0.0467	63.7	17 - 138	0.0963	20.4	35	
Ethylbenzene	0.0780	mg/kg-dry	SW8260C	0.00486	0.00499	0.04989	0.0409	74.2	10 - 164	0.0887	12.9	35	
Toluene	0.203	mg/kg-dry	SW8260C	0.000980	0.00499	0.04989	0.176	54.5	23 - 168	0.248	19.7	35	
Surr: 1,2-Dichloroethane-d4	0.123	mg/kg-dry	SW8260C			0.1247		98.3	51 - 170				
Surr: 4-Bromofluorobenzene	0.139	mg/kg-dry	SW8260C			0.1247		111	50 - 140				
Surr: Dibromofluoromethane	0.132	mg/kg-dry	SW8260C			0.1247		105	50 - 140				
Surr: Toluene-d8	0.136	mg/kg-dry	SW8260C			0.1247		109	50 - 140				
<b>Lab Sample ID: 1809577-021AMSD</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 237h											
Benzene	0.0391	mg/kg-dry	SW8260C	0.000435	0.00250	0.05000	0	78.1	17 - 138	0.0344	12.7	35	
Ethylbenzene	0.0342	mg/kg-dry	SW8260C	0.00488	0.00500	0.05000	0	68.4	10 - 164	0.0326	4.84	35	
Toluene	0.0365	mg/kg-dry	SW8260C	0.000983	0.00500	0.05000	0	73.1	23 - 168	0.0334	8.82	35	
Xylenes, Total	0.104	mg/kg-dry	SW8260C	0.000983	0.00500	0.1500	0	69.6	10 - 160	0.102	2.40	35	
Surr: 1,2-Dichloroethane-d4	0.125	mg/kg-dry	SW8260C			0.1250		99.9	51 - 170				
Surr: 4-Bromofluorobenzene	0.130	mg/kg-dry	SW8260C			0.1250		104	50 - 140				
Surr: Dibromofluoromethane	0.128	mg/kg-dry	SW8260C			0.1250		103	50 - 140				
Surr: Toluene-d8	0.128	mg/kg-dry	SW8260C			0.1250		102	50 - 140				
<b>Lab Sample ID: 1809577-001AMSD</b>													
Test Code: 8260-S-PPM		Date Analyzed: 09/27/2018 1633h											
Xylenes, Total	1.57	mg/kg-dry	SW8260C	0.00385	0.0196	0.5877	0.99	97.9	10 - 160	1.48	5.75	35	~
Surr: 1,2-Dichloroethane-d4	0.479	mg/kg-dry	SW8260C			0.4898		97.7	51 - 170				
Surr: 4-Bromofluorobenzene	0.498	mg/kg-dry	SW8260C			0.4898		102	50 - 140				
Surr: Dibromofluoromethane	0.527	mg/kg-dry	SW8260C			0.4898		108	50 - 140				
Surr: Toluene-d8	0.524	mg/kg-dry	SW8260C			0.4898		107	50 - 140				



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**Contact:** Tom Madsen

**Dept:** MSVOA

**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1809577-048AMSD</b>		Date Analyzed: 09/27/2018 1322h											
Test Code: 8260-S-PPM													
Benzene	0.0455	mg/kg-dry	SW8260C	0.000426	0.00245	0.04893	0	92.9	17 - 138	0.0475	4.47	35	
Ethylbenzene	0.0436	mg/kg-dry	SW8260C	0.00477	0.00489	0.04893	0	89.2	10 - 164	0.0444	1.83	35	
Toluene	0.0467	mg/kg-dry	SW8260C	0.000961	0.00489	0.04893	0	95.5	23 - 168	0.0508	8.34	35	
Xylenes, Total	0.142	mg/kg-dry	SW8260C	0.000961	0.00489	0.1468	0.00788	91.3	10 - 160	0.145	2.48	35	
Surr: 1,2-Dichloroethane-d4	0.124	mg/kg-dry	SW8260C			0.1223		102	51 - 170				
Surr: 4-Bromofluorobenzene	0.150	mg/kg-dry	SW8260C			0.1223		122	50 - 140				
Surr: Dibromofluoromethane	0.117	mg/kg-dry	SW8260C			0.1223		95.5	50 - 140				
Surr: Toluene-d8	0.122	mg/kg-dry	SW8260C			0.1223		99.7	50 - 140				

~ - The reporting limits were raised due to high analyte concentrations.

## WORK ORDER Summary

Work Order: **1809577** Page 1 of 10

Client: Stantec Consulting, Inc.

Client ID: STA200

Contact: Tom Madsen

Due Date: 10/10/2018

Project: Chevron Rangely C4 / 203720102.300.0001

QC Level: II+

WO Type: Standard

Comments: PA Rush; QC 2+; Client is requesting EPA TPH Fractionation; Include EDD with final report.;

RW/MS

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage			
1809577-001A	RC4-SC-41(5)	9/25/2018 0844h	9/26/2018 1107h	3546-SVOA-PR	Soil	<input type="checkbox"/>	VOC/Semi	2		
				8260-70-S-EPA-C9-C16		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:						
				8260-S		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4						
				8260-S-PPM		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-S-MBTEXN/GRO; # of Analytes: 1 / # of Surr: 4						
1809577-001B				8270-S-3546		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1						
				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH/SVOC	1		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH/SVOC			
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1						
				PMOIST		<input type="checkbox"/>	walkin-TPH/SVOC			
1809577-002A	RC4-SC-44(5)	9/25/2018 0847h	9/26/2018 1107h	3546-SVOA-PR	Soil	<input type="checkbox"/>	VOC/Semi	2		
				8260-70-S-EPA-C9-C16		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:						
				8260-S		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4						
				8260-S-PPM		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-S-MBTEXN/GRO; # of Analytes: 1 / # of Surr: 4						
1809577-002B				8270-S-3546		<input checked="" type="checkbox"/>	VOC/Semi			
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1						
				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH/SVOC	1		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH/SVOC			
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1						
				PMOIST		<input type="checkbox"/>	walkin-TPH/SVOC			
1809577-003A	RC4-SC-47(4)	9/25/2018 0848h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1		
Test Group: 8260-S-MBTEXN/GRO; # of Analytes: 1 / # of Surr: 4										
1809577-003B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH			
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH			
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1						

# WORK ORDER Summary

Work Order: **1809577** Page 2 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/10/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-003B	RC4-SC-47(4)	9/25/2018 0848h	9/26/2018 1107h	PMOIST	Soil	<input type="checkbox"/>	walkin-TPH	1
1809577-004A	RC4-SC-182(3)	9/25/2018 0850h	9/26/2018 1107h	3546-SVOA-PR	Soil	<input type="checkbox"/>	VOC/Semi	2
				8260-70-S-EPA-C9-C16		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:				
				8260-S		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4				
				8260-S-PPM		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
				8270-S-3546		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1				
1809577-004B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH/SVOC	1
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH/SVOC	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				pmOIST		<input type="checkbox"/>	walkin-TPH/SVOC	
1809577-005A	RC4-SC-50(4)	9/25/2018 0851h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
1809577-005B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-006A	RC4-SC-55(4)	9/25/2018 0852h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
1809577-006B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-007A	RC4-SC-231(1)	9/25/2018 0854h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-007B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-008A	RC4-SC-186(3)	9/25/2018 0855h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-008B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	

# WORK ORDER Summary

Work Order: **1809577** Page 3 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-008B	RC4-SC-186(3)	9/25/2018 0855h	9/26/2018 1107h	8015-S-TPH-3546	Soil	<input checked="" type="checkbox"/>	walkin-TPH	1
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-009A	RC4-SC-232(1)	9/25/2018 0857h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-009B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-010A	RC4-SC-188(3)	9/25/2018 0858h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-010B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-011A	RC4-SC-233(1)	9/25/2018 0900h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-011B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-012A	RC4-SC-234(1)	9/25/2018 0902h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-012B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-013A	RC4-SC-235(1)	9/25/2018 0905h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-013B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	



# WORK ORDER Summary

Work Order: **1809577** Page 4 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-014A	RC4-SC-236(1)	9/25/2018 0906h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-014B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-015A	RC4-SC-237(1)	9/25/2018 0908h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-015B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-016A	RC4-SC-238(1)	9/25/2018 0910h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-016B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-017A	RC4-SC-239(1)	9/25/2018 0912h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-017B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-018A	RC4-SC-240(1)	9/25/2018 0913h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-018B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-019A	RC4-SC-241(1)	9/25/2018 0915h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-019B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				

# WORK ORDER Summary

Work Order: **1809577** Page 5 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-019B	RC4-SC-241(1)	9/25/2018 0915h	9/26/2018 1107h	pmOIST	Soil	<input type="checkbox"/>	walkin-TPH	1
1809577-020A	RC4-SC-196(3)	9/25/2018 0919h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-020B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-021A	RC4-SC-242(1)	9/25/2018 0917h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-021B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-022A	RC4-SC-199(3)	9/25/2018 0923h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-022B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-023A	RC4-SC-200(3)	9/25/2018 0924h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-023B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-024A	RC4-SC-243(1)	9/25/2018 0926h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-024B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-025A	RC4-SC-244(1)	9/25/2018 1040h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-025B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	

# WORK ORDER Summary

Work Order: **1809577** Page 6 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-025B	RC4-SC-244(1)	9/25/2018 1040h	9/26/2018 1107h	<b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/>	walkin-TPH walkin-TPH	1
1809577-026A	RC4-SC-202(3)	9/25/2018 1051h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-026B								
1809577-027A	RC4-SC-203(3)	9/25/2018 1053h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-027B								
1809577-028A	RC4-SC-204(3)	9/25/2018 1055h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-028B								
1809577-029A	RC4-SC-245(1)	9/25/2018 1057h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-029B								
1809577-030A	RC4-SC-246(1)	9/25/2018 1100h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-030B								

# WORK ORDER Summary

Work Order: **1809577** Page 7 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1809577-031A	RC4-SC-206(3)	9/25/2018 1101h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-031B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					
				PMOIST		<input type="checkbox"/>	walkin-TPH		
1809577-032A	RC4-SC-207(3)	9/25/2018 1103h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-032B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					
				PMOIST		<input type="checkbox"/>	walkin-TPH		
1809577-033A	RC4-SC-208(3)	9/25/2018 1104h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-033B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					
				PMOIST		<input type="checkbox"/>	walkin-TPH		
1809577-034A	RC4-SC-93(5)	9/25/2018 1106h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-034B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					
				PMOIST		<input type="checkbox"/>	walkin-TPH		
1809577-035A	RC4-SC-247(1)	9/25/2018 1108h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-035B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					
				PMOIST		<input type="checkbox"/>	walkin-TPH		
1809577-036A	RC4-SC-155(3)	9/25/2018 1112h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4					
1809577-036B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH		
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1					

# WORK ORDER Summary

Work Order: **1809577** Page 8 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-036B	RC4-SC-155(3)	9/25/2018 1112h	9/26/2018 1107h	PMOIST	Soil	<input type="checkbox"/>	walkin-TPH	1
1809577-037A	RC4-SC-156(4)	9/25/2018 1114h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-037B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-038A	RC4-SC-248(1)	9/25/2018 1115h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-038B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-039A	RC4-SC-249(1)	9/25/2018 1117h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 5 / # of Surr: 4				
1809577-039B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				pmOIST		<input type="checkbox"/>	walkin-TPH	
1809577-040A	RC4-SC-215(3)	9/25/2018 1125h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
1809577-040B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH	
1809577-041A	RC4-SC-250(1)	9/25/2018 1128h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
1809577-041B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				pmOIST		<input type="checkbox"/>	walkin-TPH	
1809577-042A	RC4-SC-110(5)	9/25/2018 1130h	9/26/2018 1107h	8260-S-PPM	Soil	<input checked="" type="checkbox"/>	VOC	1
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
1809577-042B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH	

# WORK ORDER Summary

Work Order: **1809577** Page 9 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-042B	RC4-SC-110(5)	9/25/2018 1130h	9/26/2018 1107h	<b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/>	walkin-TPH walkin-TPH	1
1809577-043A	RC4-SC-251(1)	9/25/2018 1132h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-043B								
1809577-044A	RC4-SC-219(3)	9/25/2018 1135h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-044B								
1809577-045A	RC4-SC-227(3)	9/25/2018 1139h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-045B								
1809577-046A	RC4-SC-228(3)	9/25/2018 1140h	9/26/2018 1107h	<b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4</i> <b>3546-TPH-PR</b> <b>8015-S-TPH-3546</b> <i>Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1</i> <b>PMOIST</b>	Soil	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	VOC walkin-TPH walkin-TPH walkin-TPH	1
1809577-046B								
1809577-047A	RC4-SC-230(3)	9/25/2018 1141h	9/26/2018 1107h	<b>3546-SVOA-PR</b> <b>8260-70-S-EPA-C9-C16</b> <i>Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:</i> <b>8260-S</b> <i>Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4</i> <b>8260-S-PPM</b> <i>Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4</i>	Soil	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	VOC/Semi VOC/Semi VOC/Semi VOC/Semi	2

# WORK ORDER Summary

Work Order: **1809577** Page 10 of 10

Client: Stantec Consulting, Inc.

Due Date: 10/5/2018

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1809577-047A	RC4-SC-230(3)	9/25/2018 1141h	9/26/2018 1107h	8270-S-3546	Soil	<input checked="" type="checkbox"/>	VOC/Semi	2
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1				
1809577-047B				3546-TPH-PR	<input type="checkbox"/>	walkin-TPH/SVOC	1	
				8015-S-TPH-3546	<input checked="" type="checkbox"/>	walkin-TPH/SVOC		
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH/SVOC	
1809577-048A	RC4-SC-222(3)	9/25/2018 1142h	9/26/2018 1107h	3546-SVOA-PR	Soil	<input type="checkbox"/>	VOC/Semi	2
				8260-70-S-EPA-C9-C16	<input checked="" type="checkbox"/>	VOC/Semi		
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:				
				8260-S	<input checked="" type="checkbox"/>	VOC/Semi		
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4				
				8260-S-PPM		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
				8270-S-3546		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1				
1809577-048B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH/SVOC	1
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH/SVOC	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH/SVOC	
1809577-049A	RC4-SC-224(3)	9/25/2018 1144h	9/26/2018 1107h	3546-SVOA-PR	Soil	<input type="checkbox"/>	VOC/Semi	2
				8260-70-S-EPA-C9-C16	<input checked="" type="checkbox"/>	VOC/Semi		
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 1 / # of Surr:				
				8260-S	<input checked="" type="checkbox"/>	VOC/Semi		
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 18 / # of Surr: 4				
				8260-S-PPM		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-S-MBTXN/GRO; # of Analytes: 1 / # of Surr: 4				
				8270-S-3546		<input checked="" type="checkbox"/>	VOC/Semi	
				Test Group: 8260-70-S-EPA-Frac; # of Analytes: 22 / # of Surr: 1				
1809577-049B				3546-TPH-PR		<input type="checkbox"/>	walkin-TPH/SVOC	1
				8015-S-TPH-3546		<input checked="" type="checkbox"/>	walkin-TPH/SVOC	
				Test Group: 8015-S-TPH-3546; # of Analytes: 1 / # of Surr: 1				
				PMOIST		<input type="checkbox"/>	walkin-TPH/SVOC	

Relinquished by: Signature <i>Anna Skinner</i>	Date: <i>9/26/18</i>	Received by: Signature <i>Elma Haynes</i>	Date: <i>9/26/18</i>	Special Instructions:
Print Name: <i>Anna Skinner</i>	Time: <i>1107</i>	Print Name: <i>Elma Haynes</i>	Time: <i>1107</i>	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	



**American West  
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## CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1809577  
AWAL Lab Sample Set #  
Page 2 of 5

Client: **Stantec Consulting Services Inc.**

Address: **3995 S 700 E, STE 300**

**Salt Lake City, Ut 84107**

Contact: **Tom Madsen**

Phone #: (801) 743-4924 Cell #: (801) 448-1351

Email: tom.madsen@stantec.com

Project Name: **Chevron Rangely C4**

Project #: **203720102.300.0001**

PO #:

Sampler Name: **A. Skinner & R. Foye**

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample M	BTEX (	GRO (8	DRO (8	TPH Fr							Known Hazards & Sample Comments
RC4-SC-235(1)	9/25/2018	09:05	2	s	X	X	X								Division 1
RC4-SC-236(1)	9/25/2018	09:06	2	s	X	X	X								Division 1
RC4-SC-237(1)	9/25/2018	09:08	2	s	X	X	X								Division 1
RC4-SC-238(1)	9/25/2018	09:10	2	s	X	X	X								Division 1
RC4-SC-239(1)	9/25/2018	09:12	2	s	X	X	X								Division 1
RC4-SC-240(1)	9/25/2018	09:13	2	s	X	X	X								Division 1
RC4-SC-241(1)	9/25/2018	09:15	2	s	X	X	X								Division 1
RC4-SC-196(3)	9/25/2018	09:19	2	s	X	X	X								Division 1
RC4-SC-242(1)	9/25/2018	09:17	2	s	X	X	X								Division 1
RC4-SC-199(3)	9/25/2018	09:23	2	s	X	X	X								Division 1
RC4-SC-200(3)	9/25/2018	09:24	2	s	X	X	X								Division 1
RC4-SC-243(1)	9/25/2018	09:26	2	s	X	X	X								Division 1

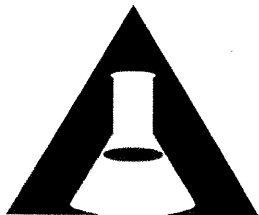
6 Received Within Holding Times N

COC Tape Was:  
 1 Present on Outer Package Y N NA  
 2 Unbroken on Outer Package Y N NA  
 3 Present on Sample Y N NA  
 4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N

Relinquished by Signature Anna Skinner	Date: 9/26/18	Received by Signature Elna Hays	Date: 9/26/18	Special Instructions:
Print Name: Anna Skinner	Time: 1107	Print Name: Elna Hays	Time: 1107	
Relinquished by Signature	Date:	Received by Signature	Date:	
	Time:		Time:	
Print Name:		Print Name:		
Relinquished by Signature	Date:	Received by Signature	Date:	
	Time:		Time:	
Print Name:		Print Name:		
Relinquished by Signature	Date:	Received by Signature	Date:	
	Time:		Time:	
Print Name:		Print Name:		

Time:



# American West Analytical Laboratories

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## CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1809577

AWAL Lab Sample Set #

Page 4 of 5

Due Date:

Laboratory Use Only

Samples Were:

- 1 Shipped or hand delivered
- 2 Ambient or Chilled
- 3 Temperature 20 °C
- 4 Received Broken/Leaking (Improperly Sealed) Y N
- 5 Properly Preserved Y N Checked at bench
- 6 Received Within Holding Times Y N

COC Tape Was:

- 1 Present on Outer Package Y N NA
- 2 Unbroken on Outer Package Y N NA
- 3 Present on Sample Y N NA
- 4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N

QC Level:

1 2 2+ 3 3+

Turn Around Time:

1 2 3 4 5 Std

Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.

- ☐ Report down to the MDL  
☒ Include EDD:  
☐ Lab Filter for:

☐ Field Filtered For:

For Compliance With:

- ☐ NELAP  
☐ RCRA  
☐ CWA  
☐ SDWA  
☐ ELAP / A2LA  
☐ NLLAP  
☐ Non-Compliance  
☒ Other: EPA SW-846

Known Hazards  
&  
Sample Comments

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	BTEX (8260)	GRO (8260)	DRO (8015)	TPH Fractionation (EPA RSL Breakdown)	Division
37 RC4-SC-156(4)	9/25/2018	1114	2	s	X	X	X		Division 2
38 RC4-SC-248(1)	9/25/2018	1115	2	s	X	X	X		Division 2
39 RC4-SC-249(1)	9/25/2018	1117	2	s	X	X	X		Division 2
40 RC4-SC-215(3)	9/25/2018	1125	2	s		X	X		Division 3
41 RC4-SC-250(1)	9/25/2018	1128	2	s		X	X		Division 3
42 RC4-SC-110(5)	9/25/2018	1130	2	s		X	X		Division 3
43 RC4-SC-251(1)	9/25/2018	1132	2	s		X	X		Division 3
44 RC4-SC-219(3)	9/25/2018	1135	2	s		X	X		Division 3
45 RC4-SC-227(3)	9/25/2018	1139	2	s		X	X		Division 3
46 RC4-SC-228(3)	9/25/2018	1140	2	s		X	X		Division 3
47 RC4-SC-230(3)	9/25/2018	1141	2	s		X	X	X	Division 3
48 RC4-SC-222(3)	9/25/2018	1142	2	s		X	X	X	Division 3

Relinquished by: Anna Skinner  
Signature: Anna Skinner  
Print Name: Anna Skinner  
Date: 9/26/18  
Time: 1107

Relinquished by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Received by: Salma H...  
Signature: Salma H...  
Print Name: Salma H...  
Date: 9/26/18  
Time: 1147

Received by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Received by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Received by: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Special Instructions:

Time: \_\_\_\_\_