Incident Number: nAB1635457735

Remediation Closure

Calgary Federal #002E

Section 24, Township 15 South, Range 28 East

API: 30-005-64100

County: Chaves

Vertex File Number: 24E-04822

Prepared for:
Mack Energy Corporation

Prepared by:
Vertex Resource Services Inc.

Date:
January 2025

Remediation Closure
Calgary Federal #002E
Section 24, Township 15 South, Range 28 East
API: 30-005-64100
County: Chaves

Prepared for:
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Katrina Taylor, B.Sc. — Date
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Sally Carttar, B.A. — Date
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1.0 Introduction

Mack Energy Corporation (Mack) retained Vertex Resource Services Inc. (Vertex) to conduct a Remediation Closure for a produced water and crude oil release that occurred on November 26, 2016, in pasture approximately 1,900 feet south-southeast of Calgary Federal #002E API 30-005-64100 (hereafter referred to as the "site"). Mack submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 on December 14, 2016. Incident ID number nAB1635457735 and work order number 2RP-4037 were assigned to this incident.

This report provides a description of the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release, with the understanding that restoration of the release site will be completed following remediation activities as per NMAC 19.15.29.13.

2.0 Incident Description

The release occurred on November 26, 2016, due to corrosion of the steel flowline between the well and the tank battery. The incident involved the release of approximately 120 barrels (bbl) of produced water and 40 bbl of crude oil into pasture east and west of the flowline. To the west of the flowline, the fluid had migrated off the caprock, approximately 450 feet downgrade in a confined, narrow path 2 to 4 feet wide. To the east of the flowline, the leak flowed onto a semi-flat area toward the direction of the tank battery. Approximately 0 bbl of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report.

3.0 Site Characteristics

The site is located approximately 13.6 miles north of Loco Hills, New Mexico. The legal location for the site is Section 24, Township 15 South and Range 28 East in Chaves County, New Mexico. The release area is located on Bureau of Land Management (BLM) property. Aerial photographs and site schematics are presented on Figures 1 to Figure 8.

The location is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas production. The following sections specifically describe the release area on or in proximity to the Calgary Federal right-of-way (Figure 1).

The Geological Map of New Mexico indicates the site's surface geology primarily comprises Qep - Eolian and piedmont deposits (New Mexico Bureau of Geology and Mineral Resources, 2024). The karst geology potential for the site is low (United States Department of the Interior, Bureau of Land Management, 2018). The surrounding landscape is associated with plains and fan piedmonts with elevations ranging between 2,000 and 5,700 feet. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Predominant soil textures around the site are well-drained very gravelly loams with medium runoff potential (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Using information from the United States Department of Agriculture, the

dominant vegetation was determined to be a grass shrub mix (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Vegetation may grow on the Pastureland the release occurred on.

4.0 Closure Criteria Determination

The nearest active well to the site is a livestock water well 3,702 feet to the southeast of the site (New Mexico Office of the State Engineer, 2024). The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream channel west of the point of release (United States Fish and Wildlife Service, 2024). The release flowed southwest into the channel during a dry period. At the site, there are no lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest depth to groundwater (DTGW) reference to the site is a livestock water well drilled 18,998 feet (3.60 miles) west-northwest on August 4, 2016. The measured DTGW at the well was 125 feet below ground surface (bgs; New Mexico Office of the State Engineer, 2024). Information pertaining to the depth to groundwater determination is summarized in Table 1 and references are included in Appendix B. The DTGW reference was not within 0.5 miles of the release, the karst potential for the site is classified as “High”, and the release overlapped a significant watercourse; therefore, the strictest criteria were used to determine constituent concentration thresholds.

Table 1. Closure Criteria Determination			
Site Name: Calgary Federal #002E			
Spill Coordinates: 32.99344,-104.0773		**X: 586203**	**Y: 3650938**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	**125**	feet
	Distance between release and nearest DTGW reference	**18,998**	feet
		3.60	miles
	Date of nearest DTGW reference measurement	**August 4, 2016**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	**0**	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	9,976	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	32,256	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	3,702	feet
	ii) Within 1000 feet of any fresh water well or spring	3,702	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	1,363	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	119,929	feet
9	Within an unstable area (Karst Map)	**High**	Critical High Medium Low
	Distance between release and nearest unstable area	**0**	feet
10	Within a 100-year Floodplain	>500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	14,905	feet
11	Soil Type	Gravelly fine sandy loam, very gravelly loam	
12	Ecological Classification	Shallow	
13	Geology	Piedmont alluvium deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'

The closure criteria for remediation of the site were determined to be associated with the strictest constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids

TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics

BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Remedial Actions Taken

5.1 Historical Remediation Activities Completed by Previous Consultants

Release characterization and remediation efforts at the site were conducted by Safety & Environmental Solutions (SESI) and Aspen Grow, LLC (Aspen) between November 26, 2016, and April 25, 2018. Soil samples, which were collected on December 30, 2016, and analyzed for total petroleum hydrocarbon (TPH), chloride and benzene, toluene, ethylbenzene and xylene (BTEX) parameters by Cardinal Laboratories, indicated elevated levels of TPH and chlorides throughout the release site. Based on the soil analyses and sample locations, the total size of the area impacted by the release at was determined to be approximately 20,000 square feet at that time. Site characterization sampling locations for historical remediation are presented on Figures 1 to 5. Historical remediation laboratory results are presented in Tables 3 and 4.

Following initial sampling, contaminated soil was reported to have been excavated to a depth of 3.5 feet over a 150 feet by 60 feet area west and southwest of the flowlines. The excavated material was transported off-site for disposal at an approved facility. Further excavation was discontinued in this area after a layer of caliche was encountered. Additional sampling was conducted on March 3, 2017, to further delineate the impacted areas, both vertically and horizontally. Elevated levels of TPH, BTEX and chloride were again detected at 11 discrete sample points within the release footprint.

On September 12, 2017, Aspen started application of a probiotic to the contaminated site, using fresh water from a soaker hose and sprinkler-type system to control the application rate, minimize runoff and enhance percolation of the product into the soil for maximum effectiveness. This combination of water and probiotic product was applied weekly over the entire site for 10 weeks.

On January 22, 2018, Aspen collected soil samples from 26 locations. The soil samples were analyzed for TPH and chloride. Five of the samples returned high chloride levels and on April 25, 2018; additional soil was excavated to remove the remaining impacted material. The contaminated soil was transported to an approved off-site facility for disposal. Soil samples from these areas were reportedly collected on May 17, 2018, and laboratory results were reported to have constituent of concern levels below NMOCD closure requirements.

The excavated areas were backfilled on June 5, 2018, using clean locally-sourced soil. The whole site was returned to near-original grade and was seeded using BLM #4 Seed Mixture for Native Grass Areas. Freshwater was applied to aid revegetation.

5.2 Additional Activities Completed by Vertex

On December 6, 2019, Vertex was contacted by Mack to evaluate the remediation at the site and obtain closure from NMOCD per 19.15.29 NMAC. The laboratory data from the composite samples collected in May 2018 were no longer available and the decision was made to re-collect confirmation samples to confirm remediation had been completed. The project was put on hold in February of 2020 due to changes in management. All information stated previously in this report was put together from documents uploaded by NMOCD and unsupported notes compiled by Vertex in 2019 and 2020.

In November 2024, the project was reactivated and Vertex personnel proceeded to remap the historical release and remediation area based on the figures from the characterization and work plans previously approved by the NMOCD. The approximated historical release remediation area was confirmed with aerial photography and covered a significantly larger area than the previously estimated 20,000 square feet. The area of the historical excavation to 3.5 feet bgs was approximately 25,449 square feet, and the area that received only bioremediation treatment covered an additional 44,316 square feet (approximated). Within the narrow channel of the western portion of the release, the potential release and bioremediation area was extended downslope an additional 260 feet to account for constituent transport. The additional downslope channel area contributed to the larger calculated area, but not appreciably compared to the whole. The historical excavation and historical bioremediation areas is presented on Figures 5.

On November 26, 2024, Vertex received approval for a confirmation sampling variance for 400 square feet for base samples only. Variance approval is included in Appendix D. Vertex created a sampling plan for the historical bioremediation and excavation areas with base sample points representing no more than 400 square feet each. Surface samples were to be collected from the area that had historically only received bioremediation treatment. Historical wall excavation sample points were to represent no more than 200 square feet of the original excavation wall. The approximate total area of the historical excavation wall was 5,320 square feet.

Notification that confirmation samples were being collected was provided to the NMOCD before each sampling event and are included in Appendix D. Initially a hand auger was used to collect the first four base excavation samples by advancing five boreholes to 3.5 feet bgs for every sample point and mixing a composite sample from the base of each borehole. Heavy equipment was used to excavate trenches and potholes along the historical excavation to facilitate collection of the remaining base samples at 3.5 feet bgs and wall samples from 0 to 3.5 feet bgs. Confirmatory 5-point composite samples were collected as planned from the base and walls of the excavation in representative increments no greater than 400 and 200 square feet for base and wall excavation samples, respectively. A total of 75 historical excavation base and 30 historical excavation wall confirmation samples were collected for laboratory analysis following NMOCD soil sampling procedures. A total of 195 base confirmation samples were collected from the historical bioremediation treatment area following NMOCD soil sampling procedures. Daily Field Reports including site photographs are included in Appendix C.

Confirmation samples were submitted to Eurofins Environment Testing in Albuquerque, New Mexico, under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 5 and the laboratory data reports are included in Appendix E. Confirmation sample locations are presented on Figures 7 and 8. All confirmatory samples collected and analyzed were below closure criteria for the site.

6.0 Closure Request

Vertex recommends no additional remediation actions to address the release associated with Calgary Federal #002E. In the course of previous work, the release area was fully delineated, remediated, and backfilled with local soils by January 7, 2025. Laboratory results for the recent retroactive confirmation samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is "under 50 feet to groundwater" as shown in Table 2. There are no anticipated or imminent risks to human, ecological, or hydrological receptors associated with the release site. The SESI Site Investigation Work Plan and Aspen Grow, LLC Remediation Work Plan are included in Appendices F and G, respectively.

On behalf of Mack Energy Corporation, Vertex requests that the incident (nAB1635457735) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Mack certifies that all information in this report and the attachments is correct and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the historical release at the site.

Should you have any questions or concerns, please do not hesitate to contact Sally Carttar at 575.361.3561 or scarttar@vertexresource.com.

7.0 References

Google Inc. (2024). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from https://earth.google.com

New Mexico Bureau of Geology and Mineral Resources. (2024). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

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8.0 Limitations

This report has been prepared for the sole benefit of Mack Energy Corporation. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division and the Bureau of Land Management, without the express written consent of Vertex Resource Services Inc. (Vertex) and Mack Energy Corporation. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

FIGURES

Figure 1. SESI Release Area Assessment

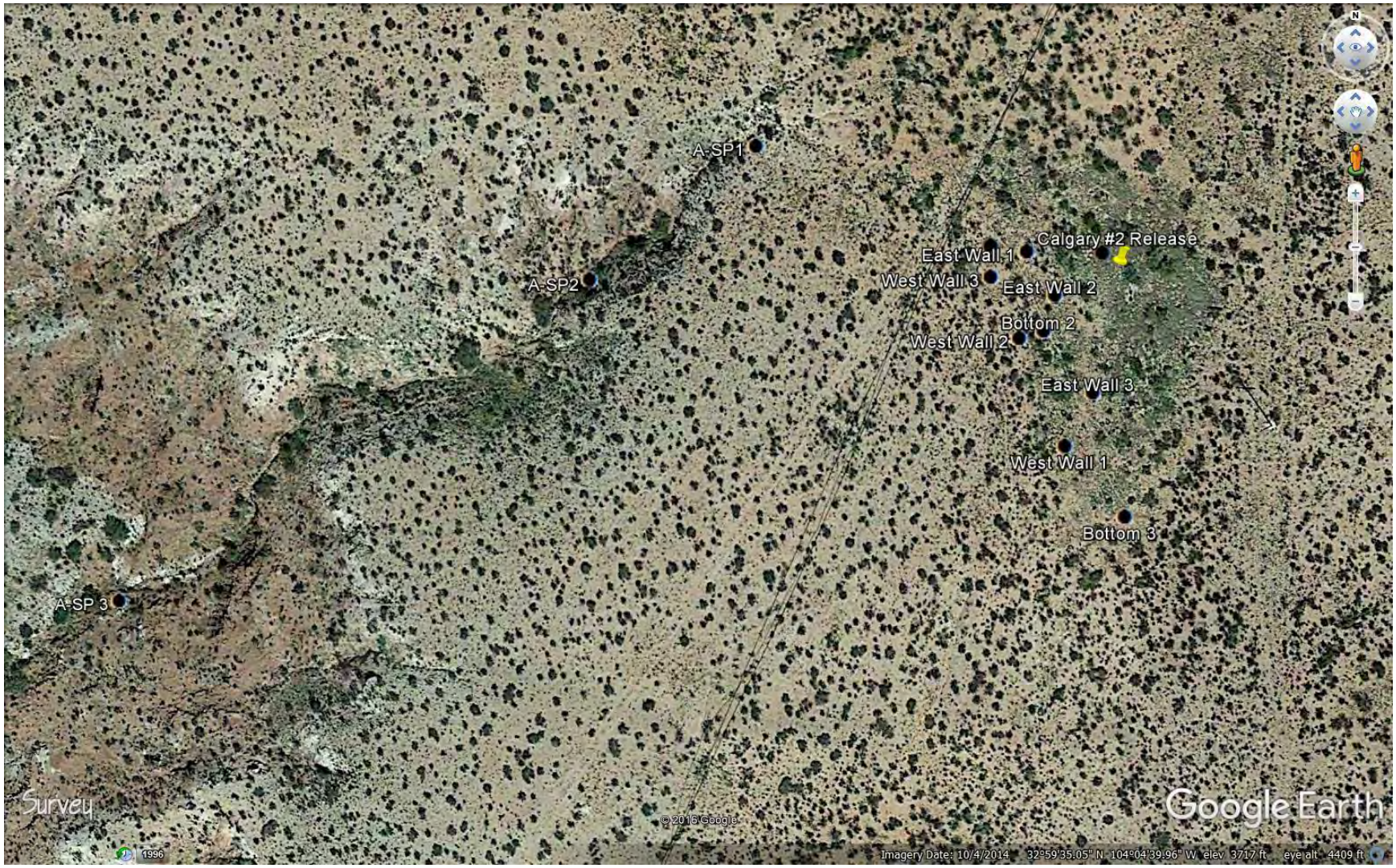


Figure 2. SESI All Sample Points

SESI North Sample Points

SESI South Sample Points

Figure 3. SESI Sample Locations

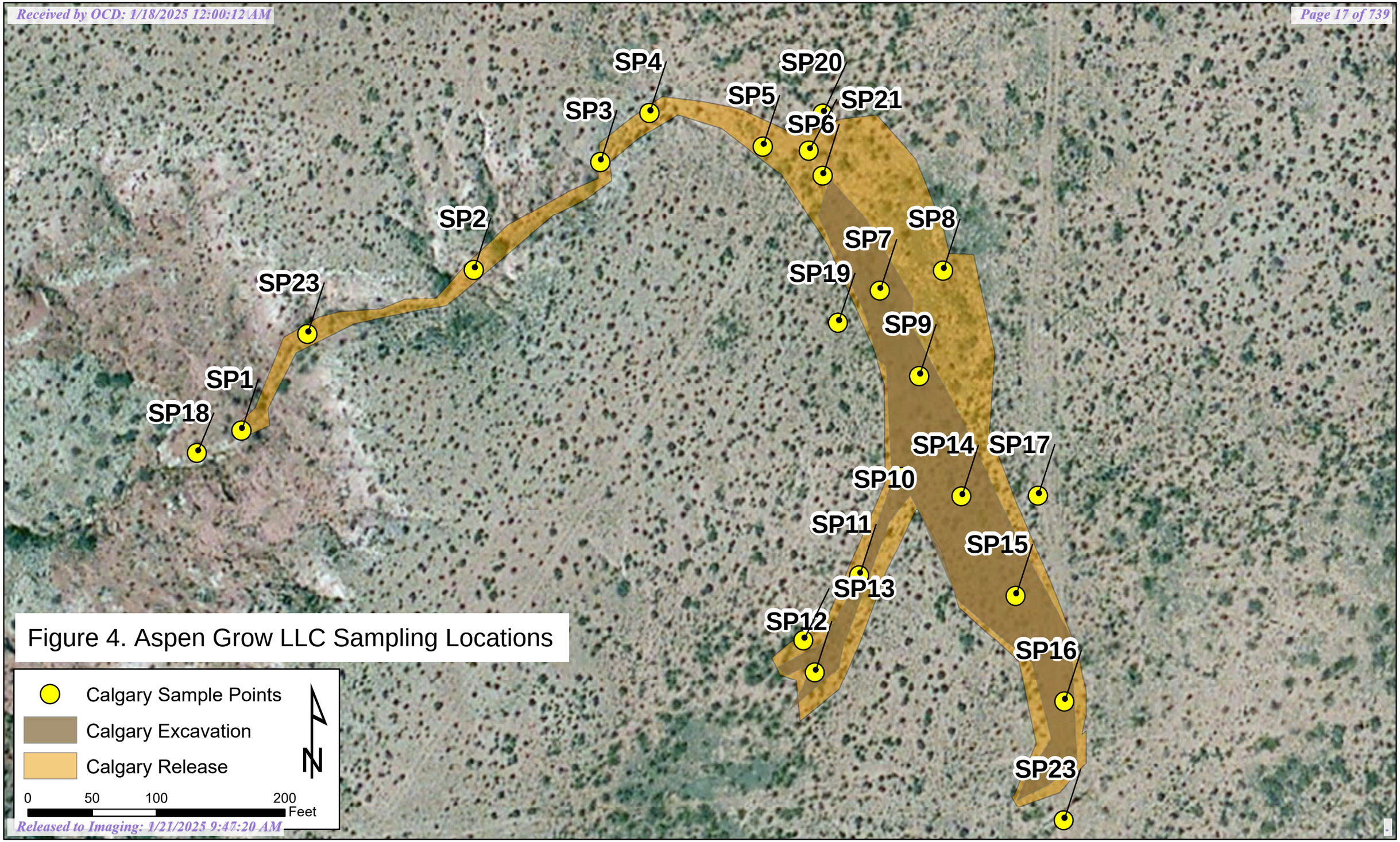


Figure 4. Aspen Grow LLC Sampling Locations

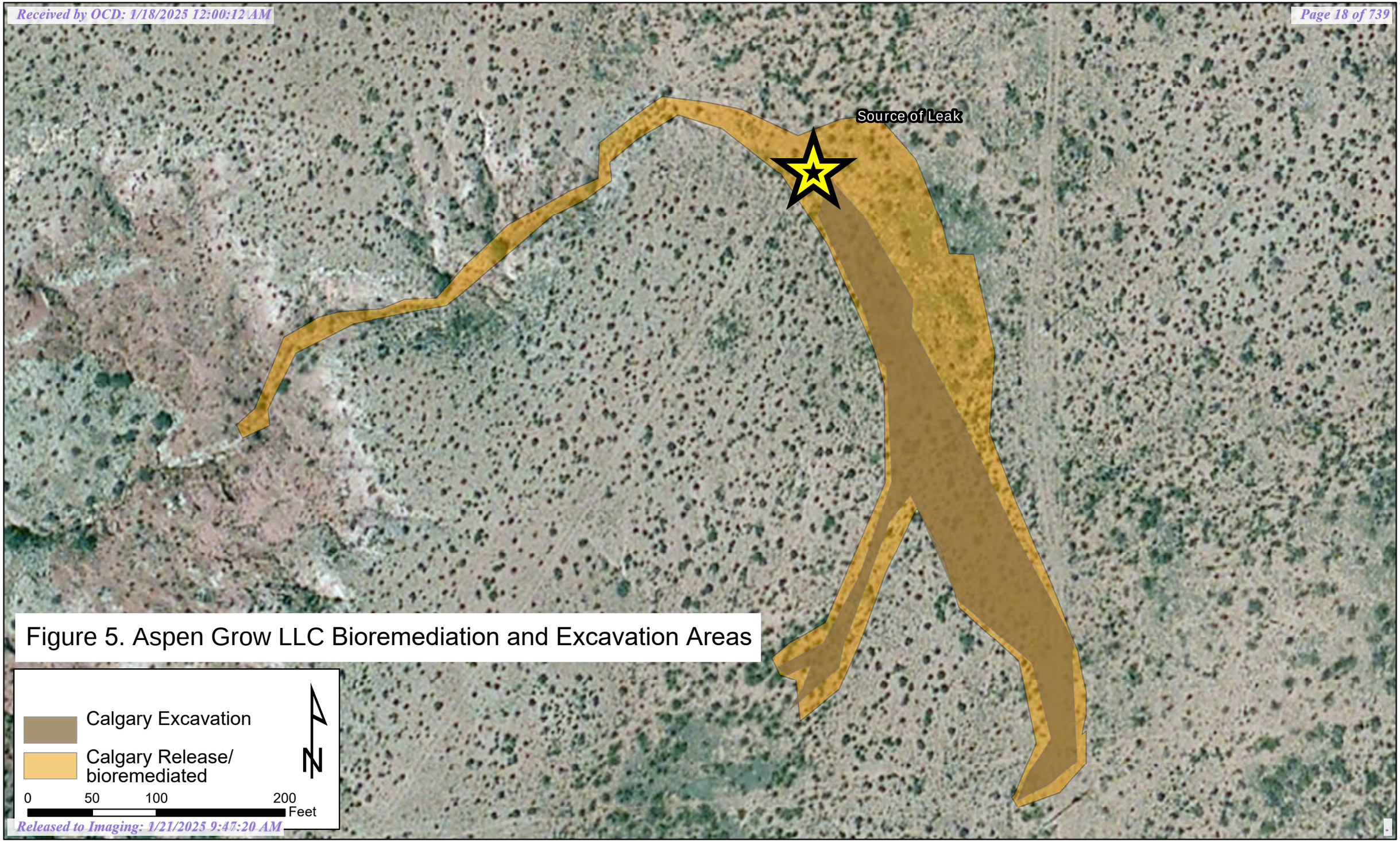
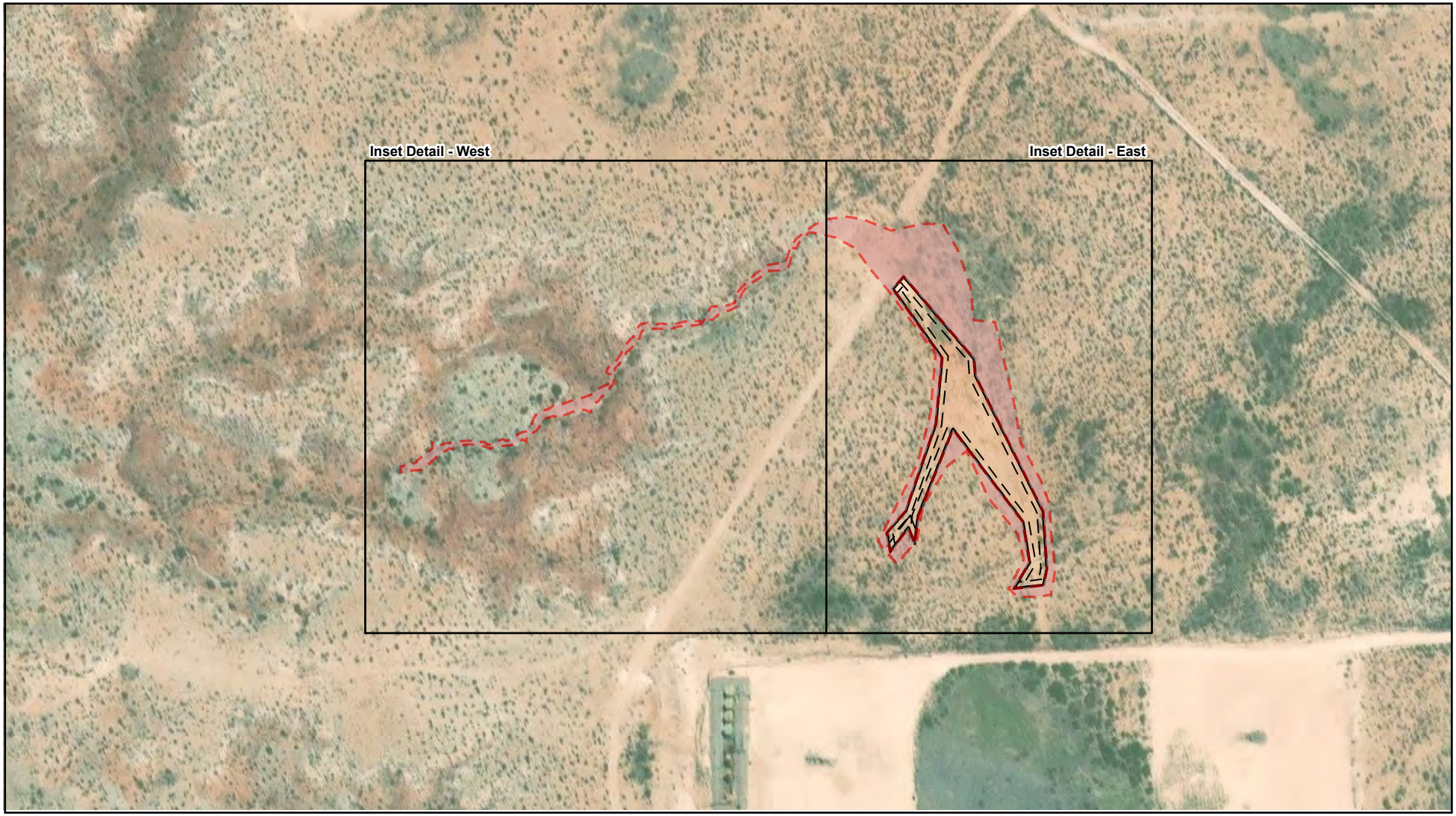


Figure 5. Aspen Grow LLC Bioremediation and Excavation Areas



Historical Bioremediation Area (~18,867 sq.ft.)

Excavation to 3.5' bgs (~25,449 sq.ft. | 1,517 ft.)

VERTEX

0 25 50 100 150 ft

NAD 1983 UTM Zone 13N

Date: Jan 07/25

Map Center:
Lat/Long
32.992813°,-104.078101°

N

Confirmation Overview Schematic
Calgary Federal #002E

FIGURE:

C

MACK Energy Corporation

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Georeferenced image from Esri, 2023.Site features from GPS,by Vertex Professional Services Ltd. (VPS), 2024.

VERSATILITY. EXPERTISE.

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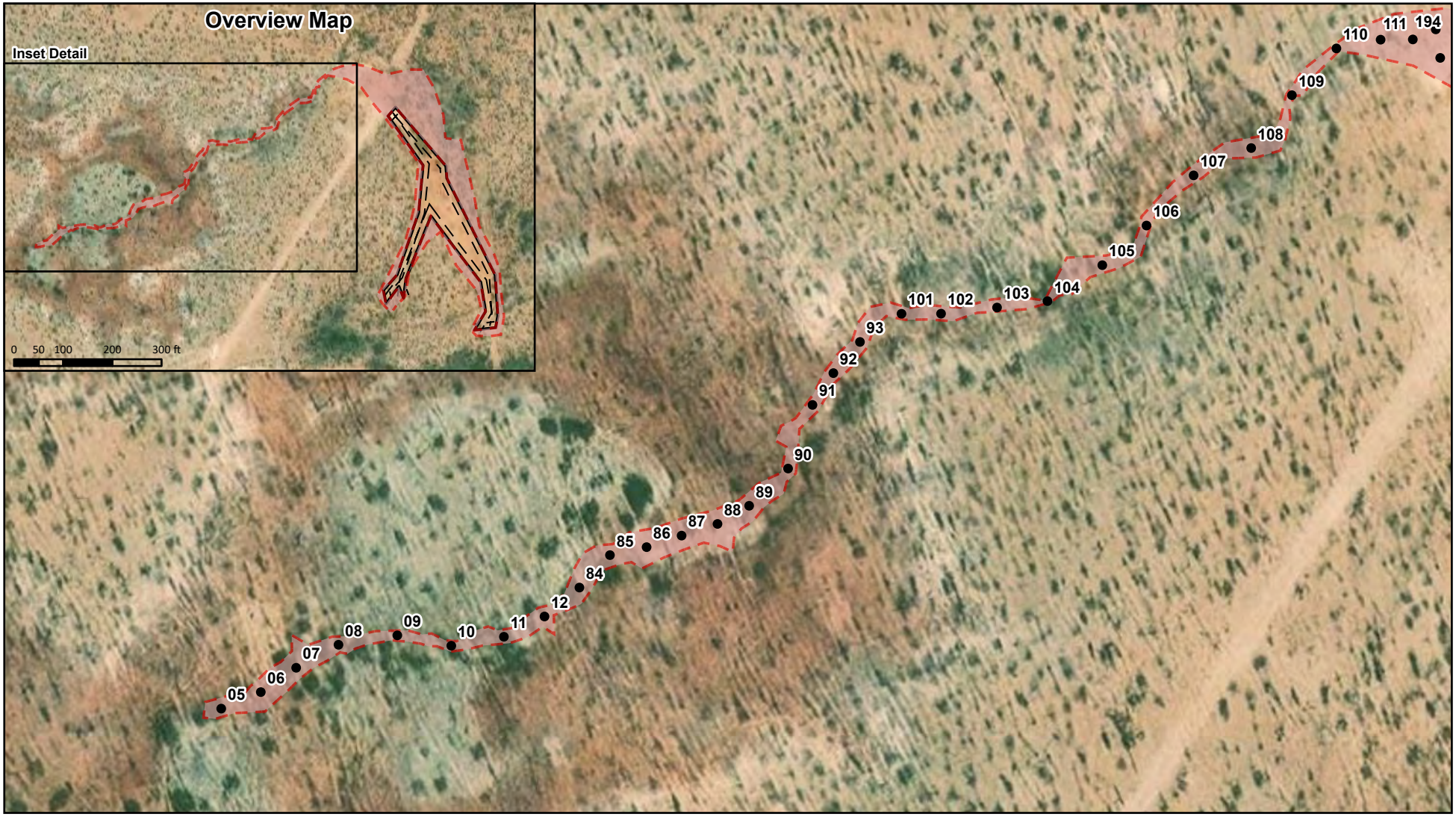

● Base Sample (Prefixed by "BS24-")

▲ Wall Sample (Prefixed by "WES24-")

Historical Bioremediation Area (~18,867 sq.ft.)

Historical Excavation to 3.5' bgs (~25,449 sq.ft.)

VERTEX

0 25 50 ft

NAD 1983 UTM Zone 13N

Date: Jan 07/25

Map Center:
Lat/Long
32.993007°,-104.07876°

N

Confirmation Schematic - West
Calgary Federal #002E

FIGURE:

T

MACK Energy Corporation

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Note: Georeferenced image from Esri, 2023.Site features from GPS,by Vertex Professional Services Ltd. (VPS), 2024.

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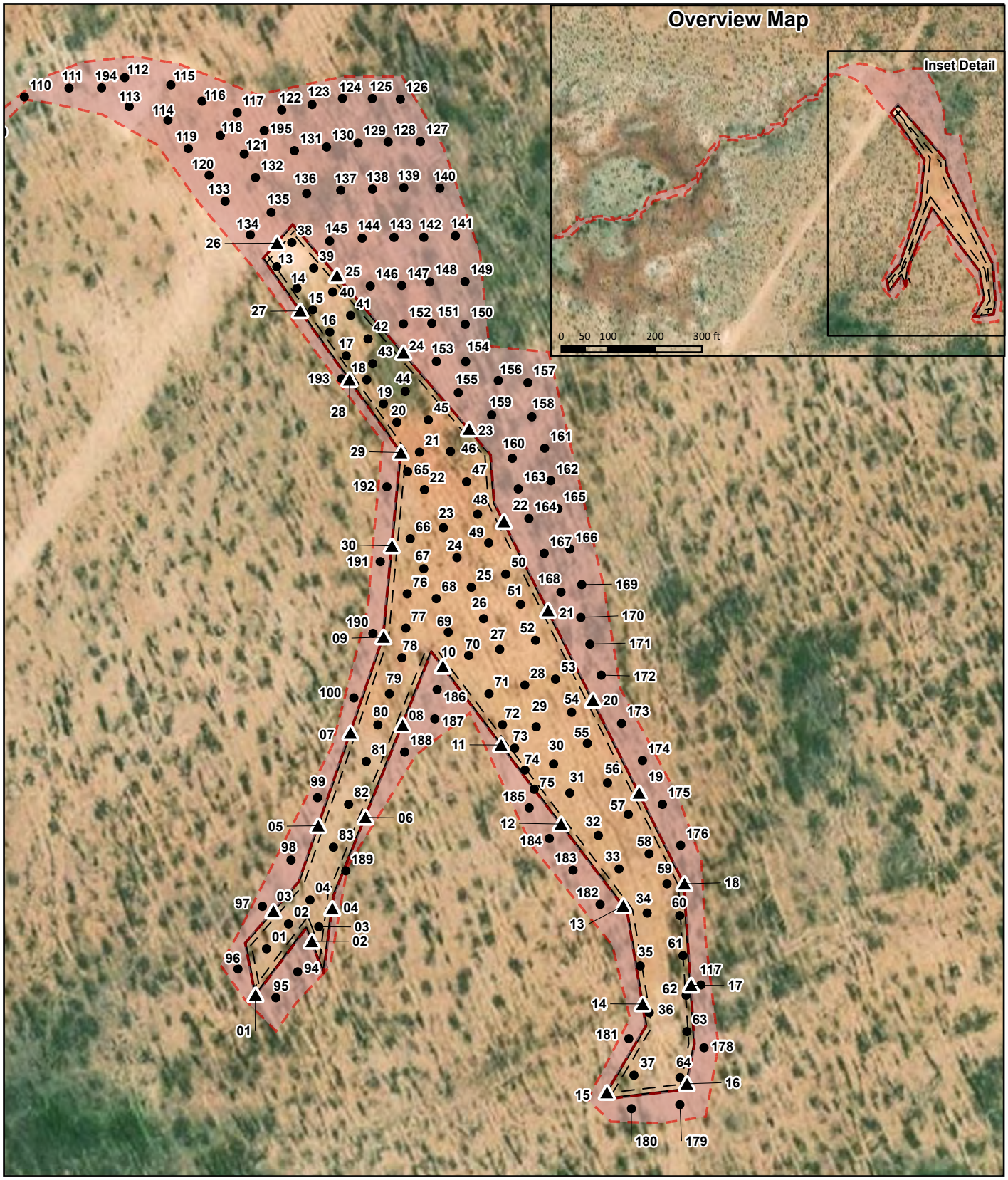

- Base Sample (Prefixed by "BS24-")
- Wall Sample (Prefixed by "WES24-")
- Historical Bioremediation Area (~18,867 sq.ft.)
- Excavation to 3.5' bgs (~25,449 sq.ft. | 1,517 ft.)

VERTEX

0 12.5 25 50 ft

NAD 1983 UTM Zone 13N
Date: Jan 07/25

Map Center:
Lat: 32.992808°N,
Long:104.076913°W

N

Confirmation Schematic - East Calgary Federal #002E

FIGURE: y

MACK Energy Corporation

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Note: Georeferenced image from Esri, 2023.Site features from GPS,by Vertex Professional Services Ltd. (VPS), 2024.

VERSATILITY. EXPERTISE.

TABLES

Table 3. SESI Soil Sample Laboratory Results

Soil Sample Results: Cardinal Laboratories 12-20-16									
SAMPLE ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	TPH GRO	TPH DRO	TPH EXT DRO	Chlorides
ESW-1, 4.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	160
ESW-2, 3.4'	<0.050	0.068	0.854	2.23	3.15	81.9	1170	188	416
ESW-3, 2.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	226	57.5	464
WSW-1,1.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
WSW-2,1.6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	48.0
WSW-3, 2.4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.0
S-1, 0-0.7'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.0
Bkg-1, 0-0.7'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
SP-B1	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	6240
SP-B-2	0.080	1.38	2.78	4.80	9.05	57.7	717	134	6880
SP-B3	34.2	183	157	194	569	3290	7440	1230	3760

Soil Sample Results: Cardinal Laboratories 12-21-16									
SAMPLE ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	TPH GRO	TPH DRO	TPH EXT DRO	Chlorides
ASP-1	0.120	1.15	5.27	8.98	15.5	2630	7440	1470	4240
ASP-2	<2.00	<2.00	29.2	56.5	85.7	2590	26100	4430	4400
ASP-3	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	22.9	32.0

Table 4. Aspen Grow LLC Laboratory Results

Calgary Federal 2 release-Laboratory Analytical Results Summary											
Date	Sample ID	Depth (ft)	Chlorides	TPH - GRO	TPH - DRO	TPH-Total	Benzene	Toluene	Ethylbenzene	Xylene	BTEX
			SM4500Cl-B	TPH 8015m			BTEX 8021b				
12/28/2016	SP1	0-1	32	10	22.9	42.9	0.05	0.05	0.05	0.15	0.3
12/28/2016	SP2	0-1	4400	26100	4430	33120			29.2	56.5	85.7
12/28/2016	SP3	0-1	4240	7440	1470	9173	0.12	1.15	5.27	8.98	15.52
3/2/2017	SP4	0-1	2420			47100	0.187	0.671	8.21	15.75	24.818
3/2/2017	SP5	0-1	4970			4820	0.062	0.745	6.68	10.72	18.207
3/2/2017	SP6	0-1	2890			13400	7.85	78.7	60.5	75.4	222.45
3/2/2017	SP6	0-2	4890			11900	14.2	116	102	129	361.2
3/2/2017	SP6	2-3	6320			2440	0.0679	2.16	3.15	3.78	9.1579
3/2/2017	SP6	3-4	6190								0
3/2/2017	SP7	0-1	11800								0
3/2/2017	SP8	0-1	21.7								0
3/2/2017	SP8	1-2	<1.05								0
3/2/2017	SP9	0-1	3890								0
3/2/2017	SP10	0-1	6430			7930	<0.220	0.503	5.08	9.22	14.803
3/2/2017	SP11	0-1	1650								0
3/2/2017	SP12	0-1	5.65								0
3/2/2017	SP13	0-1	<1.09								0
3/2/2017	SP14	0-1	1430								0
3/2/2017	SP15	0-1	984			27900	0.191	5.62	41.5	64.6	111.911
3/2/2017	SP16	0-1	3150								0
3/2/2017	SP17	0-1	<1.06								0
3/2/2017	SP18	0-1	<1.02								0
3/2/2017	SP19	0-1	<1.05								0
3/2/2017	SP20	0 to 1	<1.05								0
5/10/2017	SP21	5 to 6'	560	11.3	664	675.3	<0.050	<0.050	0.233	0.505	0.738
5/11/2017	SP21	6 to 7 '	528	<10.0	42.7	42.7	<0.050	<0.050	0.053	<.150	<.300
5/12/2017	SP21	11 to 12	272	<10.0	17.5	17.5	<0.050	<0.050	<0.050	<.150	<.300
5/13/2017	SP21	16 to 17	160	<10.0	16.8	16.8	<0.050	<0.050	0.078	<.150	<.300
5/14/2017	SP21	21 to 22	96	<10.0	<10.0	0	<0.050	<0.050	<0.050	<.150	<.300
5/15/2017	SP22	0 to 1	176	51.3	7680	7731.3	<0.050	<0.050	0.109	0.45	0.559
5/16/2017	SP 23	0 to 1	48	<10.0	<10.0	0	<0.050	<0.050	0.065	0.256	0.321

Table 5. Vertex Resource Group Laboratory Results

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results											
Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-01	3.5	November 20, 2024	ND	ND	ND	ND	ND	ND	ND	61
BS24-02	3.5	November 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-03	3.5	November 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-04	3.5	November 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-05	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-06	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-07	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-08	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-09	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-10	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-11	0	November 22, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-12	0	November 22, 2024	ND	ND	ND	13	ND	13	13	ND
BS24-13	3.5	December 2, 2024	ND	ND	ND	ND	ND	ND	ND	97
BS24-14	3.5	December 2, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-15	3.5	December 2, 2024	ND	ND	ND	ND	ND	ND	ND	66
BS24-16	3.5	December 2, 2024	ND	ND	ND	ND	ND	ND	ND	150
BS24-17	3.5	December 2, 2024	ND	ND	ND	ND	ND	ND	ND	220
BS24-18	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	460
BS24-19	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	490
BS24-20	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	110
BS24-21	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	120
BS24-22	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	460
BS24-23	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	310
BS24-24	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	100
BS24-25	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	74
BS24-26	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	120
BS24-27	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	100
BS24-28	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	220
BS24-29	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	190
BS24-30	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	74
BS24-31	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	220
BS24-32	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	200
BS24-33	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	140
BS24-34	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	77
BS24-35	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	200
BS24-36	3.5	December 3, 2024	ND	ND	ND	ND	ND	ND	ND	190
BS24-37	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	160
BS24-38	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	100

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-39	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-40	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	150
BS24-41	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	160
BS24-42	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	190
BS24-43	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-44	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-45	3.5	December 4, 2024	ND	ND	ND	14	ND	14	14	300
BS24-46	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	98
BS24-47	3.5	December 4, 2024	ND	ND	ND	16	ND	16	16	140
BS24-48	3.5	December 4, 2024	ND	ND	ND	13	ND	13	13	340
BS24-49	3.5	December 4, 2024	ND	ND	ND	12	ND	12	12	130
BS24-50	3.5	December 4, 2024	ND	ND	ND	13	ND	13	13	140
BS24-51	3.5	December 4, 2024	ND	ND	ND	11	ND	11	11	300
BS24-52	3.5	December 4, 2024	ND	ND	ND	12	ND	12	12	63
BS24-53	3.5	December 4, 2024	ND	ND	ND	ND	ND	ND	ND	330
BS24-54	3.5	December 4, 2024	ND	ND	ND	12	ND	12	12	140
BS24-55	3.5	December 4, 2024	ND	ND	ND	13	ND	13	13	65
BS24-56	3.5	December 4, 2024	ND	ND	ND	10	ND	10	10	240
BS24-57	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	280
BS24-58	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	140
BS24-59	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-60	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	200
BS24-61	3.5	December 7, 2024	ND	ND	ND	13	ND	13	13	270
BS24-62	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-63	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	89
BS24-64	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-65	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	280
BS24-66	3.5	December 7, 2024	ND	ND	ND	ND	ND	ND	ND	130
BS24-67	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	71
BS24-68	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	63
BS24-69	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	100
BS24-70	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	110
BS24-71	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	320
BS24-72	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	79
BS24-73	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	130
BS24-74	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	120
BS24-75	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	72
BS24-76	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	230

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-77	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-78	3.5	December 8, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-79	3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	79
BS24-80	3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-81	3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-82	3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	130
BS24-83	3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	88
BS24-84	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-85	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-86	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-87	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-88	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-89	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-90	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-91	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-92	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-93	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-94	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-95	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-96	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-97	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-98	0	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-99	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-100	0	December 12, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-101	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-102	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-103	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-104	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-105	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-106	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-107	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-108	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-109	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-110	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-111	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-112	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-113	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-114	0	December 15, 2024	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-115	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-116	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-117	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-118	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-119	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-120	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-121	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-122	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-123	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-124	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-125	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-126	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-127	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-128	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-129	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-130	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-131	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-132	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-133	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-134	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-135	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-136	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-137	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-138	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-139	0	December 16, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-140	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-141	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-142	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-143	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-144	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-145	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-146	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-147	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-148	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-149	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-150	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-151	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-152	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-153	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-154	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-155	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-156	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-157	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-158	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-159	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-160	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-161	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-162	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-163	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-164	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-165	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-166	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-167	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-168	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-169	0	December 17, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-170	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-171	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-172	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-173	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-174	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-175	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-176	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-177	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-178	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-179	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-180	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-181	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-182	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-183	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-184	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-185	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-186	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-187	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-188	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-189	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-190	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							
BS24-191	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-192	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-193	0	December 18, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-194	0	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-195	0	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-01	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-02	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-03	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-04	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-05	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-06	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-07	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-08	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-09	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-10	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-11	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-12	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-13	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-14	0-3.5	December 10, 2024	ND	ND	ND	ND	ND	ND	ND	360
WS24-15	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	90
WS24-16	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-17	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	69
WS24-18	0-3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-19	0-3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	95
WS24-20	0-3.5	December 9, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-21	0-3.5	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-22	0-3.5	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-23	0-3.5	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-24	0-3.5	December 20, 2024	ND	ND	ND	ND	ND	ND	ND	110
WS24-25	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-26	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	310
WS24-27	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-28	0-3.5	December 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-29	0-3.5	December 6, 2024	ND	ND	ND	10	ND	10	10	ND
WS24-30	0-3.5	December 6, 2024	ND	ND	ND	14	ND	14	14	ND

Client Name: Mack Energy Corporation
Site Name: Calgary Federal #002E
NMOCD Tracking #: nAB1635457735
Project #: 24E-04822
Lab Reports: 885-15846, 885-16004, 885-16356, 885-16437, 885-16440, 885-16619, 885-17037, 885-17193, 855-17657

Table 5. Confirmation Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater							

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria

APPENDIX A - NMOCD C-141 Report

NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 14 2016
RECEIVED

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1635457735

OPERATOR

X Initial Report ☐ Final Report

Name of Company MACK ENERGY CORPORATION 13837	Contact MATT BUCKLES
Address PO BOX 960 ARTESIA, NM 88211-0960	Telephone No. 575-748-1288
Facility Name Calgary Federal #2	Facility Type Flowline

Surface Owner BLM	Mineral Owner BLM	API No. 30-005-64100

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	25	15S	28E	1320	North	330	East	Chaves

Latitude 32.996844 **Longitude** -104.079847

NATURE OF RELEASE

Type of Release Oil and PRODUCED WATER	Volume of Release 160 BBLS	Volume Recovered 0 BBLS
Source of Release Flow Line	Date and Hour of Occurrence 11/26/16 @ 7:00 AM	Date and Hour of Discovery 11/26/2016 @ 7:00AM
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher and Harley Davis	
By Whom? Jerry Sherrell	Date and Hour 11/28/2016 8:30am	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A 2 7/8" steel flowline developed a leak between the Calgary #2 well and the tank battery. Immediately upon discovery all oil was dug out and hauled off for proper disposal. We also used 32 sx of oil gator for use in the canyon to keep oil from leaching any further.

Describe Area Affected and Cleanup Action Taken.*
The area affected is the NE of sec 25 T 15S R28E. ESTIMATED RELEASE OF 160 BBLS (40 bbls of oil and 120 bbls of produced water). We have teamed up with Safety & Environmental Solutions out of Hobbs, NM to complete a horizontal and vertical site delineation.

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

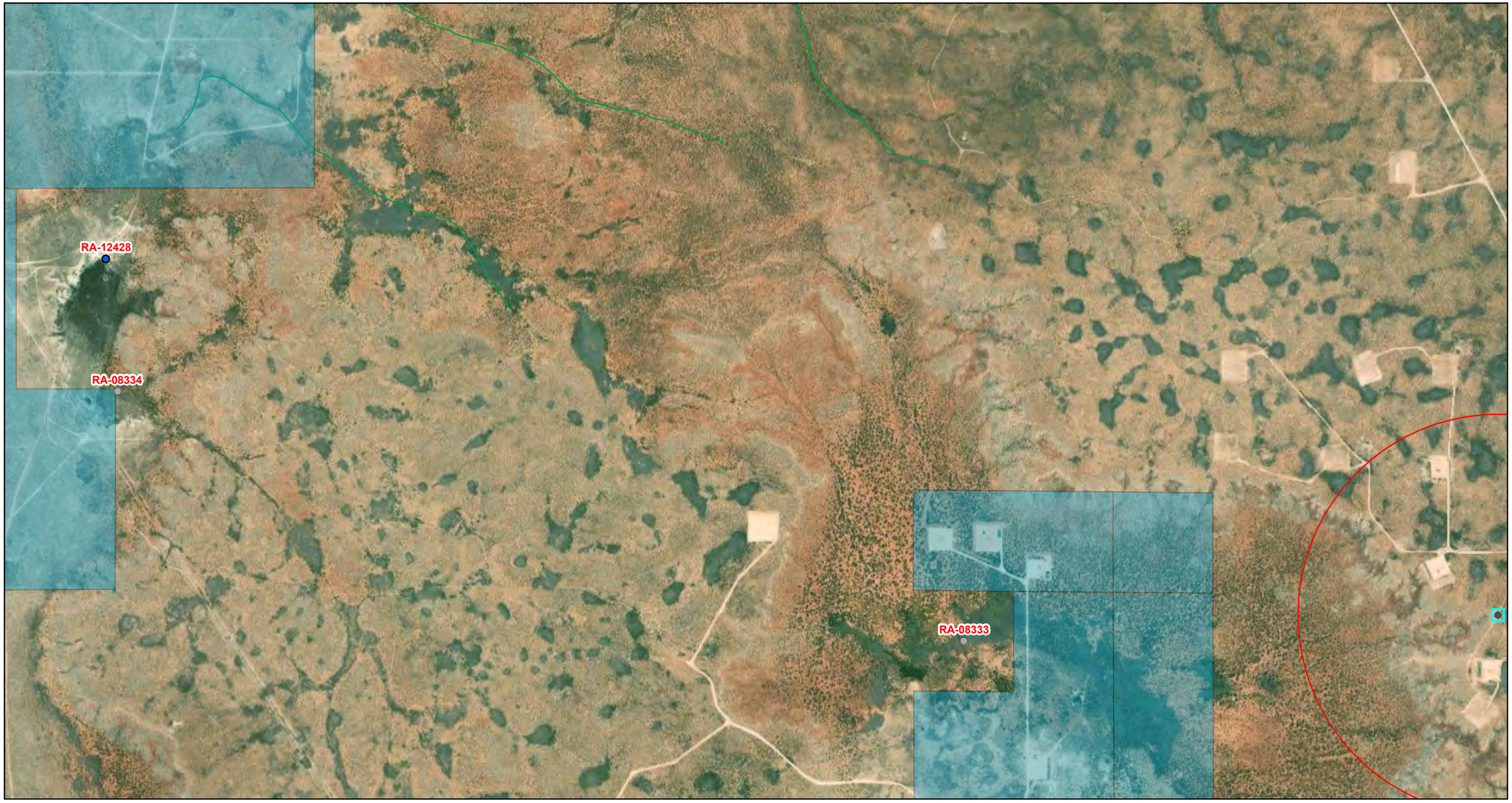
Signature: Matt Buckles	OIL CONSERVATION DIVISION
Printed Name: MATT BUCKLES	Signed By Mike Bratcher Approved by Environmental Specialist:
Title: ENVIRONMENTAL	Approval Date: 12/15/16 Expiration Date: N/A
E-mail Address: mattbuckles@mec.com	Conditions of Approval: See attached Attached X
Date:12/12/2016 Phone: 575-748-1288	

* Attach Additional Sheets If Necessary

2RP-4037

APPENDIX B – Closure Criteria Research Documentation

OSE POD 0.5 miles



12/21/2024, 10:17:06 AM

1:18,056

GIS WATERS PODs

Active

OSE District Boundary

New Mexico State Trust Lands

Both Estates

NHD Flowlines

Stream River

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user
This is an unofficial map from the OSE's online application.

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD has been replaced, O=orphaned, C=the file is closed)			(quarters are smallest to largest)						(NAD83 UTM in meters)				(In feet)	(In feet)	(In feet)
POD Number	**Code**	**Sub basin**	**County**	**Q64**	**Q16**	**Q4**	**Sec**	**Tws**	**Range**	**X**	**Y**	**Map**	**Distance**	**Well Depth**	**Depth Water**	**Water Column**
RA 12428		RA	CH	SE	NE	NW	21	15S	28E	580579.1	3652317.4		5790	170	125	45
															Average Depth to Water: **125 feet**	
															Minimum Depth: **125 feet**	
															Maximum Depth: **125 feet**	

Record Count: 1

UTM Filters (in meters):
Easting: 586203
Northing: 3650938
Radius: 007000

*** UTM location was derived from PLSS - see Help**

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

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Point of Diversion Summary

quarters are 1=NW 2=NE 3=SW 4=SE
quarters are smallest to largest

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
	RA 12428	SE	NE	NW	21	15S	28E	580579.1	3652317.4	

*** UTM location was derived from PLSS - see Help**

Driller License:	1058	**Driller Company:**	KEY'S DRILLING & PUMP SERVICE		
Driller Name:	DONALD KUEHN III				
Drill Start Date:	2016-07-28	**Drill Finish Date:**	2016-08-04	**Plug Date:**	
Log File Date:	2016-08-08	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	15
Casing Size:	4.50	**Depth Well:**	170	**Depth Water:**	125

Water Bearing Stratifications:

Top	Bottom	Description
125	140	Sandstone/Gravel/Conglomerate
140	160	Sandstone/Gravel/Conglomerate
160	170	Sandstone/Gravel/Conglomerate

Casing Perforations:

Top	Bottom
125	170

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

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Water Right Summary

get image list

WR File Number:	RA 12428	**Subbasin:**	RA	**Cross Reference:**
Primary Purpose:	STK 72-12-1 LIVESTOCK WATERING			
Primary Status:	PMT Permit			
Total Acres:		**Subfile:**		**Header:**
Total Diversion:	3.000	**Cause/Case:**		
Owner:	BOGLE LTD.	**Owner Class:**	Owner	
Contact:	STUART BOGLE			

Documents on File

(acre-feet per annum)

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion	Consumptive
get images	590003	72121	2016-06-29	PMT	LOG	RA 12428 POD1	T		3.000	

Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
RA 12428		Shallow	SE	NE	NW	21	15S	28E	580579.1	3652317.4		

*** UTM location was derived from PLSS - see Help**

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

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WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

	OSE FILE NUMBER(S): RA 12428
WELL OWNER NAME(S): BOGLE LTD	PHONE (OPTIONAL):
WELL OWNER MAILING ADDRESS: PO BOX 460	CITY: DEXTER STATE: NM ZIP: 88230

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	33	00	22.728	N
LONGITUDE	104	08	14.522	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE:

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1058	DONALD KUEHN III	KEYS DRILLING & PUMP SERVICE INC.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7/28/16	8/4/16	170'	170'	125'

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 125'

DRILLING FLUID: ☐ AIR ☑ MUD ☐ ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
-1.50	125	8-3-4"	PVC	SPLINE	4-1/2"	SCH40	
125	170	8-3/4"	PVC	SPLINE	4-1/2"	SCH40	.030

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	8-3/4"	CEMENT		HAND
20	170	8-3/4"	VEALMORE PEA GRAVEL		HAND

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	RA-12428	POD NUMBER	1	TRN NUMBER	590003
LOCATION	19S.28E.21.124				PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	20	20	TOP SOIL & GRAVEL	☐ Y ■ N	
20	30	10	RED SAND & GRAVEL	☐ Y ■ N	
30	70	40	RED CLAY	☐ Y ■ N	
70	75	5	WHITE SANDY CLAY & COURSE SAND	☐ Y ■ N	
75	90	15	GYPSON	☐ Y ■ N	
90	110	20	RED CLAY	☐ Y ■ N	
110	125	15	RED CLAY & GYPSON	☐ Y ■ N	
125	140	15	COURSE SAND & GYPSON	■ Y ☐ N	
140	160	20	GYPSON & COURSE SAND	■ Y ☐ N	
160	170	10	GYPSON & COURSE SAND	■ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ■ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 15+

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

DONALD KUEHN III

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

GARY KEY — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

08/08/2016 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	RA-12428	POD NUMBER	1	TRN NUMBER	590003
LOCATION	18S.28E.21.124				PAGE 2 OF 2

Received by OCD: 1/18/2025 12:00:12 AM

U.S. Fish and Wildlife Service
National Wetlands Inventory

02. Watercourse_112ft_Calgary Federal #0

November 4, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

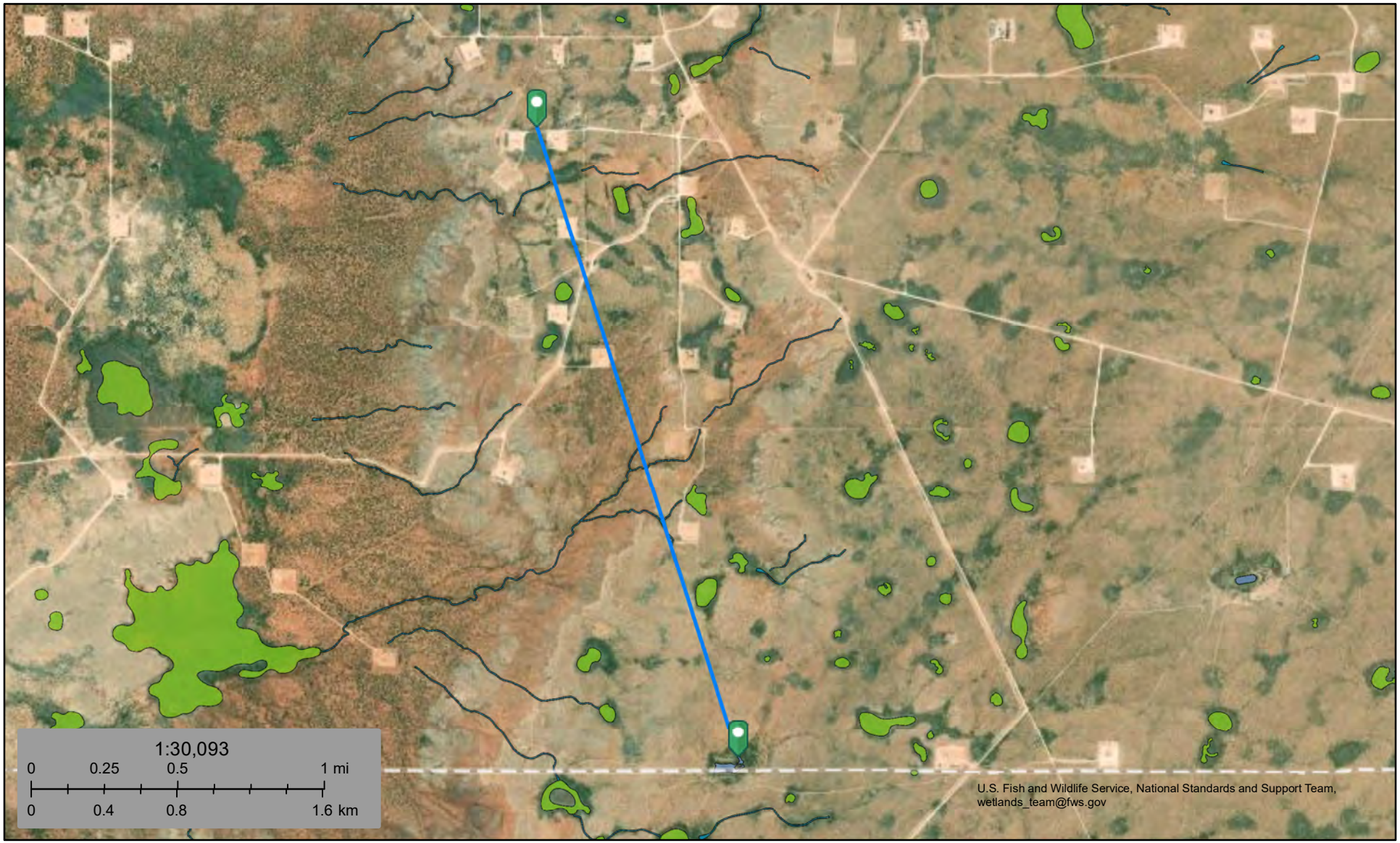
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Released to Imaging: 1/21/2025 9:47:20 AM

Received by OCD: 1/18/2025 12:00:12 AM

U.S. Fish and Wildlife Service
National Wetlands Inventory

Pond 9,976 feet



December 21, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Released to Imaging: 1/21/2025 9:47:20 AM

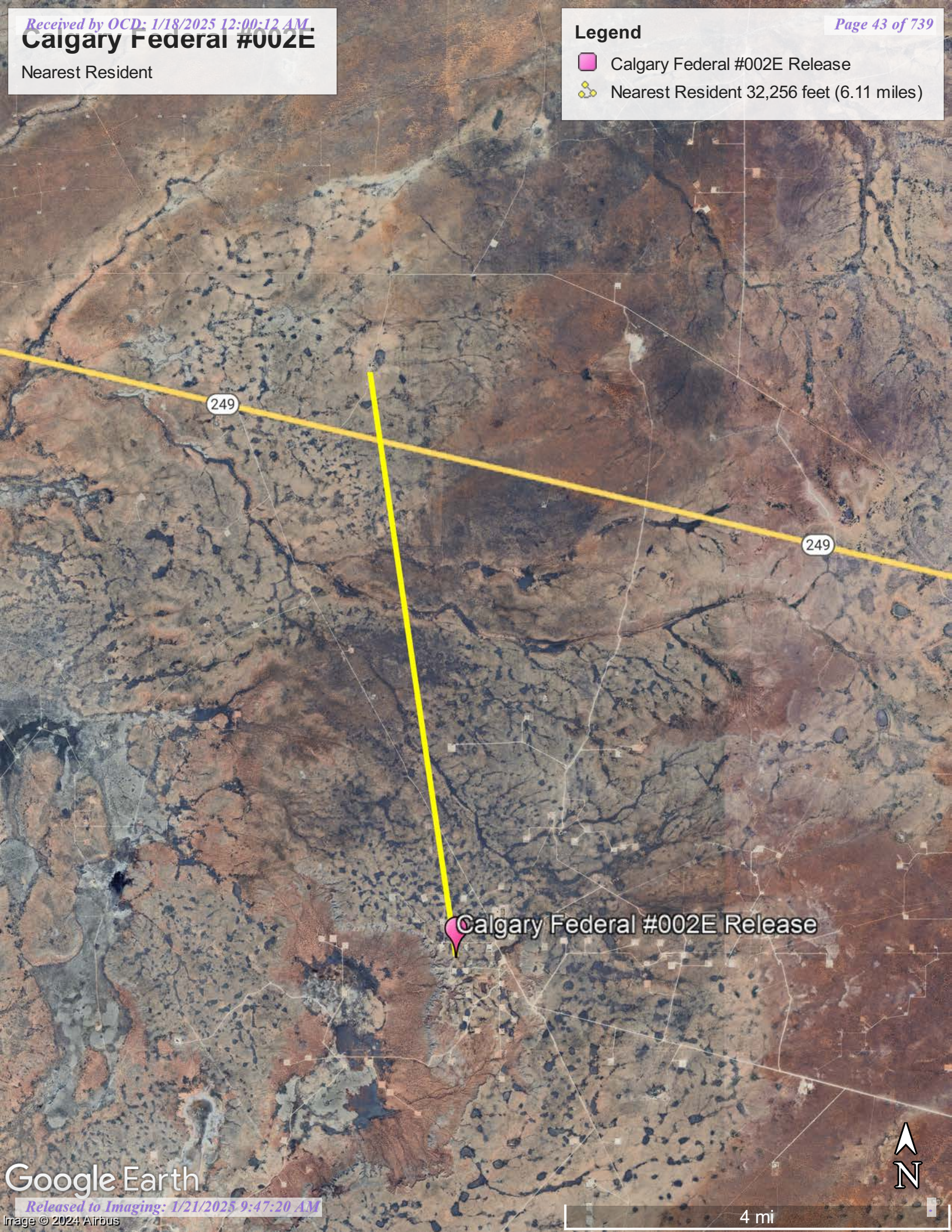
Received by OCD: 1/18/2025 12:00:12 AM

Calgary Federal #002E

Nearest Resident

Legend

- Calgary Federal #002E Release
- Nearest Resident 32,256 feet (6.11 miles)



Released to Imaging: 1/21/2025 9:47:20 AM

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum) | (R=POD has been replaced and no longer serves this file, C=the file is closed) | (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) | (NAD83 UTM in meters) | (meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q64	q16	q4	Sec	Tws	Range	X	Y	Map	Distance
RA 12007	RA	EXP	0.000	MACK ENERGY	CH	RA 12007 POD1					SE	NE	SW	19	15S	29E	586999.1	3651508.8		979.6
LWD 03197	RA	PLS	4.950	BOGLE FARMS	CH	LWD 03197 POD1								30	15S	29E	587075.0	3650222.0 *		1,128.3
RA 12006	RA	EXP	0.000	MACK ENERGY	CH	RA 12006 POD1					NE	NE	SW	19	15S	29E	587049.3	3651703.3		1,141.0
RA 08333	RA	STK	1.470	BOGLE FARMS	CH	RA 08333						NW	NE	26	15S	28E	584050.0	3650815.0 *		2,156.5
LWD 03198	RA	PLS	4.950	BOGLE FARMS	CH	LWD 03198 POD1								31	15S	29E	587101.0	3648631.0 *		2,475.6
LWD 03196	RA	PLS	2.770	BOGLE FARMS	CH	LWD 03196 POD1								20	15S	29E	588694.0	3651839.0 *		2,648.9
LWD 03199	RA	PLS	8.200	BOGLE FARMS	CH	LWD 03199 POD1								32	15S	29E	588712.0	3648646.0 *		3,398.3
LWD 03195	RA	PLS	6.420	BOGLE FARMS	CH	LWD 03195 POD1								17	15S	29E	588680.0	3653446.0 *		3,525.0
LWD 03194	RA	PLS	3.670	BOGLE FARMS	CH	LWD 03194 POD1						SE	SE	16	15S	29E	590879.0	3652866.0 *		5,057.9
RA 08334	RA	STK	1.880	BOGLE FARMS	CH	RA 08334								21	15S	28E	580629.0	3651787.0 *		5,638.3
RA 12428	RA	STK	3.000	BOGLE LTD.	CH	RA 12428				Shallow	SE	NE	NW	21	15S	28E	580579.1	3652317.4		5,790.6
LWD 03193	RA	PLS	3.300	BOGLE FARMS	CH	LWD 03193 POD1								05	15S	29E	588660.0	3656663.0 *		6,230.0
RA 08335	RA	STK	2.000	BOGLE FARMS	CH	RA 08335								09	15S	28E	580608.0	3655008.0 *		6,918.7

Record Count: 13

Filters Applied:

UTM Filters (in meters):
Easting: 586203
Northing: 3650938
Radius: 007000

Sorted By: Distance

*** UTM location was derived from PLSS - see Help**

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

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Active & Inactive Points of Diversion

(with Ownership Information)

		(acre ft per annum)				(R=POD has been replaced and no longer serves this file, C=the file is closed)				(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)						(NAD83 UTM in meters)			(meters)
WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q64	q16	q4	Sec	Tws	Range	X	Y	Map	Distance
RA 12007	RA	EXP	0.000	MACK ENERGY	CH	RA 12007 POD1					SE	NE	SW	19	15S	29E	586999.1	3651508.8		979.6
LWD 03197	RA	PLS	4.950	BOGLE FARMS	CH	LWD 03197 POD1								30	15S	29E	587075.0	3650222.0 *		1,128.3
RA 12006	RA	EXP	0.000	MACK ENERGY	CH	RA 12006 POD1					NE	NE	SW	19	15S	29E	587049.3	3651703.3		1,141.0
RA 08333	RA	STK	1.470	BOGLE FARMS	CH	RA 08333						NW	NE	26	15S	28E	584050.0	3650815.0 *		2,156.5
LWD 03198	RA	PLS	4.950	BOGLE FARMS	CH	LWD 03198 POD1								31	15S	29E	587101.0	3648631.0 *		2,475.6
LWD 03196	RA	PLS	2.770	BOGLE FARMS	CH	LWD 03196 POD1								20	15S	29E	588694.0	3651839.0 *		2,648.9
LWD 03199	RA	PLS	8.200	BOGLE FARMS	CH	LWD 03199 POD1								32	15S	29E	588712.0	3648646.0 *		3,398.3
LWD 03195	RA	PLS	6.420	BOGLE FARMS	CH	LWD 03195 POD1								17	15S	29E	588680.0	3653446.0 *		3,525.0

Record Count: 8

Filters Applied:

UTM Filters (in meters):
Easting: 586203
Northing: 3650938
Radius: 005000

Sorted By: Distance

*** UTM location was derived from PLSS - see Help**

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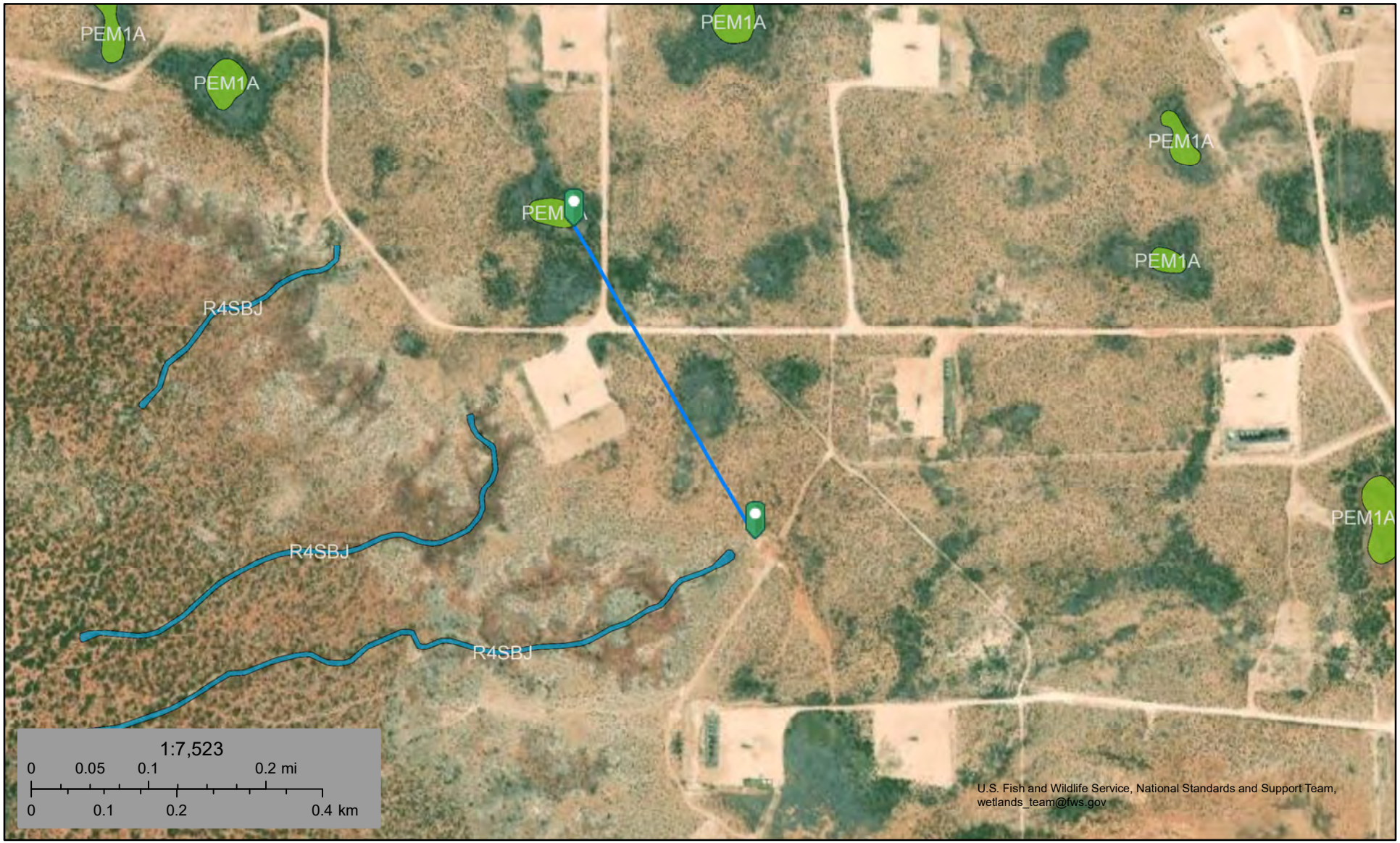
U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetland 1,363 feet



December 21, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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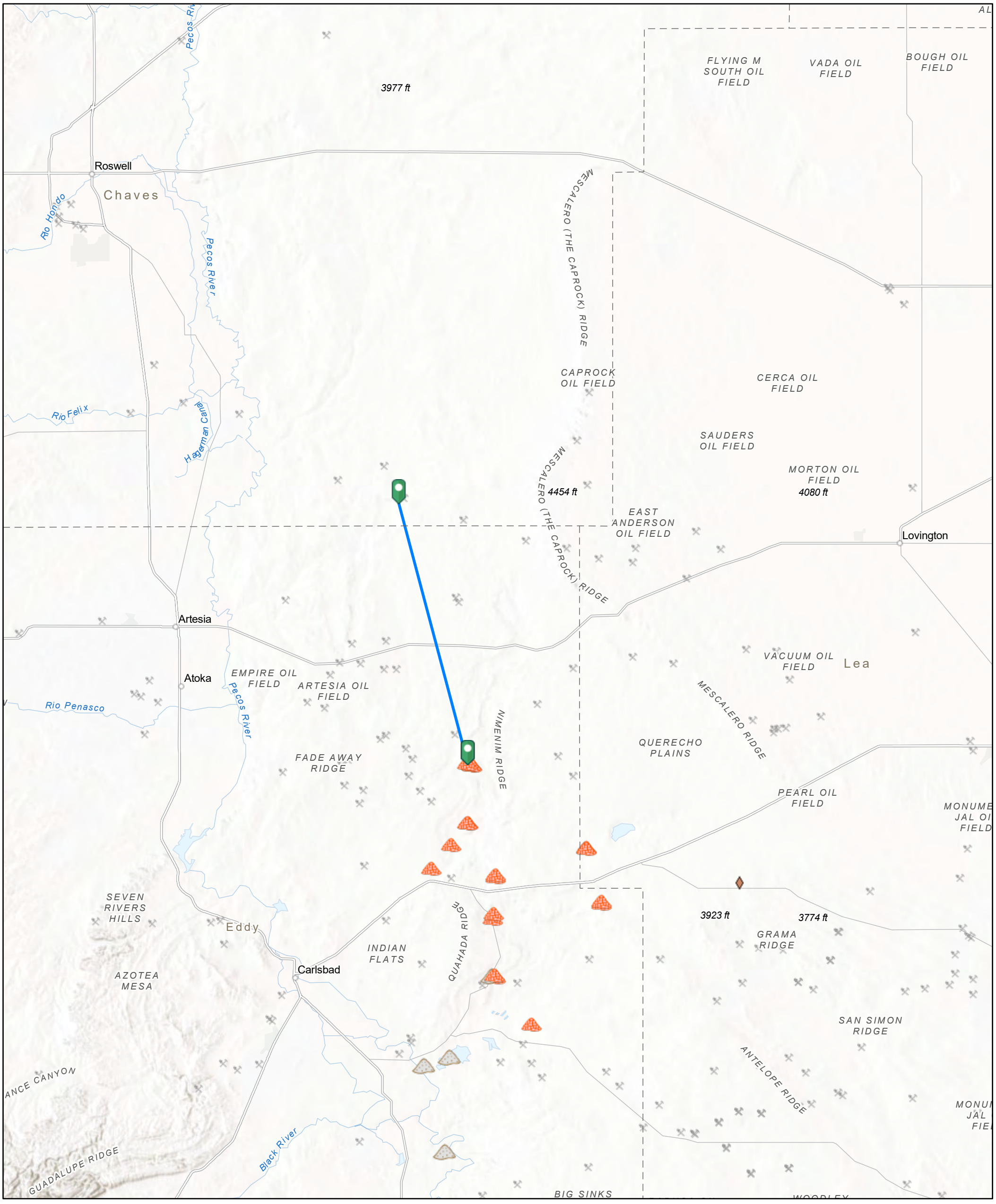
Potash Mine 119,929 feet



12/21/2024, 6:27:59 AM

Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Industrial Minerals (Other)
- Potash
- Salt

1:577,791

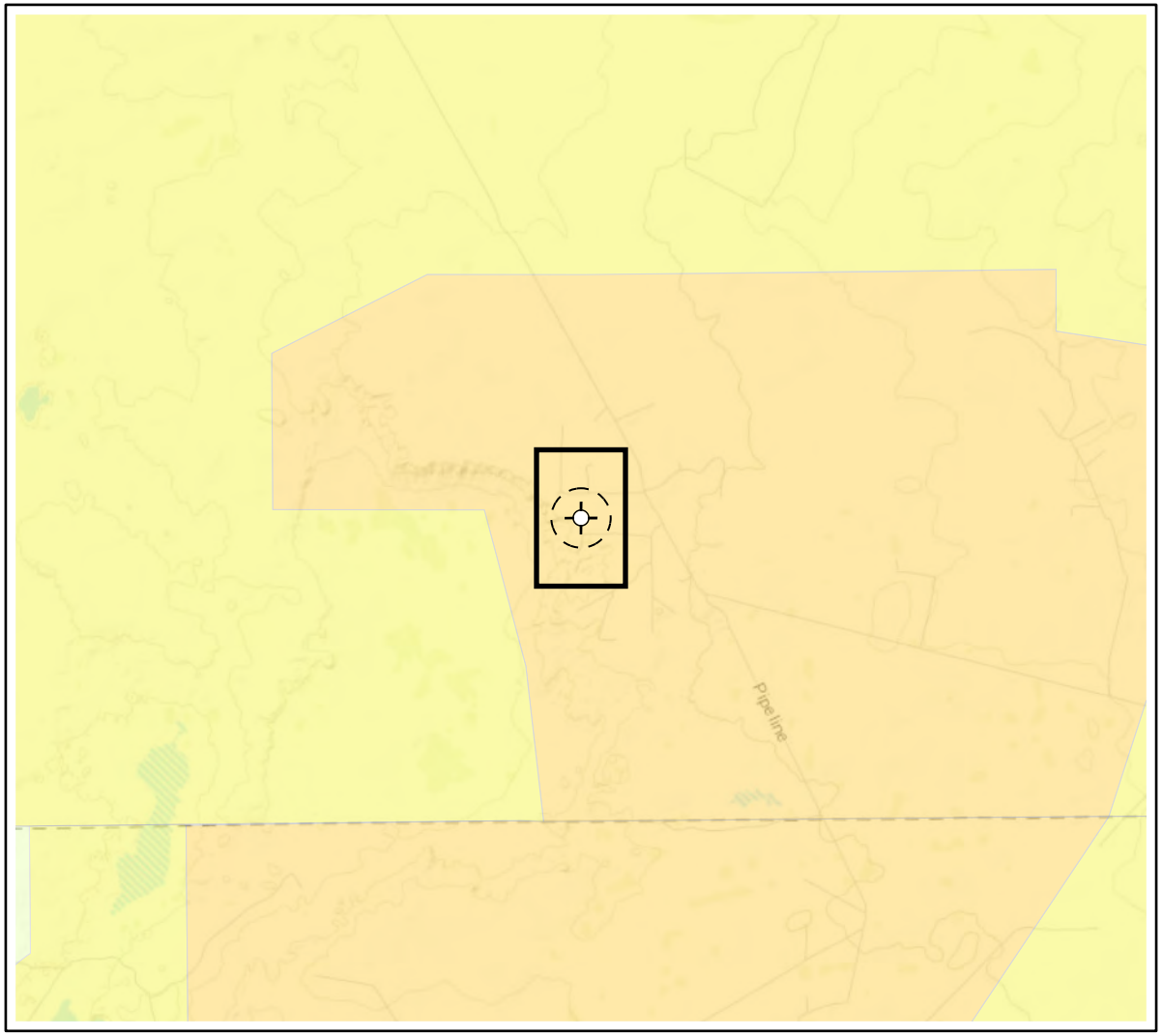
0 5 10 20 mi

0 5 10 20 km

Esri, CGIAR, USGS, Texas Parks & Wildlife, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, BLM

EMNRD MMD GIS Coordinator

NM Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)



Overview Map
0 0.25 0.5 1 mi

Detail Map
0 150 300 600 ft

Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1000 ft.)

VERTEX

Map Center:
Lat/Long
32.9934°,-104.0773°

NAD 1983 UTM Zone 13N
Date: Dec 23/24

N

Karst Potential Map
Calgary Federal #002E

Figure:
X

MACK Energy Corporation

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, Esri 2022; Overview Map: Esri World Topographic. Karst potential data sources from Roswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management, (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects_US PROJECTS\Mack Energy\2024\24E-04822\Project\24E-04822.aprx

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National Flood Hazard Layer FIRMette

FEMA

104°4'57"W 32°59'52"N

104°4'20"W 32°59'21"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/5/2024 at 6:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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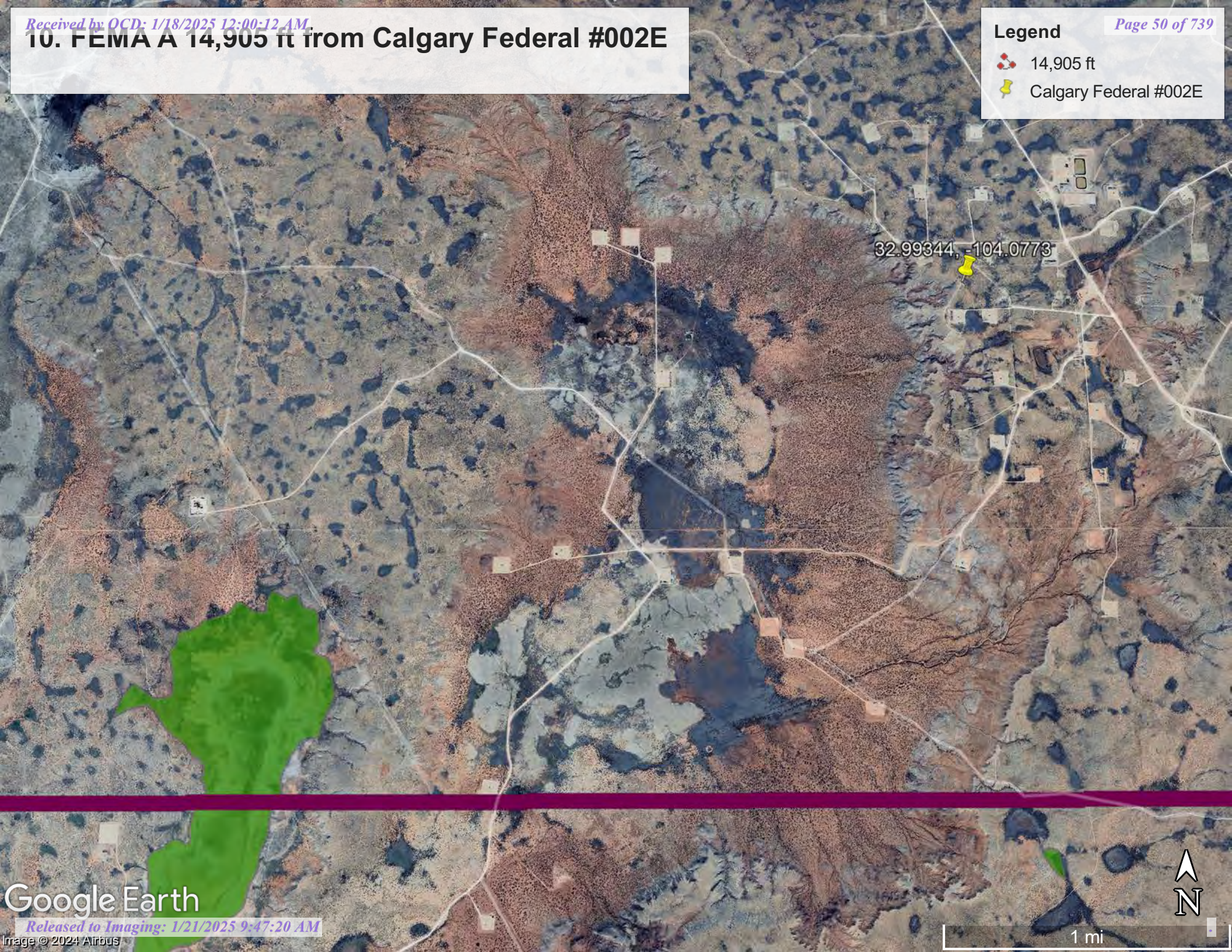
10. FEMA A 14,905 ft from Calgary Federal #002E



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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Chaves County, New Mexico, Southern Part

November 5, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

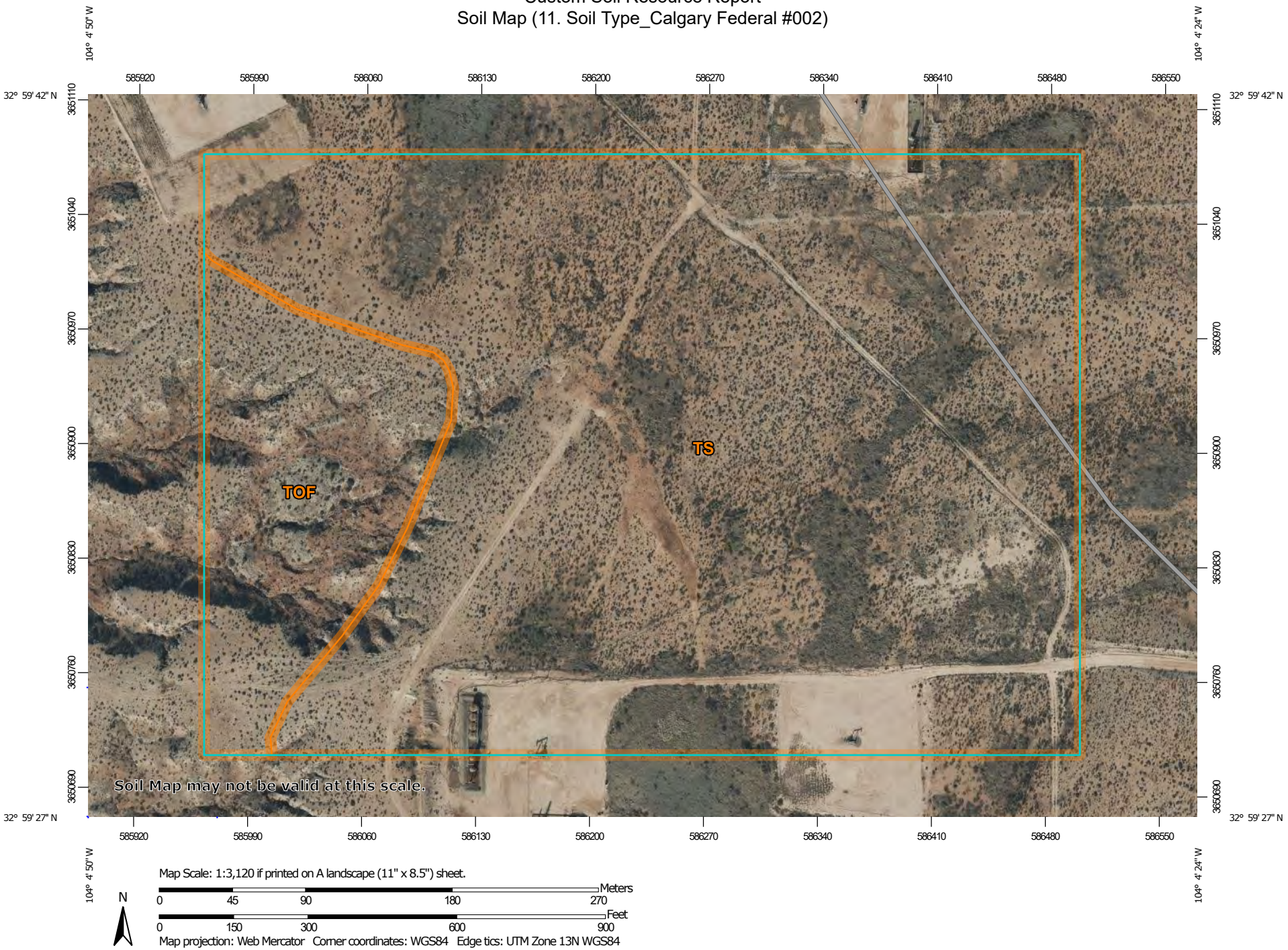
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (11. Soil Type_Calgary Federal #002)



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chaves County, New Mexico, Southern Part
Survey Area Data: Version 19, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (11. Soil Type_Calgary Federal #002)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
TOF	Torriorthents, very steep	7.5	15.2%
TS	Tencee-Sotim association	41.6	84.8%
Totals for Area of Interest		**49.0**	**100.0%**

Map Unit Descriptions (11. Soil Type_Calgary Federal #002)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Chaves County, New Mexico, Southern Part

TOF—Torriorthents, very steep

Map Unit Setting

National map unit symbol: 1w8d
Elevation: 2,840 to 4,500 feet
Mean annual precipitation: 8 to 13 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 190 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Torriorthents: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Torriorthents

Setting

Landform: Escarpments, scarps
Landform position (three-dimensional): Free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 6 inches: gravelly loam
H2 - 6 to 20 inches: gravelly sandy clay loam
H3 - 20 to 24 inches: bedrock

Properties and qualities

Slope: 30 to 80 percent
Depth to restrictive feature: 10 to 60 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Calcium carbonate, maximum content: 7 percent
Gypsum, maximum content: 3 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydric soil rating: No

Minor Components

Ima

Percent of map unit: 8 percent
Ecological site: R070BY055NM - Sandy Plains
Hydric soil rating: No

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Rock outcrop
Percent of map unit: 7 percent
Hydric soil rating: No

TS—Tencee-Sotim association

Map Unit Setting
National map unit symbol: 1w8f
Elevation: 3,200 to 6,000 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 55 to 65 degrees F
Frost-free period: 140 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition
Tencee and similar soils: 50 percent
Sotim and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tencee

Setting
Landform: Hillslopes, low hills
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous alluvium and/or eolian deposits derived from sedimentary rock

Typical profile
H1 - 0 to 2 inches: gravelly fine sandy loam
H2 - 2 to 9 inches: very gravelly loam
H3 - 9 to 13 inches: cemented material

Properties and qualities
Slope: 1 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

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Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R070BC025NM - Shallow
Hydric soil rating: No

Description of Sotim

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Mixed alluvium and/or eolian deposits derived from sedimentary rock

Typical profile

H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 70 inches: clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 5 percent
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Berino

Percent of map unit: 5 percent
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

Pecos

Percent of map unit: 5 percent
Ecological site: R070BC008NM - Draw
Hydric soil rating: No

Rock outcrop

Percent of map unit: 4 percent
Ecological site: R042CY158NM - Very Shallow
Hydric soil rating: No

Playa

Percent of map unit: 1 percent
Landform: Flood-plain playas
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: Yes

References

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USDA Natural Resources Conservation Service

Ecological site R070BC025NM
Shallow

Accessed: 12/21/2024

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on knolls, ridges, hillslopes alluvial fans and escarpments. Slopes range fro 0 to 25 percent and average about 7 percent. Direction of slope varies and is usually not significant. Elevations range from 2,842 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge (3) Fan piedmont
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–4,500 ft
Slope	0–25%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost-free season is 180 to 220 days. The last killing frost is late March or early April, and the first killing frost is in late October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Because of the shallow soil depth, the vegetation on this site can take advantage of moisture almost anytime it falls. Strong winds that blow from the west and southwest blow from January through June, which accelerates soil drying at a critical time for cool season plant growth.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

This site is not influenced from water from wetlands or streams.

Soil features

The soils of this site are shallow to very shallow. Soils are derived from mixed calcareous eolian deposits derived from sedimentary rock. Surface layers are very cobbly loam, very gravelly loam, gravelly loam, cobbly loam, gravelly fine sandy loam or gravelly sandy loam.

There is an indurated caliche layer or limestone bedrock that occurs within 20 inches and averages less than 10 inches. Limestone or caliche layer may be the restrictive layer.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic soils:

Lozier
Potter
Tencee
Upton
Ector
Kimbrough

Table 4. Representative soil features

Surface texture	(1) Gravelly loam (2) Extremely gravelly loam (3) Extremely cobbly loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Very slow to moderately slow
Soil depth	4–20 in
Surface fragment cover <=3"	15–40%
Available water capacity (0-40in)	1 in
Calcium carbonate equivalent (0-40in)	15–60%

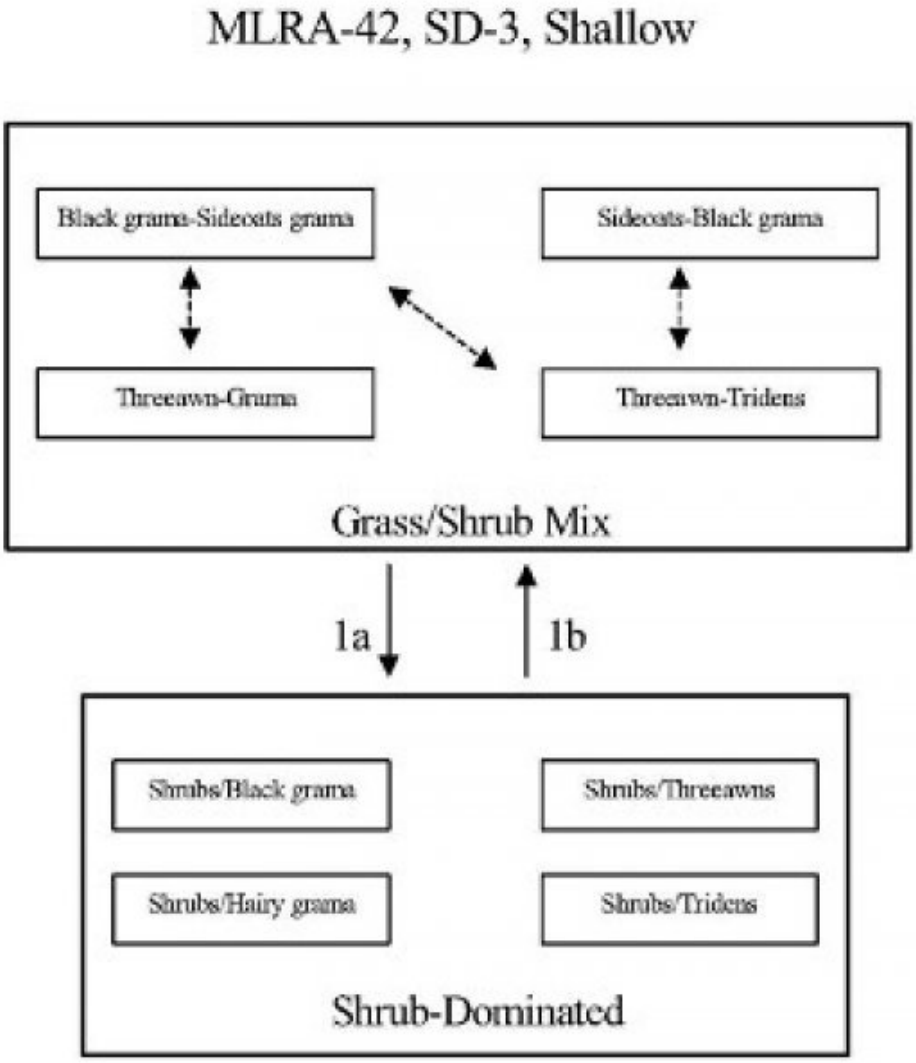
Electrical conductivity (0-40in)	0–2 mmhos/cm
Sodium adsorption ratio (0-40in)	0–1
Soil reaction (1:1 water) (0-40in)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	13–42%
Subsurface fragment volume >3" (Depth not specified)	0–1%

Ecological dynamics

Overview:
The Shallow site is associated with and Limestone Hills, Loamy, and Shallow Sandy sites. When associated with Limestone Hills, the Shallow site occurs on the summits, foot slopes and toeslopes of hills. Loamy sites often occur as areas between low elongated hills with rounded crests (Shallow site). When the Shallow Sandy site and Shallow site occur in association, the Shallow Sandy soils occupy the tops of low ridges and the Shallow site soils occur on the steeper sideslopes of the ridge. The historic plant community of the Shallow site has the aspect of a grassland/shrub mix, dominated by grasses, but with shrubs common throughout the site. Black grama is the dominant grass species; creosotebush, mesquite, and catclaw mimosa are common shrubs. Overgrazing and or extended drought can reduce grass cover, effect a change in grass species dominance, and may result in a shrub-dominated state. 1

State and transition model

Plant Communities and Transitional Pathways (diagram)



1a. Extended drought, overgrazing, no fire

1b. Brush control, Prescribed grazing

State 1
Grass/Shrub Mix

Community 1.1
Grass/Shrub Mix

Grassland/Shrub Mix: The historic plant community is dominated by black grama with sideoats grama as the sub-dominant. Blue grama, hairy grama, bush muhly, and sand dropseed also occur in significant amounts. Sideoats grama can occur as the dominant grass with black grama as sub-dominant on the western side of the Land Resource Unit SD-3. This may be due to higher average elevation on the west side. Retrogression within this state due to extended drought or overgrazing will cause a decrease in species such as black grama, sideoats grama, blue grama, and bush muhly. Threeawns may become the dominant grass species due to a decline in more palatable grasses or because of its ability to quickly recover following drought. Continued loss of grass cover and associated increase in amount of bare ground may result in a shrub-dominated state. Decreased fire frequencies may also be

an important component in the cause of this transition. Diagnosis: Grass cover is fairly uniform, however, surface gravel, cobble, and bare ground make up a large percent of total ground cover, and grass production during unfavorable years may only average 150-175 pounds per acre. Shrubs are common with canopy cover averaging five to ten percent. Evidence of erosion such as rills and gullies are rare, but may occur on slopes greater than eight percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	168	352	536
Shrub/Vine	63	131	200
Forb	20	42	64
Total	**251**	**525**	**800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	5-10%
Grass/grasslike foliar cover	10-15%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	5-8%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	40-60%

Figure 5. Plant community growth curve (percent production by month). NM2825, R042XC025NM Shallow HCPC. R042XC025NM Shallow HCPC Warm Season Plant Community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

State 2
Shrub-Dominated

Community 2.1
Shrub-Dominated

Shrub-Dominated: This state is characterized by an increase in shrubs and a decrease in grass cover relative to grassland/shrub mix. As grass cover decreases shrubs increase, especially creosotebush, catclaw mimosa, whitethorn acacia, and mesquite. Each of these shrub species may become dominant in localized areas or across the site, depending on the spatial variability in soil characteristics and landscape position. Black grama, threeawns, hairy grama, or hairy tridens may be the dominant grass species. Fluffgrass, burrograss and broom snakeweed increase in representation. The Shallow site is resistant to state change, due to the natural rock armor of the soil and a shallow impermeable layer. The amount of rock fragments on the soil surface assist in retarding erosion. On Shallow sites with low slope, the shallow depth to either a petrocalcic layer or limestone bedrock helps to keep water perched and available to shallow rooted grasses for extended periods. 2 Diagnosis: Shrubs are the dominant species, especially creosotebush, catclaw mimosa, whitethorn acacia, or mesquite. Grass cover is variable ranging

from patchy with large connected bare areas present to sparse with only a limited amount in shrub inter-spaces. Transition to Shrub-Dominated (1a) Overgrazing and or extended periods of drought, and suppression of natural fire regimes are thought to cause this transition. As grass cover is lost, soil fertility and available soil moisture decline, due to the reduction of organic matter and decreased infiltration.3 Shrubs have the ability to extract nutrients and water from a greater area of soil than grasses and are better able to utilize limited water. Competition by shrubs for water and nutrients limits grass recruitment and establishment. Fire historically may have played a part in suppressing shrub expansion; fire suppression may therefore facilitate shrub expansion. Key indicators of approach to transition: *Decrease or change in composition or distribution of grass cover. *Increase in size and frequency of bare patches. *Increase in amount of shrub seedlings. Transition back to Grassland/Shrub Mix (1b) Brush control is necessary to re-establish grasses. Prescribed grazing will help to ensure proper forage utilization and sustain grass cover. Once the transition is reversed and grass cover is re-established, periodic use of prescribed fire may assist in maintaining the Grassland/Shrub state.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				105–158	
	black grama	BOER4	*Bouteloua eriopoda*	105–158	–
2				79–105	
	sideoats grama	BOCU	*Bouteloua curtipendula*	79–105	–
3				79–105	
	blue grama	BOGR2	*Bouteloua gracilis*	79–105	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	79–105	–
4				26–53	
	bush muhly	MUPO2	*Muhlenbergia porteri*	26–53	–
5				16–26	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	16–26	–
6				26–53	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	26–53	–
7				16–26	
	hairy woollygrass	ERPI5	*Erioneuron pilosum*	16–26	–
8				5–16	
	ear muhly	MUAR	*Muhlenbergia arenacea*	5–16	–
9				5–16	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	5–16	–
10				5–16	
	low woollygrass	DAPU7	*Dasyochloa pulchella*	5–16	–
11				16–26	
	Grass, perennial	2GP	*Grass, perennial*	16–26	–
Forb					
12				11–26	
	stemless four-nerve daisy	TEACE	*Tetraneuris acaulis var. epunctata*	11–26	–
13				5–16	
	woolly groundsel	PACA15	*Packera cana*	5–16	–
14				5–16	

14				5–16	
	globemallow	SPHAE	*Sphaeralcea*	5–16	–
15				5–16	
	bladderpod	LESQU	*Lesquerella*	5–16	–
16				5–16	
	cassia	CASSI	*Cassia*	5–16	–
17				11–26	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	11–26	–
Shrub/Vine					
18				5–16	
	littleleaf sumac	RHMI3	*Rhus microphylla*	5–16	–
19				5–16	
	creosote bush	LATR2	*Larrea tridentata*	5–16	–
20				5–16	
	littleleaf ratany	KRER	*Krameria erecta*	5–16	–
21				5–16	
	javelina bush	COER5	*Condalia ericoides*	5–16	–
22				5–16	
	American tarwort	FLCE	*Flourensia cernua*	5–16	–
23				5–16	
	crown of thorns	KOSP	*Koeberlinia spinosa*	5–16	–
24				11–26	
	honey mesquite	PRGL2	*Prosopis glandulosa*	11–26	–
	honey mesquite	PRGL2	*Prosopis glandulosa*	11–26	–
25				5–16	
	catclaw mimosa	MIACB	*Mimosa aculeaticarpa var. biuncifera*	5–16	–
26				5–16	
	pricklypear	OPUNT	*Opuntia*	5–16	–
27				11–26	
	mariola	PAIN2	*Parthenium incanum*	11–26	–
	mariola	PAIN2	*Parthenium incanum*	11–26	–
28				5–16	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–16	–
29				16–26	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	16–26	–

Animal community

This site provides habitats which support a resident animal community that is characterized by desert cottontail, spotted ground squirrel, Merriam's kangaroo rat, cactus mouse, white-throated woodrat, gray fox, spotted skunk, roadrunner, Swainson's hawk, white-necked raven, cactus wren, pyrrhuloxia, lark sparrow, mourning dove, scaled quail, leopard lizard, round-tailed horned lizard, prairie rattlesnake, marbled whiptail, and greater earless lizard. Where associated with limestone hills, mule deer utilize this site.

Where large woody shrubs occur, most resident birds and scissor-tailed flycatcher, morning dove, lark sparrow and

Swainson's hawk nest.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series-------- Hydrologic Group
Lozier---------- D
Potter---------- C
Tencee---------- D
Upton---------- C
Kimbrough---------- D
Upton---------- D
Ector---------- D

Recreational uses

This site offers recreation potential for hiking, horseback riding, rock hunting, nature photography and bird hunting and birding. During years of abundant spring moisture, a colorful array of wild flowers is displayed during May and June. A few summer and fall flowers also occur.

Wood products

This site has no potential for wood production.

Other products

This site is suited for grazing by all kinds and classes of livestock during all seasons of the year. Missmanagement will cause a decrease in black grama, sideoats grama, and blue grama, bush muhly and New Mexico feathergrass. A corresponding increase in bare ground will occur. There will also be an increase in muhlys, fluffgrass, creosotebush, javalinabush, catclaw, and mesquite. This site will respond best to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index-------- Ac/AUM
100 - 76---------- 3.7 – 4.5
75 – 51---------- 4.3 – 5.5
50 – 26---------- 5.3 – 10.0
25 – 0---------- 10.1 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico (SD-3). This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

Literature Cited:

1. Humphrey, R.R. 1974. Fire in the deserts and desert grassland of North America. In: Kozlowski, T. T.; Ahlgren, C. E., eds. Fire and ecosystems. New York: Academic Press: 365-400.

2. Hennessy, J.T., R.P. Gibbens, J.M. Tromble, and M. Cardenas. 1983. Water properties of caliche. J. Range Manage. 36: 723-726.

3. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Infiltration, Organic Matter, Rangeland Sheets 5,6. [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

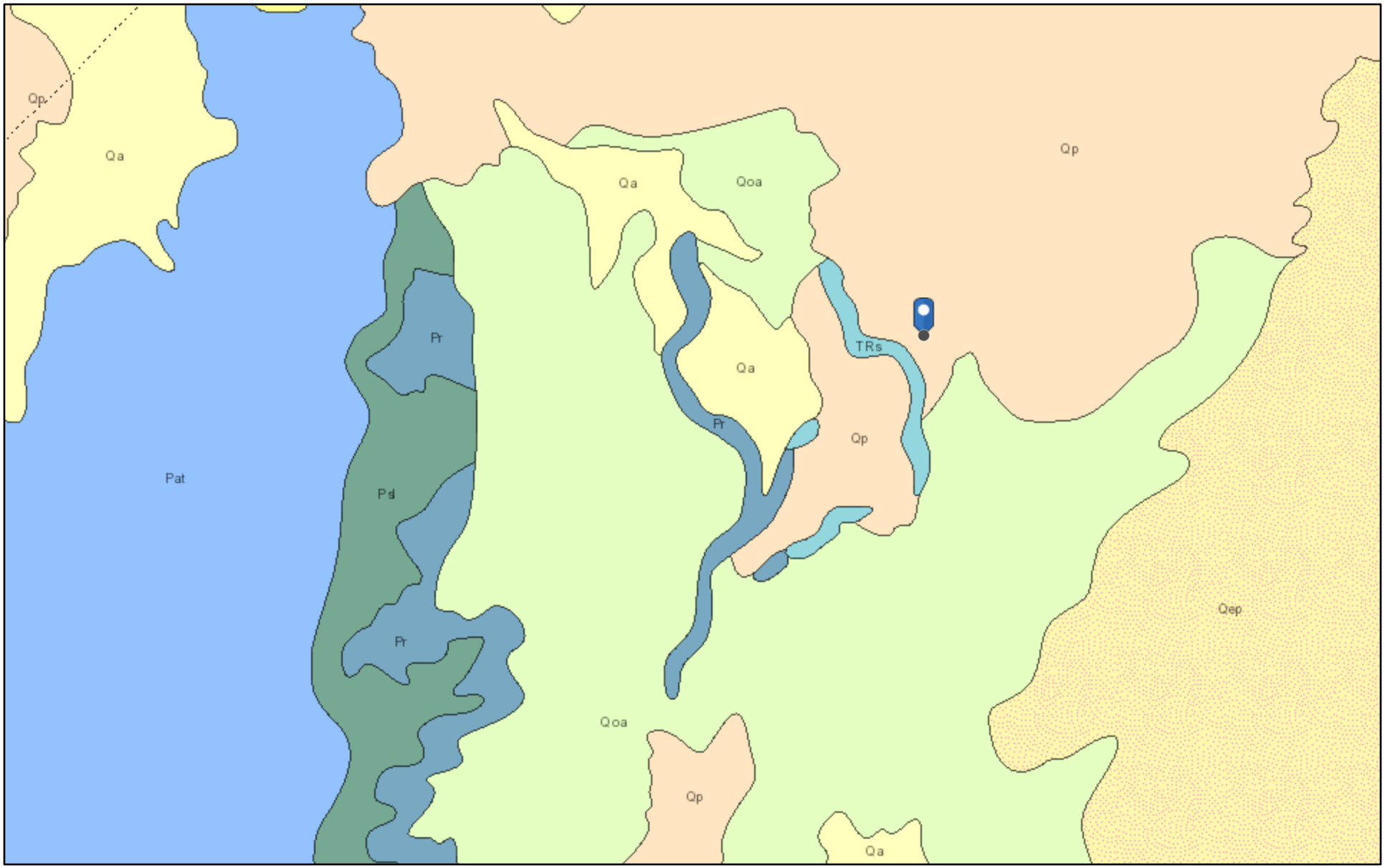
14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**

Geology of Calgary Federal #002



11/5/2024, 12:30:14 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global

APPENDIX C – Daily Field and Sampling Reports

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/4/2024
Site Location Name:	Calgary Federal #2	Report Run Date:	11/4/2024 11:54 PM
Client Contact Name:	Matt Buckles	API #:	30-005-64100
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/4/2024 10:15 AM
Departed Site	11/4/2024 2:30 PM

Field Notes

10:16 Completed safety paperwork upon arrival to site

16:37 On site to conduct EM31 survey in vertical position across historical release area

16:38 No major metallic objects in area that would skew data

16:39 Only one power line in immediate area

16:40 Release area that went west off into low lying draw ended up being too dangerous to navigate. Only did one walking path down middle of drainage before ending survey at a drop off.

Next Steps & Recommendations

1 Conduct another survey in horizontal position

Daily Site Visit Report

Site Photos

Viewing Direction: North

Access road where release area goes north (most likely southern extent as this is below grade looking up/north)

Viewing Direction: South

Looking back south at access road approximately 100’ north

Viewing Direction: Southwest

Poly lines extending southwest from battery northeast across pasture

Viewing Direction: Northeast

Poly lines extending southwest from battery northeast across pasture

Daily Site Visit Report

Viewing Direction: North

Release area seems to have been scraped or remediation activity taken place

Viewing Direction: South

Towards crest of hill looking back south

Viewing Direction: Southwest

Possibility that release area splits off Southwest down eroded low area.
Area will be surveyed with EM.

Viewing Direction: South

Minor amount of stressed vegetation at crest of hill

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
Crest of hill looking north	Crest of hill looking west at bermed drive-over. Possibly where point of release is.
Viewing Direction: Northeast	**Viewing Direction**: West
Crest of hill looking northeast up access road	Area at crest of hill that meanders west

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: Southwest
Natural draw that release possibly went down	Further down draw
Viewing Direction: Northeast	**Viewing Direction**: North
Down in draw looking upward	Bad weather on site slowed progress of survey

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature:

Daily Site Visit Report

Client	Mack Energy Corporation	Inspection Date	11/5/2024
Site Location Name	Calgary Federal #002E	API #	
Client Contact Name	Matt Buckles	Project Owner	
Client Contact Phone #	575-748-1288	Project Manager	
Project Reference #			
Unique Project ID			

Summary of Times

Arrived at Site	11/5/2024 9:00 AM
Departed Site	11/5/2024 2:30 PM

Field Notes

9:20 Completed safety paperwork on site

9:21 On site to conduct EM31 survey in horizontal dipole position

9:21 No major metallic materials in survey area to skew data

9:22 Only power lines in area but from the previous survey in horizontal position readings did not seem to be effected by power lines

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Power lines running through middle/ east side of survey area and south area running east-west

Viewing Direction: North

Southern most point of survey area at access road

Viewing Direction: West

Poly lines running east-west at southern end stemming from adjacent battery

Viewing Direction: Northwest

Clear cut in pasture that may have been previously remediated

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: Southwest
Further north towards crest of hill of survey area	Possible toe that stems southwest of main release area towards battery

Viewing Direction: Northwest	**Viewing Direction**: Northeast
Possible POR where earth bermed drive over poly lines is located	Access road stemming northeast-southwest

Daily Site Visit Report

Viewing Direction: West

Earth berm in front of a draw that empties west in canyon

Viewing Direction: West

Draw stemming down gradient to west

Viewing Direction: West

Further down draw

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature:
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/11/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	11/12/2024 2:01 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/11/2024 2:37 PM
Departed Site	11/11/2024 3:56 PM

Field Notes

15:54 Completed JSA on arrival. On site to mark One Call area for further investigation of historical pipeline release.

15:55 Marked southeast, northeast, northwest, and southwest corners of very large potential ground disturbance area with white stakes, white flags, and white paint.

18:29 Northwest corner: 32.993833,-104.080072
Northeast corner: 32.993788,-104.076355
Southeast corner: 32.991788,-104.076344
Southwest corner: 32.991785,-104.080040

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: West

Southeast corner of One Call area facing west.

Viewing Direction: Northwest

Southeast corner of One Call area facing northwest.

Viewing Direction: North

Southeast corner of One Call area facing north.

Viewing Direction: South

Northeast corner of One Call area facing south.

Daily Site Visit Report

Viewing Direction: Southwest

Northeast corner of One Call area facing southwest.

Viewing Direction: West

Northeast corner of One Call area facing west.

Viewing Direction: East

Northwest corner of One Call area facing east.

Viewing Direction: Southeast

Northwest corner of One Call area facing southeast.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: North
Northwest corner of One Call area facing south.	Southwest corner of One Call area facing north.

Viewing Direction: Northeast	**Viewing Direction**: East
Southwest corner of One Call area facing northeast.	Southwest corner of One Call area facing east.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/20/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	11/21/2024 2:35 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/20/2024 7:23 AM
Departed Site	11/20/2024 5:26 PM

Field Notes

7:41 Completed JSA on arrival. On site to identify historical excavation to 3.5 feet bgs and start retroactive confirmation sampling.

9:32 Marked outside edges of historical excavation with white paint. Swept sampling areas with magnetic locator prior to ground disturbance.

19:13 Collected confirmation base samples BS24-01, BS24-02, BS24-03, and BS24-04 from southwest “arm” of historical excavation to 3.5 feet bgs. Advanced 5 boreholes to 3.5 feet bgs for each sample, collected soil from base of boreholes, and mixed 5-point composite sample.

19:14 Field screening results for all four confirmation base samples were below NMOCD strictest criteria for chloride and TPH.

Next Steps & Recommendations

1 Continue confirmation sampling.

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: East
Southwest of historical excavation footprint facing northeast. Advanced boreholes to collect confirmation samples at depth.	Southwest of historical excavation footprint facing east. Advanced boreholes to collect confirmation samples at depth.

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: Northwest
South of historical excavation footprint facing west. Advanced boreholes to collect confirmation samples at depth.	South of historical excavation footprint facing northwest. Advanced boreholes to collect confirmation samples at depth.
Viewing Direction: Southwest	**Viewing Direction**: South
South of historical excavation footprint facing southwest. Advanced boreholes to collect confirmation samples at depth.	North of historical excavation footprint facing south. Advanced boreholes to collect confirmation samples at depth.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/22/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	11/22/2024 11:30 PM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/22/2024 8:45 AM
Departed Site	11/22/2024 2:00 PM

Field Notes

9:54 Completed safety paperwork upon arrival

9:54 Loaded points into collectors

9:55 Took samples from the back for the gully heading Northeast

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast

BS24-05 in the gully

Viewing Direction: Northeast

BS24-06, continuing northeast in the gully

Viewing Direction: Northeast

BS24-07, continuing northeast in the gully

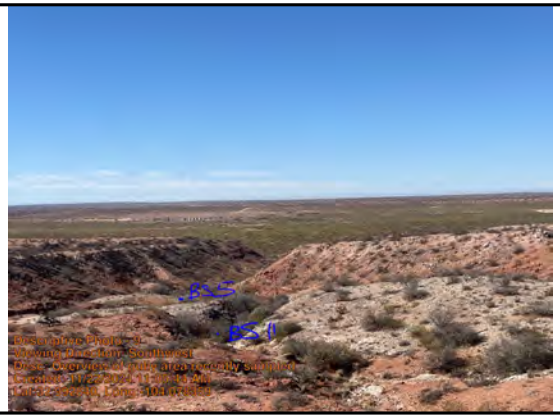
Viewing Direction: Northeast

BS24-08, continuing northeast in the gully

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: Northeast
BS24-09, continuing northeast in the gully	BS24-10, continuing northeast in the gully
Viewing Direction: Northeast	**Viewing Direction**: Southwest
BS24-11, continuing northeast in the gully	BS24-12, continuing northeast in the gully

Daily Site Visit Report

Viewing Direction: Southwest

Overview of gully area recently sampled

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Katrina Taylor

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/21/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	11/22/2024 2:08 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/21/2024 7:59 AM
Departed Site	11/21/2024 11:31 AM

Field Notes

8:21 Completed JSA on arrival. On site to continue retroactive confirmation sampling of historical excavation to 3.5 feet bgs.

9:23 Swept sampling areas with magnetic locator prior to ground disturbance.

18:38 Collected 5 point confirmation wall samples from southwest edges of historical excavation with hand auger. 5 boreholes were advanced to depths between 1 and 3.5 feet and samples collected from the borehole bases and combined as a composite. Samples WS24-01, WS24-02, and WS24-03 were collected.

18:38 Field screening results were below NMOCD strictest criteria for TPH and chloride.

Next Steps & Recommendations

1 Continue confirmation sampling.

Daily Site Visit Report

Site Photos

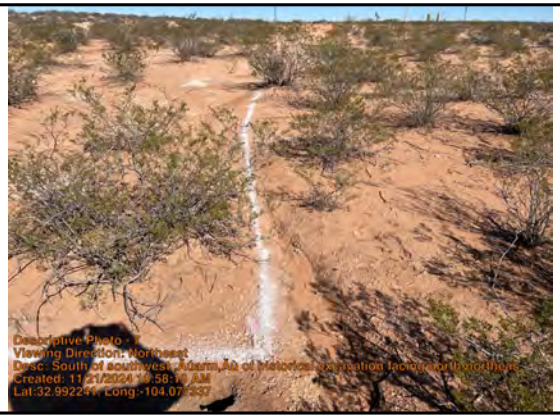
Viewing Direction: Northwest	**Viewing Direction**: South
Southwest edge of southwest “arm” of historical excavation facing north-northwest. Advanced boreholes to collect confirmation wall samples.	North of southwest “arm” of historical excavation facing south. Advanced boreholes to collect confirmation wall samples.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: West
North of southwest “arm” of historical excavation facing northeast. Advanced boreholes to collect confirmation wall samples.	Inside southwest “arm” of historical excavation facing west. Advanced boreholes to collect confirmation wall samples.
Viewing Direction: Southwest	**Viewing Direction**: North
South of southwest “arm” of historical excavation facing south-southwest. Advanced boreholes to collect confirmation wall samples.	South of southwest “arm” of historical excavation facing north. Advanced boreholes to collect confirmation wall samples.

Daily Site Visit Report

Viewing Direction: Northeast



South of southwest “arm” of historical excavation facing northeast. Advanced boreholes to collect confirmation wall samples.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/3/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/4/2024 12:49 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/3/2024 7:58 AM
Departed Site	12/3/2024 4:40 PM

Field Notes

8:05 On site to continue excavation and collect confirmation samples.

Assessed site, filled out JSA and reviewed safety with Bullseye excavator.

17:24 I collected BS24-18 to -36 at 3.5 ft bgs.

17:25 All samples were field screened for chlorides and TPH at strictest criteria.

All samples passed both field screening tests.

17:27 Bullseye completed the first trench they started digging yesterday and approximately 2/3 of the east trench.

17:27 All samples jarred and will be sent to laboratory for further analysis.

Next Steps & Recommendations

1 Continue excavation and confirmation sampling.

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest	**Viewing Direction**: North
Placard	Southeast end of excavation area.
Viewing Direction: Northeast	**Viewing Direction**: Northeast
Southeast end of excavation area.	Southwest end of excavation area.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: Southeast
North end of excavation area.	North end of excavation area.
Viewing Direction: Southeast	**Viewing Direction**: Southeast
North end of excavation area.	East side of excavation area facing southeast

Daily Site Visit Report

Viewing Direction: Northwest

East trench facing northwest.

Viewing Direction: Southeast

Area where BS24-18 to -20 were sampled at 3.5 ft bgs.

Viewing Direction: Southeast

Area where BS24-21 to -23 were sampled at 3.5 ft bgs.

Viewing Direction: Southeast

Area where BS24-24 to -26 were sampled at 3.5 ft bgs.

Daily Site Visit Report

Viewing Direction: Southeast

Area where BS24-27 to -29 were sampled at 3.5 ft bgs.

Viewing Direction: Southeast

Area where BS24-30 to -32 were sampled at 3.5 ft bgs.

Viewing Direction: Southeast

Area where BS24-33 and -34 were sampled at 3.5 ft bgs.

Viewing Direction: South

Area where BS24-35 was sampled at 3.5 ft bgs.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: North
Area where BS24-36 was sampled at 3.5 ft bgs.	Area where BS24-36 was sampled at 3.5 ft bgs.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/8/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/8/2024 4:08 PM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/8/2024 7:58 AM
Departed Site	12/8/2024 4:24 PM

Field Notes

7:55 On site to continue excavation to collect confirmation samples.

Assessed site, filled out JSA and reviewed safety with Bullseye excavator. We discussed the days scope of work.

7:56 I collected BS24-37 to -56 all at 3.5 ft bgs.

7:58 I remarked out the southwest trench with white paint and walked the proposed excavation area with the excavation operator pointing out what needs to be dug.

7:58 All samples were field screened for chlorides and TPH at strictest criteria.

All samples passed field screening.

7:59 All samples jarred and will be sent to laboratory for further analysis.

Next Steps & Recommendations

1 Continue to excavate and collect confirmation samples.

Daily Site Visit Report

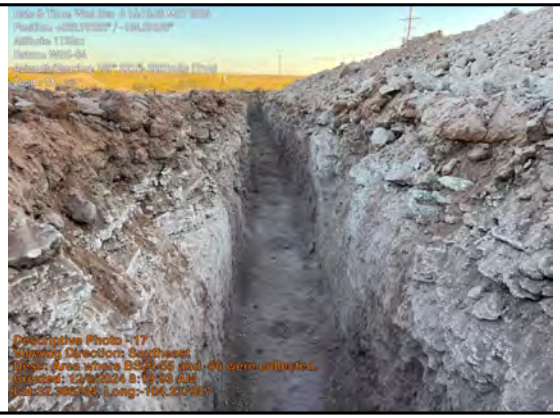
Site Photos

Viewing Direction: North	**Viewing Direction**: Southeast
Southeast end of excavation area.	Area where BS24-38 was collected.
Viewing Direction: Southeast	**Viewing Direction**: Southeast
Area where BS24-39 to -41 were collected.	Area where BS24-42 to -45 were collected.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: Southeast
Area where BS24-47 and -48 were collected.	Area where BS24-49 and -50 were collected.
Viewing Direction: Southeast	**Viewing Direction**: Southeast
Area where BS24-51 and -52 were collected.	Area where BS24-53 and -54 were collected.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: North
	
Area where BS24-55 and -56 were collected.	FSF

Viewing Direction: Northeast	**Viewing Direction**: North
Southeast end of excavation area.	The western, smaller trench that runs north to south.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: Northeast
Southwest end of excavation area.	Western trench repainted.
Viewing Direction: Southwest	**Viewing Direction**: Southeast
The western, smaller trench that runs north to south.	North end of excavation area.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: North
North end of excavation area.	Area where BS24-37 was collected.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/7/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/8/2024 2:08 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/7/2024 1:01 PM
Departed Site	12/7/2024 3:42 PM

Field Notes

18:21 On site to continue to collect confirmation samples.

Assessed site, filled out JSA and reviewed safety for todays activities.

18:21 I collected BS24-57 to -66 at 3.5 ft bgs.

18:22 All samples were field screened for chlorides and TPH at strictest criteria.

All samples passed field screening.

18:22 All samples jarred and will be sent to laboratory for analysis.

Next Steps & Recommendations

1 Continue to collect confirmation samples.

Daily Site Visit Report

Site Photos

Viewing Direction: South

Placard

Viewing Direction: Northwest

Area where BS24-65 and -66 were collected at 3.5 ft bgs.

Viewing Direction: North

Southeast of excavation facing north

Viewing Direction: North

Southwest corner of excavation facing north

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: Southeast
North of excavation facing southeast.	Area where BS24-57 and -58 were collected at 3.5 ft bgs.
Viewing Direction: Southeast	**Viewing Direction**: South
Area where BS24-59 was collected at 3.5 ft bgs.	Area where BS24-60 to -62 were collected at 3.5 ft bgs.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: North
Area where BS24-62 was collected at 3.5 ft bgs.	Area where BS24-63 and -64 were collected at 3.5 ft bgs.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature:

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/12/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/13/2024 7:42 PM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/12/2024 12:15 PM
Departed Site	12/12/2024 4:48 PM

Field Notes

13:23 Completed safety paper work upon arrival.

13:23 Sampled BS24-94 through BS24-100

Next Steps & Recommendations

1

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Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: North
BS24-95, outside the south east of the excavation area	BS24-94, outside the south east of the excavation area
Viewing Direction: North	**Viewing Direction**: North
BS24-96, outside the south east of the excavation area	BS24-97, outside the south east of the excavation area

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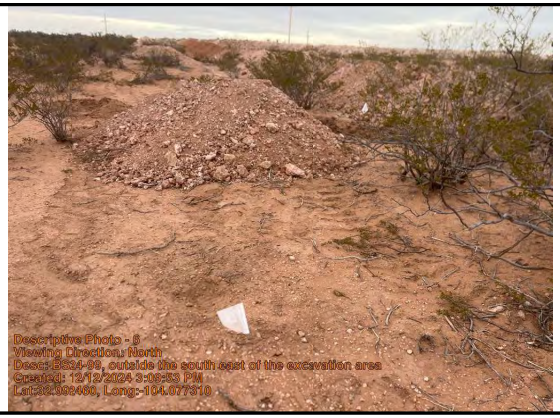
Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Daily Site Visit Report

Viewing Direction: North

BS24-98, outside the south east of the excavation area

Viewing Direction: North



BS24-99, outside the south east of the excavation area

Viewing Direction: North

BS24-100, outside the south east of the excavation area

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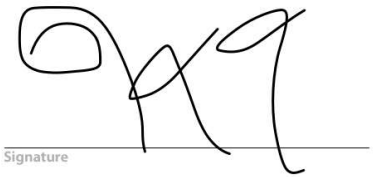
Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Katrina Taylor

Signature:



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Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/15/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/16/2024 2:13 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/15/2024 7:43 AM
Departed Site	12/15/2024 5:06 PM

Field Notes

7:55 Completed JSA on arrival. On site to continue confirmation sampling historical release.

8:23 Swept north portion of release area and remaining gully sampling areas with magnetic locator prior to ground disturbance.

11:10 Collected surface confirmation samples from area previously remediated in-situ with bioremediation agents. Confirmation base samples were 5-point composites representing areas no greater than 400 square feet. Variance of 400 square feet for base confirmation samples approved by NMOCD.

11:13 Collected base confirmation samples BS24-10, BS24-84 through BS24-93, and BS24-101 through BS24-110 from surfaces of gully running southwest of release point.

11:18 Collected base samples BS24-111, BS24-112, BS24-113, and BS24-114 from north portion of previously bioremediated release area adjacent to gully.

17:06 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: West

Inside gully facing west. Collected BS24-10 from gully channel surfaces.

Viewing Direction: Northeast

Inside gully facing northeast. Collected BS24-84 through BS24-89 from gully channel surfaces.

Viewing Direction: Northeast

Inside gully facing northeast. Collected BS24-86 through BS24-89 from gully channel surfaces.

Viewing Direction: Southwest

Inside gully facing southwest. Collected BS24-84 through BS24-89 from gully channel surfaces.

Daily Site Visit Report

Viewing Direction: North

Inside gully facing north. Collected BS24-90 and BS24-91 from gully channel surfaces.

Viewing Direction: Northeast

Inside gully facing northeast. Collected BS24-91, BS24-92, and BH24-93 from gully channel surfaces.

Viewing Direction: Southwest

Inside gully facing southwest. Collected BS24-84 through BS24-93 from gully channel surfaces.

Viewing Direction: East

Inside gully facing east. Collected BS24-101 through BS24-105 from gully channel surfaces.

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: Northeast
Immediately south of gully facing west. Collected BS24-101 through BS24-105 from gully channel surfaces.	Inside gully facing northeast. Collected BS24-105 through BS24-108 from gully channel surfaces.
Viewing Direction: Southwest	**Viewing Direction**: Northeast
Inside gully facing southwest. Collected BS24-101 through BS24-108 from gully channel surfaces.	Inside gully facing northeast. Collected BS24-108 through BS24-110 from gully channel surfaces.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: East
Upslope end of gully facing southwest. Collected BS24-108 through BS24-110 from gully channel surfaces.	West of upslope end of gully facing east. Collected BS24-110 through BS24-114 from north end of release area.
Viewing Direction: South	**Viewing Direction**: North
North edge of release area facing facing south. Collected BS24-111 through BS24-113 from north end of release area.	South edge of release area facing facing north. Collected BS24-111 through BS24-113 from north end of release area.

Daily Site Visit Report

Viewing Direction: North

South edge of release area facing facing north. Collected BS24-114 from north end of release area.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/16/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/17/2024 2:38 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/16/2024 7:22 AM
Departed Site	12/16/2024 4:34 PM

Field Notes

8:43 Completed JSA on arrival. On site to continue collecting confirmation samples.

8:44 Swept northern portion of historically remediation area with magnetic locator prior to ground disturbance.

9:00 Collected confirmation base samples of area that had undergone previous bioremediation treatment. Confirmation base samples were 5-point composites collected from the ground surface from areas no greater than 400 square feet. A variance for confirmation sampling increments no greater than 400 square feet was approved by NMOCD.

11:47 Collected confirmation base samples BS24-115 through BS24-139 from north portion of historical remediation area.

16:33 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: North
North edge of historical remediation area facing south. Collected confirmation base samples BS24-115 through BS24-119.	South edge of historical remediation area facing north. Collected confirmation base samples BS24-115 through BS24-119.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: Southwest
South edge of historical remediation area facing northeast. Collected confirmation base samples BS24-120 through BS24-133.	North edge of historical remediation area facing southwest. Collected confirmation base samples BS24-115 through BS24-134.
Viewing Direction: West	**Viewing Direction**: North
Northeast edge of historical remediation area facing west. Collected confirmation base samples BS24-115 through BS24-134.	South edge of historical remediation area facing north. Collected confirmation base samples BS24-115 through BS24-134.

Daily Site Visit Report

Viewing Direction: Northeast

South edge of historical remediation area facing north. Collected confirmation base samples BS24-115 through BS24-139.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/17/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/18/2024 2:49 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/17/2024 7:23 AM
Departed Site	12/17/2024 4:55 PM

Field Notes

7:31 Completed JSA on arrival. On site to continue confirmation sampling historical remediation area.

7:55 Swept north and east portions of historical remediation (bioremediation treatment) area with magnetic locator prior to ground disturbance.

7:32 Collected confirmation base samples of area that had undergone previous bioremediation treatment. Confirmation base samples were 5-point composites collected from the ground surface from areas no greater than 400 square feet. A variance for confirmation sampling increments no greater than 400 square feet was approved by NMOCD.

11:29 Collected confirmation base samples BS24-140 through BS24-169 from north and east portions of historical remediation area.

16:54 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: Southwest
East edge historical remediation area facing west. Collected BS24-140 through BS24-169.	East edge historical remediation area facing southwest. Collected BS24-140 through BS24-169.

Daily Site Visit Report

Viewing Direction: South

East edge historical remediation area facing south. Collected BS24-140 through BS24-169.

Viewing Direction: Northwest

East edge historical remediation area facing northwest. Collected BS24-140 through BS24-169.

Viewing Direction: West

East edge historical remediation area facing west. Collected BS24-140 through BS24-169.

Viewing Direction: Southwest

East edge historical remediation area facing southwest. Collected BS24-140 through BS24-169.

Daily Site Visit Report

Viewing Direction: South

East edge historical remediation area facing south. Collected BS24-140 through BS24-169.

Viewing Direction: Northwest

East edge historical remediation area facing northwest. Collected BS24-140 through BS24-169.

Viewing Direction: West

East edge historical remediation area facing west. Collected BS24-140 through BS24-169.

Viewing Direction: Southwest

East edge historical remediation area facing southwest. Collected BS24-140 through BS24-169.

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: West
East edge historical remediation area facing northwest. Collected BS24-140 through BS24-169.	East edge historical remediation area facing west. Collected BS24-140 through BS24-169.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/18/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/19/2024 2:25 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/18/2024 9:06 AM
Departed Site	12/18/2024 4:56 PM

Field Notes

9:22 Completed JSA on arrival. On site to continue confirmation sampling area that historically received bioremediation treatment.

9:39 Swept East, south, and west portions of historical remediation (bioremediation treatment) area with magnetic locator prior to ground disturbance.

12:15 Collected confirmation base samples of area that had undergone previous bioremediation treatment. Confirmation base samples were 5-point composites collected from the ground surface from areas no greater than 400 square feet. A variance for confirmation base sampling increments no greater than 400 square feet was approved by NMOCD.

12:16 Collected confirmation base samples BS24-170 through BS24-193 from east, south, and west portions of historical remediation.

16:55 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: Northwest
East edge of historical remediation area facing south. Collected BS24-170 through BS24-194.	East edge of historical remediation area facing northwest. Collected BS24-170 through BS24-194.

Daily Site Visit Report

Viewing Direction: South

East edge of historical remediation area facing south. Collected BS24-170 through BS24-194.

Viewing Direction: North

Southeast edge of historical remediation area facing north. Collected BS24-170 through BS24-194.

Viewing Direction: Northwest

Southeast edge of historical remediation area facing northwest. Collected BS24-170 through BS24-194.

Viewing Direction: West

Southeast edge of historical remediation area facing west. Collected BS24-170 through BS24-194.

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: Northeast
South edge of historical remediation area facing east. Collected BS24-170 through BS24-194.	South edge of historical remediation area facing northeast. Collected BS24-170 through BS24-194.
Viewing Direction: North	**Viewing Direction**: Southeast
South edge of historical remediation area facing north. Collected BS24-170 through BS24-194.	South edge of historical remediation area facing southeast. Collected BS24-170 through BS24-194.

Daily Site Visit Report

Viewing Direction: North

South edge of historical remediation area facing north. Collected BS24-170 through BS24-194.

Viewing Direction: North

South edge of historical remediation area facing north. Collected BS24-170 through BS24-194.

Viewing Direction: Southeast

South edge of historical remediation area facing southeast. Collected BS24-170 through BS24-194.

Viewing Direction: Southwest

South edge of historical remediation area facing southwest. Collected BS24-170 through BS24-194.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: Southeast
South edge of historical remediation area facing northeast. Collected BS24-170 through BS24-194.	South edge of historical remediation area facing southeast. Collected BS24-170 through BS24-194.
Viewing Direction: Northeast	**Viewing Direction**: North
South edge of historical remediation area facing northeast. Collected BS24-170 through BS24-194.	South edge of historical remediation area facing north. Collected BS24-170 through BS24 -194.

Daily Site Visit Report

Viewing Direction: Southeast

South edge of historical remediation area facing southwest. Collected BS24-170 through BS24-194.

Viewing Direction: Northwest

South edge of historical remediation area facing northwest. Collected BS24-170 through BS24-194.

Viewing Direction: Southeast

South edge of historical remediation area facing southeast. Collected BS24-170 through BS24-194.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	12/20/2024
Site Location Name:	Calgary Federal #002E	Report Run Date:	12/21/2024 12:17 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/20/2024 8:31 AM
Departed Site	12/20/2024 1:42 PM

Field Notes

8:48 Completed JSA on arrival. On site to collect remaining confirmation samples from historical bioremediation area and historical excavation.

9:20 Swept areas around WS24-21 through WS24-23, BS24-98, BS24-194, and BS24-195 with magnetic locator prior to ground disturbance.

12:12 Collected confirmation base samples of areas that had undergone previous bioremediation treatment. Confirmation base samples of bioremediation area were 5-point composites collected from the ground surface from areas no greater than 400 square feet. A variance for confirmation sampling increments no greater than 400 square feet was approved by NMOCD.

12:48 Collected confirmation wall samples of areas that had been historically excavated to 3.5 feet bgs. A backhoe excavated “potholes” exposing portions of the walls of the historical excavation. Confirmation wall samples of historical excavation were 5-point composites collected from the corresponding“pothole” walls representing areas no greater than 200 square feet.

12:13 Confirmation base samples BS24-98, BS24-194, and BS24-195 were collected from surface of historical bioremediation treatment area.

12:15 Confirmation wall samples WS24-21, WS24-22, WS24-23, and WS24-24 were collected between 0 and 3.5 feet bgs from potholes along east edge of historical excavation to 3.5 feet bgs.

12:48 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH.

13:39 Confirmation sampling completed pending laboratory results.

Daily Site Visit Report

Next Steps & Recommendations
1

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast

West edge of historical remediation area facing northeast. Collected BS24-98 from surface.

Viewing Direction: Southwest

West edge of historical remediation area facing southwest. Collected BS24-98 from surface.

Viewing Direction: East

Northwest corner of historical remediation area at entrance to gully facing east. Collected BS24-194 from surface.

Viewing Direction: West

North end of historical remediation area facing west. Collected BS24-195 from surface.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: Northwest
East edge of historical excavation to 3.5 feet bgs facing southeast. Collected WS24-24 from historical excavation wall.	East edge of historical excavation to 3.5 feet bgs facing northwest. Collected WS24-23 from historical excavation wall.
Viewing Direction: South	**Viewing Direction**: Northwest
East edge of historical excavation to 3.5 feet bgs facing south. Collected WS24-22 from historical excavation wall.	East edge of historical excavation to 3.5 feet bgs facing northwest. Collected WS24-21 from historical excavation wall.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: Northwest
Southeast edge of historical bioremediation area facing north over trenches used for sampling historical excavation.	Southeast edge of historical bioremediation area facing northwest over trenches used for sampling historical excavation.
Viewing Direction: Northeast	**Viewing Direction**: Southeast
South edge of historical bioremediation area facing north-northeast over trenches used for sampling historical excavation.	Approximate intersection of “arms” of historical excavation facing southeast over trenches used for sampling historical excavation.

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: North
Approximate intersection of “arms” of historical excavation facing southwest over trenches used for sampling historical excavation.	Approximate intersection of “arms” of historical excavation facing north over trenches used for sampling historical excavation.
Viewing Direction: Northeast	**Viewing Direction**: Southeast
Southwest edge of historical bioremediation area facing northeast over trenches used for sampling historical excavation.	Northwest edge of historical excavation area facing southeast over trenches used for sampling historical excavation.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: South
Northernmost edge of historical bioremediation area facing southeast over historical remediation area.	Northernmost edge of historical bioremediation area facing south over historical remediation area.
Viewing Direction: Southwest	**Viewing Direction**: Northwest
Northernmost edge of historical bioremediation area facing southwest over historical remediation area and upslope end of gully.	East edge of historical bioremediation area facing northwest over historical remediation area.

Daily Site Visit Report

Viewing Direction: South

East edge of historical bioremediation area facing south over historical remediation area.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

APPENDIX D – Notifications

Outlook

RE: [EXTERNAL] NAB1635457735 - Sampling Variance Request

From Maxwell, Ashley, EMNRD <Ashley.Maxwell@emnrd.nm.gov>
Date Tue 11/26/2024 7:43 AM
To Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>; Sally Carttar <SCarttar@vertexresource.com>
Cc Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>

Caution: This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

Good Morning,

Your request to sample every 400 square feet is approved. Please include this correspondence in all subsequently submitted reports.

Thanks,
Ashley

Ashley Maxwell • Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.635.5000 | Ashley.Maxwell@emnrd.nm.gov
http://www.emnrd.state.nm.us/OCD/

Effective 12/1/2024: OCD has updated guidance on karst potential occurrence zones. This notice can be found at: https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ under “2024 OCD ANNOUNCEMENTS AND NOTIFICATIONS”.

The Digital C-141 guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

From: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Sent: Friday, November 22, 2024 4:12 PM
To: Maxwell, Ashley, EMNRD <Ashley.Maxwell@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Subject: FW: [EXTERNAL] NAB1635457735 - Sampling Variance Request

From: Sally Carttar <SCarttar@vertexresource.com>
Sent: Friday, November 22, 2024 3:49 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Subject: [EXTERNAL] NAB1635457735 - Sampling Variance Request

You don't often get email from scarttar@vertexresource.com. Learn why this is important

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

To whom it may concern,

Vertex is requesting a 400 sq.ft. sampling variance for base samples at the Calgary Federal #002E. The area has been excavated to rock refusal at 3.5 ft. bgs and the area of the excavation is approximately 25,000 square feet, which will require a significant number of samples. Sidewalls, surface samples, and all other areas above 3.5 ft. bgs will still require samples representative of every 200 sq.ft.

All samples will be analyzed at a accredited laboratory to ensure that all samples are below NMOCD strictest criteria of 600ppm chloride and 100ppm TPH.

I have attached the approved Remediation Workplan for the release.

Best regards,

Sally Carttar
Project Manager

Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220

C 575.361.3561

www.vertex.ca
[webpage]Connect with LinkedIn

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Incident Dates

Type	Action	Received	Denied	Approved
Remediation Closure Report Extension		08/15/2018		08/15/2018
Sampling Notice	[416075]	12/31/2024		12/31/2024
Sampling Notice	[410890]	12/11/2024		12/11/2024
Sampling Notice	[410889]	12/11/2024		12/11/2024
Sampling Notice	[410888]	12/11/2024		12/11/2024
Sampling Notice	[410887]	12/11/2024		12/11/2024
Sampling Notice	[410886]	12/11/2024		12/11/2024
Sampling Notice	[410632]	12/11/2024		12/11/2024
Sampling Notice	[410598]	12/11/2024		12/11/2024
Sampling Notice	[410210]	12/10/2024		12/10/2024
Sampling Notice	[408769]	12/04/2024		12/04/2024
Sampling Notice	[408767]	12/04/2024		12/04/2024
Sampling Notice	[408764]	12/04/2024		12/04/2024
Sampling Notice	[408761]	12/04/2024		12/04/2024
Sampling Notice	[408383]	12/04/2024		12/04/2024
Sampling Notice	[406251]	11/25/2024		11/25/2024
Sampling Notice	[406246]	11/25/2024		11/25/2024

Sampling Notice	[405539]	11/21/2024		11/21/2024
Sampling Notice	[405531]	11/21/2024		11/21/2024
Sampling Notice	[404293]	11/18/2024		11/18/2024
Sampling Notice	[404273]	11/18/2024		11/18/2024
Sampling Notice	[404271]	11/18/2024		11/18/2024
Remediation Plan		05/26/2017		06/14/2017
Initial C-141 Report		12/14/2016		12/14/2016
Notification		11/28/2016		11/28/2016

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/2/2024 3:42:06 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-15846-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/2/2024 3:42:06 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-15846-1

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Definitions/Glossary

Client: Vertex Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-15846-1
Project: Calgary Federal #002E

Job ID: 885-15846-1 Eurofins Albuquerque

Job Narrative
885-15846-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/23/2024 8:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.0°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-01 3.5'
Lab Sample ID: 885-15846-1
Date Collected: 11/20/24 10:45
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		11/25/24 09:57	11/27/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*11/25/24 09:57*	*11/27/24 16:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		11/25/24 09:57	11/27/24 16:01	1
Ethylbenzene	ND		0.046		mg/Kg		11/25/24 09:57	11/27/24 16:01	1
Toluene	ND		0.046		mg/Kg		11/25/24 09:57	11/27/24 16:01	1
Xylenes, Total	ND		0.093		mg/Kg		11/25/24 09:57	11/27/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*11/25/24 09:57*	*11/27/24 16:01*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		11/25/24 11:21	11/25/24 17:32	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		11/25/24 11:21	11/25/24 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*11/25/24 11:21*	*11/25/24 17:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**61**		60		mg/Kg		11/25/24 07:15	11/25/24 18:03	20

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-02 3.5'
Lab Sample ID: 885-15846-2
Date Collected: 11/20/24 12:00
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		11/25/24 09:57	11/27/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*11/25/24 09:57*	*11/27/24 16:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		11/25/24 09:57	11/27/24 16:25	1
Ethylbenzene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 16:25	1
Toluene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 16:25	1
Xylenes, Total	ND		0.094		mg/Kg		11/25/24 09:57	11/27/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*48 - 145*	*11/25/24 09:57*	*11/27/24 16:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		11/25/24 11:21	11/25/24 17:44	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		11/25/24 11:21	11/25/24 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*11/25/24 11:21*	*11/25/24 17:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		11/25/24 07:15	11/25/24 18:34	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

Client Sample ID: BS24-03 3.5'

Date Collected: 11/20/24 15:30
Date Received: 11/23/24 08:30

Lab Sample ID: 885-15846-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		11/25/24 09:57	11/27/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*35 - 166*	*11/25/24 09:57*	*11/27/24 16:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		11/25/24 09:57	11/27/24 16:48	1
Ethylbenzene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 16:48	1
Toluene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 16:48	1
Xylenes, Total	ND		0.095		mg/Kg		11/25/24 09:57	11/27/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*48 - 145*	*11/25/24 09:57*	*11/27/24 16:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		11/25/24 11:21	11/25/24 18:08	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		11/25/24 11:21	11/25/24 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*11/25/24 11:21*	*11/25/24 18:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		11/25/24 07:15	11/25/24 18:45	20

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-04 3.5'
Lab Sample ID: 885-15846-4
Date Collected: 11/20/24 16:15
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		11/25/24 09:57	11/27/24 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*11/25/24 09:57*	*11/27/24 17:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		11/25/24 09:57	11/27/24 17:12	1
Ethylbenzene	ND		0.048		mg/Kg		11/25/24 09:57	11/27/24 17:12	1
Toluene	ND		0.048		mg/Kg		11/25/24 09:57	11/27/24 17:12	1
Xylenes, Total	ND		0.097		mg/Kg		11/25/24 09:57	11/27/24 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*48 - 145*	*11/25/24 09:57*	*11/27/24 17:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		11/25/24 11:21	11/25/24 18:20	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		11/25/24 11:21	11/25/24 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*11/25/24 11:21*	*11/25/24 18:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		11/25/24 07:15	11/25/24 18:55	20

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-01 0-3.5'
Lab Sample ID: 885-15846-5
Date Collected: 11/21/24 09:00
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		11/25/24 09:57	11/27/24 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*11/25/24 09:57*	*11/27/24 17:36*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		11/25/24 09:57	11/27/24 17:36	1
Ethylbenzene	ND		0.048		mg/Kg		11/25/24 09:57	11/27/24 17:36	1
Toluene	ND		0.048		mg/Kg		11/25/24 09:57	11/27/24 17:36	1
Xylenes, Total	ND		0.097		mg/Kg		11/25/24 09:57	11/27/24 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*11/25/24 09:57*	*11/27/24 17:36*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		11/25/24 11:21	11/25/24 18:33	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		11/25/24 11:21	11/25/24 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*11/25/24 11:21*	*11/25/24 18:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		11/25/24 12:43	11/25/24 18:05	20

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-02 0-3.5'
Lab Sample ID: 885-15846-6
Date Collected: 11/21/24 09:45
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		11/25/24 09:57	11/27/24 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*11/25/24 09:57*	*11/27/24 17:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		11/25/24 09:57	11/27/24 17:59	1
Ethylbenzene	ND		0.046		mg/Kg		11/25/24 09:57	11/27/24 17:59	1
Toluene	ND		0.046		mg/Kg		11/25/24 09:57	11/27/24 17:59	1
Xylenes, Total	ND		0.092		mg/Kg		11/25/24 09:57	11/27/24 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*	*11/25/24 09:57*	*11/27/24 17:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		11/25/24 11:21	11/25/24 18:45	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		11/25/24 11:21	11/25/24 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*113*		*62 - 134*	*11/25/24 11:21*	*11/25/24 18:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		11/25/24 12:43	11/25/24 18:15	20

Client Sample Results

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-03 0-3.5'
Lab Sample ID: 885-15846-7
Date Collected: 11/21/24 10:30
Matrix: Solid
Date Received: 11/23/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		11/25/24 09:57	11/27/24 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*11/25/24 09:57*	*11/27/24 19:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		11/25/24 09:57	11/27/24 19:10	1
Ethylbenzene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 19:10	1
Toluene	ND		0.047		mg/Kg		11/25/24 09:57	11/27/24 19:10	1
Xylenes, Total	ND		0.094		mg/Kg		11/25/24 09:57	11/27/24 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*48 - 145*	*11/25/24 09:57*	*11/27/24 19:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		11/25/24 11:21	11/25/24 18:57	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		11/25/24 11:21	11/25/24 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*11/25/24 11:21*	*11/25/24 18:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		11/25/24 12:43	11/25/24 18:45	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-16573/1-A
Matrix: Solid
Analysis Batch: 16736

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16573

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		11/25/24 09:57	11/27/24 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*11/25/24 09:57*	*11/27/24 11:31*	*1*

Lab Sample ID: LCS 885-16573/2-A
Matrix: Solid
Analysis Batch: 16736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16573

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.5		mg/Kg		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*213*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-16573/1-A
Matrix: Solid
Analysis Batch: 16737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16573

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		11/25/24 09:57	11/27/24 11:31	1
Ethylbenzene	ND		0.050		mg/Kg		11/25/24 09:57	11/27/24 11:31	1
Toluene	ND		0.050		mg/Kg		11/25/24 09:57	11/27/24 11:31	1
Xylenes, Total	ND		0.10		mg/Kg		11/25/24 09:57	11/27/24 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*48 - 145*	*11/25/24 09:57*	*11/27/24 11:31*	*1*

Lab Sample ID: LCS 885-16573/3-A
Matrix: Solid
Analysis Batch: 16737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16573

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.14		mg/Kg		114	70 - 130		
Ethylbenzene			1.00	1.17		mg/Kg		117	70 - 130		
m,p-Xylene			2.00	2.28		mg/Kg		114	70 - 130		
o-Xylene			1.00	1.15		mg/Kg		115	70 - 130		
Toluene			1.00	1.17		mg/Kg		117	70 - 130		
Xylenes, Total			3.00	3.43		mg/Kg		114	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-16581/1-A
Matrix: Solid
Analysis Batch: 16571

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16581

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		11/25/24 11:21	11/25/24 15:55	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		11/25/24 11:21	11/25/24 15:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*11/25/24 11:21*	*11/25/24 15:55*	*1*

Lab Sample ID: LCS 885-16581/2-A
Matrix: Solid
Analysis Batch: 16571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16581

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	50.3		mg/Kg		101	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MRL 885-16556/27-A
Matrix: Solid
Analysis Batch: 16560

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16556

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.536		mg/L		107	50 - 150		

Lab Sample ID: MB 885-16558/1-A
Matrix: Solid
Analysis Batch: 16560

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16558

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		11/25/24 07:15	11/25/24 08:41	1

Lab Sample ID: LCS 885-16558/2-A
Matrix: Solid
Analysis Batch: 16560

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16558

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.4		mg/Kg		98	90 - 110		

Lab Sample ID: MRL 885-16560/67
Matrix: Solid
Analysis Batch: 16560

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.529		mg/L		106	50 - 150		

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 885-16595/1-A
Matrix: Solid
Analysis Batch: 16589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16595

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		11/25/24 12:43	11/25/24 13:00	1

Lab Sample ID: LCS 885-16595/2-A
Matrix: Solid
Analysis Batch: 16589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16595

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.3		mg/Kg		94	90 - 110		

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

GC VOA

Prep Batch: 16573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	5030C	
885-15846-2	BS24-02 3.5'	Total/NA	Solid	5030C	
885-15846-3	BS24-03 3.5'	Total/NA	Solid	5030C	
885-15846-4	BS24-04 3.5'	Total/NA	Solid	5030C	
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	5030C	
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	5030C	
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	5030C	
MB 885-16573/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-16573/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-16573/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 16736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	8015M/D	16573
885-15846-2	BS24-02 3.5'	Total/NA	Solid	8015M/D	16573
885-15846-3	BS24-03 3.5'	Total/NA	Solid	8015M/D	16573
885-15846-4	BS24-04 3.5'	Total/NA	Solid	8015M/D	16573
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	8015M/D	16573
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	8015M/D	16573
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	8015M/D	16573
MB 885-16573/1-A	Method Blank	Total/NA	Solid	8015M/D	16573
LCS 885-16573/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	16573

Analysis Batch: 16737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	8021B	16573
885-15846-2	BS24-02 3.5'	Total/NA	Solid	8021B	16573
885-15846-3	BS24-03 3.5'	Total/NA	Solid	8021B	16573
885-15846-4	BS24-04 3.5'	Total/NA	Solid	8021B	16573
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	8021B	16573
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	8021B	16573
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	8021B	16573
MB 885-16573/1-A	Method Blank	Total/NA	Solid	8021B	16573
LCS 885-16573/3-A	Lab Control Sample	Total/NA	Solid	8021B	16573

GC Semi VOA

Analysis Batch: 16571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	8015M/D	16581
885-15846-2	BS24-02 3.5'	Total/NA	Solid	8015M/D	16581
885-15846-3	BS24-03 3.5'	Total/NA	Solid	8015M/D	16581
885-15846-4	BS24-04 3.5'	Total/NA	Solid	8015M/D	16581
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	8015M/D	16581
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	8015M/D	16581
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	8015M/D	16581
MB 885-16581/1-A	Method Blank	Total/NA	Solid	8015M/D	16581
LCS 885-16581/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	16581

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-15846-1

GC Semi VOA

Prep Batch: 16581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	SHAKE	
885-15846-2	BS24-02 3.5'	Total/NA	Solid	SHAKE	
885-15846-3	BS24-03 3.5'	Total/NA	Solid	SHAKE	
885-15846-4	BS24-04 3.5'	Total/NA	Solid	SHAKE	
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	SHAKE	
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	SHAKE	
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	SHAKE	
MB 885-16581/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-16581/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 16556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 885-16556/27-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 16558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	300_Prep	
885-15846-2	BS24-02 3.5'	Total/NA	Solid	300_Prep	
885-15846-3	BS24-03 3.5'	Total/NA	Solid	300_Prep	
885-15846-4	BS24-04 3.5'	Total/NA	Solid	300_Prep	
MB 885-16558/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-16558/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 16560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-1	BS24-01 3.5'	Total/NA	Solid	300.0	16558
885-15846-2	BS24-02 3.5'	Total/NA	Solid	300.0	16558
885-15846-3	BS24-03 3.5'	Total/NA	Solid	300.0	16558
885-15846-4	BS24-04 3.5'	Total/NA	Solid	300.0	16558
MB 885-16558/1-A	Method Blank	Total/NA	Solid	300.0	16558
LCS 885-16558/2-A	Lab Control Sample	Total/NA	Solid	300.0	16558
MRL 885-16556/27-A	Lab Control Sample	Total/NA	Solid	300.0	16556
MRL 885-16560/67	Lab Control Sample	Total/NA	Solid	300.0	

Analysis Batch: 16589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	300.0	16595
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	300.0	16595
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	300.0	16595
MB 885-16595/1-A	Method Blank	Total/NA	Solid	300.0	16595
LCS 885-16595/2-A	Lab Control Sample	Total/NA	Solid	300.0	16595

Prep Batch: 16595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15846-5	WS24-01 0-3.5'	Total/NA	Solid	300_Prep	
885-15846-6	WS24-02 0-3.5'	Total/NA	Solid	300_Prep	
885-15846-7	WS24-03 0-3.5'	Total/NA	Solid	300_Prep	
MB 885-16595/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-16595/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-01 3.5'
Lab Sample ID: 885-15846-1
Date Collected: 11/20/24 10:45
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 16:01
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 16:01
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 17:32
Total/NA	Prep	300_Prep			16558	JT	EET ALB	11/25/24 07:15
Total/NA	Analysis	300.0		20	16560	RC	EET ALB	11/25/24 18:03

Client Sample ID: BS24-02 3.5'
Lab Sample ID: 885-15846-2
Date Collected: 11/20/24 12:00
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 16:25
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 16:25
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 17:44
Total/NA	Prep	300_Prep			16558	JT	EET ALB	11/25/24 07:15
Total/NA	Analysis	300.0		20	16560	RC	EET ALB	11/25/24 18:34

Client Sample ID: BS24-03 3.5'
Lab Sample ID: 885-15846-3
Date Collected: 11/20/24 15:30
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 16:48
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 16:48
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 18:08
Total/NA	Prep	300_Prep			16558	JT	EET ALB	11/25/24 07:15
Total/NA	Analysis	300.0		20	16560	RC	EET ALB	11/25/24 18:45

Client Sample ID: BS24-04 3.5'
Lab Sample ID: 885-15846-4
Date Collected: 11/20/24 16:15
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 17:12

Lab Chronicle

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-04 3.5'
Lab Sample ID: 885-15846-4
Date Collected: 11/20/24 16:15
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 17:12
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 18:20
Total/NA	Prep	300_Prep			16558	JT	EET ALB	11/25/24 07:15
Total/NA	Analysis	300.0		20	16560	RC	EET ALB	11/25/24 18:55

Client Sample ID: WS24-01 0-3.5'
Lab Sample ID: 885-15846-5
Date Collected: 11/21/24 09:00
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 17:36
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 17:36
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 18:33
Total/NA	Prep	300_Prep			16595	JT	EET ALB	11/25/24 12:43
Total/NA	Analysis	300.0		20	16589	EH	EET ALB	11/25/24 18:05

Client Sample ID: WS24-02 0-3.5'
Lab Sample ID: 885-15846-6
Date Collected: 11/21/24 09:45
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 17:59
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 17:59
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 18:45
Total/NA	Prep	300_Prep			16595	JT	EET ALB	11/25/24 12:43
Total/NA	Analysis	300.0		20	16589	EH	EET ALB	11/25/24 18:15

Client Sample ID: WS24-03 0-3.5'
Lab Sample ID: 885-15846-7
Date Collected: 11/21/24 10:30
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8015M/D		1	16736	JP	EET ALB	11/27/24 19:10
Total/NA	Prep	5030C			16573	JP	EET ALB	11/25/24 09:57
Total/NA	Analysis	8021B		1	16737	JP	EET ALB	11/27/24 19:10

Lab Chronicle

Client: Vertex
Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-03 0-3.5'
Lab Sample ID: 885-15846-7

Date Collected: 11/21/24 10:30
Matrix: Solid
Date Received: 11/23/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			16581	EM	EET ALB	11/25/24 11:21
Total/NA	Analysis	8015M/D		1	16571	EM	EET ALB	11/25/24 18:57
Total/NA	Prep	300_Prep			16595	JT	EET ALB	11/25/24 12:43
Total/NA	Analysis	300.0		20	16589	EH	EET ALB	11/25/24 18:45

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-15846-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☒ Yes ☐ No 4009
# of Coolers: 1
Cooler Temp(including CF): 0.1 - 0.1 = 0

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871(
Tel. 505-345-3975 Fax 505-345-4107

885-15846 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
11.20.24	10:45	Soil	BS24-01 3.5'	1, 4oz jar			X	X					X			
11.20.24	12:00	Soil	BS24-02 3.5'	1, 4oz jar			X	X					X			
11.20.24	15:30	Soil	BS24-03 3.5'	1, 4oz jar			X	X					X			
11.20.24	16:15	Soil	BS24-04 3.5'	1, 4oz jar			X	X					X			
11.21.24	9:00	Soil	WS24-01 0-3.5'	1, 4oz jar			X	X					X			
11.21.24	9:45	Soil	WS24-02 0-3.5'	1, 4oz jar			X	X					X			
11.21.24	10:30	Soil	WS24-03 0-3.5'	1, 4oz jar			X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
11-22-24	07:00	Lakin Pullman			11/22/24	0700
11/22/24	1900			Courier	11/23/24	8:30

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com) and Lakin Pullman (LPullman@vertexresource.com)for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-15846-1

Login Number: 15846 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/5/2024 3:13:32 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-16004-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

my EOL

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/5/2024 3:13:32 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-16004-1

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Definitions/Glossary

Client: Vertex Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-16004-1
Project: Calgary Federal #002E

Job ID: 885-16004-1 Eurofins Albuquerque

Job Narrative
885-16004-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/27/2024 7:47 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.1°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-05 0'
Lab Sample ID: 885-16004-1
Date Collected: 11/22/24 09:00
Matrix: Solid
Date Received: 11/27/24 07:47

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/02/24 10:09	12/04/24 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/02/24 10:09*	*12/04/24 13:36*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/02/24 10:09	12/04/24 13:36	1
Ethylbenzene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 13:36	1
Toluene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 13:36	1
Xylenes, Total	ND		0.098		mg/Kg		12/02/24 10:09	12/04/24 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/02/24 10:09*	*12/04/24 13:36*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/02/24 15:34	12/03/24 04:23	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/02/24 15:34	12/03/24 04:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/02/24 15:34*	*12/03/24 04:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 18:28	20

Client Sample Results

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-06 0'
Lab Sample ID: 885-16004-2
Date Collected: 11/22/24 09:50
Matrix: Solid
Date Received: 11/27/24 07:47

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/02/24 10:09	12/04/24 14:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/02/24 10:09*	*12/04/24 14:46*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/02/24 10:09	12/04/24 14:46	1
Ethylbenzene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 14:46	1
Toluene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 14:46	1
Xylenes, Total	ND		0.097		mg/Kg		12/02/24 10:09	12/04/24 14:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/02/24 10:09*	*12/04/24 14:46*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		12/02/24 15:34	12/03/24 04:35	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/02/24 15:34	12/03/24 04:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/02/24 15:34*	*12/03/24 04:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 18:39	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

Client Sample ID: BS24-07 0'

Date Collected: 11/22/24 10:00
Date Received: 11/27/24 07:47

Lab Sample ID: 885-16004-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/02/24 10:09	12/04/24 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/02/24 10:09*	*12/04/24 15:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/02/24 10:09	12/04/24 15:57	1
Ethylbenzene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 15:57	1
Toluene	ND		0.049		mg/Kg		12/02/24 10:09	12/04/24 15:57	1
Xylenes, Total	ND		0.097		mg/Kg		12/02/24 10:09	12/04/24 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/02/24 10:09*	*12/04/24 15:57*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/02/24 15:34	12/03/24 04:47	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/02/24 15:34	12/03/24 04:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/02/24 15:34*	*12/03/24 04:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 18:49	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

Client Sample ID: BS24-08 0'

Date Collected: 11/22/24 10:30
Date Received: 11/27/24 07:47

Lab Sample ID: 885-16004-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/02/24 10:09	12/04/24 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/02/24 10:09*	*12/04/24 16:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/02/24 10:09	12/04/24 16:20	1
Ethylbenzene	ND		0.048		mg/Kg		12/02/24 10:09	12/04/24 16:20	1
Toluene	ND		0.048		mg/Kg		12/02/24 10:09	12/04/24 16:20	1
Xylenes, Total	ND		0.095		mg/Kg		12/02/24 10:09	12/04/24 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/02/24 10:09*	*12/04/24 16:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		12/02/24 15:34	12/03/24 04:59	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/02/24 15:34	12/03/24 04:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/02/24 15:34*	*12/03/24 04:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 18:59	20

Client Sample Results

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-09 0'
Lab Sample ID: 885-16004-5
Date Collected: 11/22/24 11:00
Matrix: Solid
Date Received: 11/27/24 07:47

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/02/24 10:09	12/04/24 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/02/24 10:09*	*12/04/24 16:44*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/02/24 10:09	12/04/24 16:44	1
Ethylbenzene	ND		0.046		mg/Kg		12/02/24 10:09	12/04/24 16:44	1
Toluene	ND		0.046		mg/Kg		12/02/24 10:09	12/04/24 16:44	1
Xylenes, Total	ND		0.093		mg/Kg		12/02/24 10:09	12/04/24 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/02/24 10:09*	*12/04/24 16:44*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/02/24 15:34	12/03/24 05:11	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/02/24 15:34	12/03/24 05:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/02/24 15:34*	*12/03/24 05:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/02/24 12:03	12/02/24 19:30	20

Client Sample Results

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-11 0'
Lab Sample ID: 885-16004-6
Date Collected: 11/22/24 12:00
Matrix: Solid
Date Received: 11/27/24 07:47

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/02/24 10:09	12/04/24 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/02/24 10:09*	*12/04/24 17:07*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/02/24 10:09	12/04/24 17:07	1
Ethylbenzene	ND		0.050		mg/Kg		12/02/24 10:09	12/04/24 17:07	1
Toluene	ND		0.050		mg/Kg		12/02/24 10:09	12/04/24 17:07	1
Xylenes, Total	ND		0.099		mg/Kg		12/02/24 10:09	12/04/24 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/02/24 10:09*	*12/04/24 17:07*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/02/24 15:34	12/03/24 05:36	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/02/24 15:34	12/03/24 05:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/02/24 15:34*	*12/03/24 05:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 19:41	20

Client Sample Results

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-12 0'
Lab Sample ID: 885-16004-7
Date Collected: 11/22/24 12:30
Matrix: Solid
Date Received: 11/27/24 07:47

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/02/24 10:09	12/04/24 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/02/24 10:09*	*12/04/24 17:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/02/24 10:09	12/04/24 17:31	1
Ethylbenzene	ND		0.046		mg/Kg		12/02/24 10:09	12/04/24 17:31	1
Toluene	ND		0.046		mg/Kg		12/02/24 10:09	12/04/24 17:31	1
Xylenes, Total	ND		0.092		mg/Kg		12/02/24 10:09	12/04/24 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/02/24 10:09*	*12/04/24 17:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.2		mg/Kg		12/02/24 15:34	12/03/24 06:12	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/02/24 15:34	12/03/24 06:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/02/24 15:34*	*12/03/24 06:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/02/24 12:03	12/02/24 19:51	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-16820/1-A
Matrix: Solid
Analysis Batch: 17083

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16820

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/02/24 10:09	12/04/24 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/02/24 10:09*	*12/04/24 13:13*	*1*

Lab Sample ID: LCS 885-16820/2-A
Matrix: Solid
Analysis Batch: 17083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16820

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	21.8		mg/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*194*		*35 - 166*

Lab Sample ID: 885-16004-1 MS
Matrix: Solid
Analysis Batch: 17083

Client Sample ID: BS24-05 0'
Prep Type: Total/NA
Prep Batch: 16820

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.3	21.5		mg/Kg		88	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*195*		*35 - 166*

Lab Sample ID: 885-16004-1 MSD
Matrix: Solid
Analysis Batch: 17083

Client Sample ID: BS24-05 0'
Prep Type: Total/NA
Prep Batch: 16820

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.5	21.3		mg/Kg		87	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*195*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-16820/1-A
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16820

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/02/24 10:09	12/04/24 13:13	1
Ethylbenzene	ND		0.050		mg/Kg		12/02/24 10:09	12/04/24 13:13	1
Toluene	ND		0.050		mg/Kg		12/02/24 10:09	12/04/24 13:13	1

QC Sample Results

Client: Vertex

Job ID: 885-16004-1

Project/Site: Calgary Federal #002E

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-16820/1-A
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16820

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		12/02/24 10:09	12/04/24 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*12/02/24 10:09*	*12/04/24 13:13*	*1*

Lab Sample ID: LCS 885-16820/3-A
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16820

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.11		mg/Kg		111	70 - 130		
Ethylbenzene			1.00	1.14		mg/Kg		114	70 - 130		
m,p-Xylene			2.00	2.27		mg/Kg		114	70 - 130		
o-Xylene			1.00	1.12		mg/Kg		112	70 - 130		
Toluene			1.00	1.14		mg/Kg		114	70 - 130		
Xylenes, Total			3.00	3.39		mg/Kg		113	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*48 - 145*

Lab Sample ID: 885-16004-2 MS
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: BS24-06 0'
Prep Type: Total/NA
Prep Batch: 16820

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.976	1.08		mg/Kg		111	70 - 130		
Ethylbenzene	ND		0.976	1.11		mg/Kg		114	70 - 130		
m,p-Xylene	ND		1.95	2.19		mg/Kg		112	70 - 130		
o-Xylene	ND		0.976	1.08		mg/Kg		111	70 - 130		
Toluene	ND		0.976	1.11		mg/Kg		114	70 - 130		
Xylenes, Total	ND		2.93	3.27		mg/Kg		112	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*

Lab Sample ID: 885-16004-2 MSD
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: BS24-06 0'
Prep Type: Total/NA
Prep Batch: 16820

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.974	1.02		mg/Kg		105	70 - 130	6	20
Ethylbenzene	ND		0.974	1.04		mg/Kg		107	70 - 130	6	20
m,p-Xylene	ND		1.95	2.07		mg/Kg		106	70 - 130	6	20
o-Xylene	ND		0.974	1.02		mg/Kg		105	70 - 130	5	20
Toluene	ND		0.974	1.04		mg/Kg		107	70 - 130	6	20
Xylenes, Total	ND		2.92	3.09		mg/Kg		106	70 - 130	6	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-16004-2 MSD
Matrix: Solid
Analysis Batch: 17084

Client Sample ID: BS24-06 0'
Prep Type: Total/NA
Prep Batch: 16820

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-16853/1-A
Matrix: Solid
Analysis Batch: 16826

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16853

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/02/24 15:34	12/03/24 01:14	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/02/24 15:34	12/03/24 01:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*12/02/24 15:34*	*12/03/24 01:14*	*1*

Lab Sample ID: LCS 885-16853/2-A
Matrix: Solid
Analysis Batch: 16826

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16853

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	56.5		mg/Kg		113	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*

Lab Sample ID: 885-16004-6 MS
Matrix: Solid
Analysis Batch: 16826

Client Sample ID: BS24-11 0'
Prep Type: Total/NA
Prep Batch: 16853

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		48.2	42.5		mg/Kg		88	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*

Lab Sample ID: 885-16004-6 MSD
Matrix: Solid
Analysis Batch: 16826

Client Sample ID: BS24-11 0'
Prep Type: Total/NA
Prep Batch: 16853

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		47.5	38.2		mg/Kg		80	44 - 136	11	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-16838/1-A
Matrix: Solid
Analysis Batch: 16799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16838

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/02/24 12:03	12/02/24 15:22	1

Lab Sample ID: LCS 885-16838/2-A
Matrix: Solid
Analysis Batch: 16799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 16838

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.5		mg/Kg		98	90 - 110		

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

GC VOA

Prep Batch: 16820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	5030C	
885-16004-2	BS24-06 0'	Total/NA	Solid	5030C	
885-16004-3	BS24-07 0'	Total/NA	Solid	5030C	
885-16004-4	BS24-08 0'	Total/NA	Solid	5030C	
885-16004-5	BS24-09 0'	Total/NA	Solid	5030C	
885-16004-6	BS24-11 0'	Total/NA	Solid	5030C	
885-16004-7	BS24-12 0'	Total/NA	Solid	5030C	
MB 885-16820/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-16820/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-16820/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16004-1 MS	BS24-05 0'	Total/NA	Solid	5030C	
885-16004-1 MSD	BS24-05 0'	Total/NA	Solid	5030C	
885-16004-2 MS	BS24-06 0'	Total/NA	Solid	5030C	
885-16004-2 MSD	BS24-06 0'	Total/NA	Solid	5030C	

Analysis Batch: 17083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	8015M/D	16820
885-16004-2	BS24-06 0'	Total/NA	Solid	8015M/D	16820
885-16004-3	BS24-07 0'	Total/NA	Solid	8015M/D	16820
885-16004-4	BS24-08 0'	Total/NA	Solid	8015M/D	16820
885-16004-5	BS24-09 0'	Total/NA	Solid	8015M/D	16820
885-16004-6	BS24-11 0'	Total/NA	Solid	8015M/D	16820
885-16004-7	BS24-12 0'	Total/NA	Solid	8015M/D	16820
MB 885-16820/1-A	Method Blank	Total/NA	Solid	8015M/D	16820
LCS 885-16820/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	16820
885-16004-1 MS	BS24-05 0'	Total/NA	Solid	8015M/D	16820
885-16004-1 MSD	BS24-05 0'	Total/NA	Solid	8015M/D	16820

Analysis Batch: 17084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	8021B	16820
885-16004-2	BS24-06 0'	Total/NA	Solid	8021B	16820
885-16004-3	BS24-07 0'	Total/NA	Solid	8021B	16820
885-16004-4	BS24-08 0'	Total/NA	Solid	8021B	16820
885-16004-5	BS24-09 0'	Total/NA	Solid	8021B	16820
885-16004-6	BS24-11 0'	Total/NA	Solid	8021B	16820
885-16004-7	BS24-12 0'	Total/NA	Solid	8021B	16820
MB 885-16820/1-A	Method Blank	Total/NA	Solid	8021B	16820
LCS 885-16820/3-A	Lab Control Sample	Total/NA	Solid	8021B	16820
885-16004-2 MS	BS24-06 0'	Total/NA	Solid	8021B	16820
885-16004-2 MSD	BS24-06 0'	Total/NA	Solid	8021B	16820

GC Semi VOA

Analysis Batch: 16826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	8015M/D	16853
885-16004-2	BS24-06 0'	Total/NA	Solid	8015M/D	16853
885-16004-3	BS24-07 0'	Total/NA	Solid	8015M/D	16853
885-16004-4	BS24-08 0'	Total/NA	Solid	8015M/D	16853

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16004-1

GC Semi VOA (Continued)

Analysis Batch: 16826 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-5	BS24-09 0'	Total/NA	Solid	8015M/D	16853
885-16004-6	BS24-11 0'	Total/NA	Solid	8015M/D	16853
885-16004-7	BS24-12 0'	Total/NA	Solid	8015M/D	16853
MB 885-16853/1-A	Method Blank	Total/NA	Solid	8015M/D	16853
LCS 885-16853/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	16853
885-16004-6 MS	BS24-11 0'	Total/NA	Solid	8015M/D	16853
885-16004-6 MSD	BS24-11 0'	Total/NA	Solid	8015M/D	16853

Prep Batch: 16853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	SHAKE	
885-16004-2	BS24-06 0'	Total/NA	Solid	SHAKE	
885-16004-3	BS24-07 0'	Total/NA	Solid	SHAKE	
885-16004-4	BS24-08 0'	Total/NA	Solid	SHAKE	
885-16004-5	BS24-09 0'	Total/NA	Solid	SHAKE	
885-16004-6	BS24-11 0'	Total/NA	Solid	SHAKE	
885-16004-7	BS24-12 0'	Total/NA	Solid	SHAKE	
MB 885-16853/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-16853/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16004-6 MS	BS24-11 0'	Total/NA	Solid	SHAKE	
885-16004-6 MSD	BS24-11 0'	Total/NA	Solid	SHAKE	

HPLC/IC

Analysis Batch: 16799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	300.0	16838
885-16004-2	BS24-06 0'	Total/NA	Solid	300.0	16838
885-16004-3	BS24-07 0'	Total/NA	Solid	300.0	16838
885-16004-4	BS24-08 0'	Total/NA	Solid	300.0	16838
885-16004-5	BS24-09 0'	Total/NA	Solid	300.0	16838
885-16004-6	BS24-11 0'	Total/NA	Solid	300.0	16838
885-16004-7	BS24-12 0'	Total/NA	Solid	300.0	16838
MB 885-16838/1-A	Method Blank	Total/NA	Solid	300.0	16838
LCS 885-16838/2-A	Lab Control Sample	Total/NA	Solid	300.0	16838

Prep Batch: 16838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16004-1	BS24-05 0'	Total/NA	Solid	300_Prep	
885-16004-2	BS24-06 0'	Total/NA	Solid	300_Prep	
885-16004-3	BS24-07 0'	Total/NA	Solid	300_Prep	
885-16004-4	BS24-08 0'	Total/NA	Solid	300_Prep	
885-16004-5	BS24-09 0'	Total/NA	Solid	300_Prep	
885-16004-6	BS24-11 0'	Total/NA	Solid	300_Prep	
885-16004-7	BS24-12 0'	Total/NA	Solid	300_Prep	
MB 885-16838/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-16838/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-05 0'
Lab Sample ID: 885-16004-1
Date Collected: 11/22/24 09:00
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 13:36
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 13:36
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 04:23
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 18:28

Client Sample ID: BS24-06 0'
Lab Sample ID: 885-16004-2
Date Collected: 11/22/24 09:50
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 14:46
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 14:46
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 04:35
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 18:39

Client Sample ID: BS24-07 0'
Lab Sample ID: 885-16004-3
Date Collected: 11/22/24 10:00
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 15:57
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 15:57
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 04:47
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 18:49

Client Sample ID: BS24-08 0'
Lab Sample ID: 885-16004-4
Date Collected: 11/22/24 10:30
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 16:20

Lab Chronicle

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-08 0'
Lab Sample ID: 885-16004-4
Date Collected: 11/22/24 10:30
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 16:20
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 04:59
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 18:59

Client Sample ID: BS24-09 0'
Lab Sample ID: 885-16004-5
Date Collected: 11/22/24 11:00
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 16:44
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 16:44
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 05:11
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 19:30

Client Sample ID: BS24-11 0'
Lab Sample ID: 885-16004-6
Date Collected: 11/22/24 12:00
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 17:07
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 17:07
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 05:36
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 19:41

Client Sample ID: BS24-12 0'
Lab Sample ID: 885-16004-7
Date Collected: 11/22/24 12:30
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8015M/D		1	17083	JP	EET ALB	12/04/24 17:31
Total/NA	Prep	5030C			16820	JP	EET ALB	12/02/24 10:09
Total/NA	Analysis	8021B		1	17084	JP	EET ALB	12/04/24 17:31

Lab Chronicle

Client: Vertex
Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-12 0'
Lab Sample ID: 885-16004-7

Date Collected: 11/22/24 12:30
Matrix: Solid
Date Received: 11/27/24 07:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			16853	EM	EET ALB	12/02/24 15:34
Total/NA	Analysis	8015M/D		1	16826	MI	EET ALB	12/03/24 06:12
Total/NA	Prep	300_Prep			16838	JT	EET ALB	12/02/24 12:03
Total/NA	Analysis	300.0		20	16799	JT	EET ALB	12/02/24 19:51

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-16004-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: (Mack Energy bill to) Vertex Resource Group

Mailing Address: 3101 Boyd dr, 88220, Carlsbad NM

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #:

Project Manager: Sally Carttar

Sampler: Katrina Taylor

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.1 ±0 = 1.1 °C mgo

HALL ENVIRONM ANALYSIS LABOR

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

885-16004 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D GRO / DRO / MRO	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
11/22	9:00	Soil	BS24-05 0'	4oz	ICE	1										
	9:30		BS24-06 0'			2										
	10:00		BS24-07 0'			3										
	10:30		BS24-08 0'			4										
	11:00		BS24-09 0'			5										
~~11:30~~			~~BS24-10 0'~~													
	12:00		BS24-11 0'			6										
	12:30		BS24-12 0'			7										

Date	Time	Relinquished by	Received by:	Via	Date	Time
11/22	5pm	Katrina Taylor				
11/23/24	1900			courier	11/27/24	7:47

Remarks: Bill to Mack Energy

ATTN: Matt Buckles (mattbuckle@mec.com)

cc. SCarttar@vertexresource.com

Katrina.Taylor@vertex.ca

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

12/5/2024

Page 221 of 739

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-16004-1

Login Number: 16004 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/13/2024 2:14:25 PM

JOB DESCRIPTION

Calgary Federal 002E

JOB NUMBER

885-16356-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/13/2024 2:14:25 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal 002E

Laboratory Job ID: 885-16356-1

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Definitions/Glossary

Client: Vertex Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Calgary Federal 002E

Job ID: 885-16356-1

Job ID: 885-16356-1 Eurofins Albuquerque

Job Narrative
885-16356-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/5/2024 8:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-17206 and analytical batch 885-17280 recovered outside control limits for the surrogate: Di-n-octyl phthalate (Surr). The surrogate was biased high in the LCS and were not biased high in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-18 3.5'
Lab Sample ID: 885-16356-1
Date Collected: 12/03/24 08:30
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/05/24 12:59	12/07/24 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*35 - 166*	*12/05/24 12:59*	*12/07/24 00:16*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/05/24 12:59	12/07/24 00:16	1
Ethylbenzene	ND		0.047		mg/Kg		12/05/24 12:59	12/07/24 00:16	1
Toluene	ND		0.047		mg/Kg		12/05/24 12:59	12/07/24 00:16	1
Xylenes, Total	ND		0.093		mg/Kg		12/05/24 12:59	12/07/24 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*12/05/24 12:59*	*12/07/24 00:16*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/06/24 13:28	12/09/24 13:26	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/06/24 13:28	12/09/24 13:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*73*		*62 - 134*	*12/06/24 13:28*	*12/09/24 13:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**460**		60		mg/Kg		12/05/24 14:25	12/05/24 18:34	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-19 3.5'
Lab Sample ID: 885-16356-2
Date Collected: 12/03/24 08:35
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/05/24 12:59	12/07/24 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*35 - 166*	*12/05/24 12:59*	*12/07/24 00:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/05/24 12:59	12/07/24 00:38	1
Ethylbenzene	ND		0.046		mg/Kg		12/05/24 12:59	12/07/24 00:38	1
Toluene	ND		0.046		mg/Kg		12/05/24 12:59	12/07/24 00:38	1
Xylenes, Total	ND		0.093		mg/Kg		12/05/24 12:59	12/07/24 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 00:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/06/24 13:28	12/09/24 13:37	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/06/24 13:28	12/09/24 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*79*		*62 - 134*	*12/06/24 13:28*	*12/09/24 13:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**490**		60		mg/Kg		12/05/24 14:25	12/05/24 18:44	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-20 3.5'

Date Collected: 12/03/24 08:40
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 12:59	12/07/24 00:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*35 - 166*	*12/05/24 12:59*	*12/07/24 00:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 12:59	12/07/24 00:59	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 12:59	12/07/24 00:59	1
Toluene	ND		0.050		mg/Kg		12/05/24 12:59	12/07/24 00:59	1
Xylenes, Total	ND		0.099		mg/Kg		12/05/24 12:59	12/07/24 00:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 00:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:28	12/09/24 13:59	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/06/24 13:28	12/09/24 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*12/06/24 13:28*	*12/09/24 13:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		12/05/24 14:25	12/05/24 18:54	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-21 3.5'

Date Collected: 12/03/24 08:45
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/05/24 12:59	12/07/24 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*35 - 166*	*12/05/24 12:59*	*12/07/24 01:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 12:59	12/07/24 01:21	1
Ethylbenzene	ND		0.047		mg/Kg		12/05/24 12:59	12/07/24 01:21	1
Toluene	ND		0.047		mg/Kg		12/05/24 12:59	12/07/24 01:21	1
Xylenes, Total	ND		0.095		mg/Kg		12/05/24 12:59	12/07/24 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 01:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:28	12/09/24 14:09	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/06/24 13:28	12/09/24 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*73*		*62 - 134*	*12/06/24 13:28*	*12/09/24 14:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		60		mg/Kg		12/05/24 14:25	12/05/24 19:04	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-22 3.5'
Lab Sample ID: 885-16356-5

Date Collected: 12/03/24 08:50
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 12:59	12/07/24 01:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*35 - 166*	*12/05/24 12:59*	*12/07/24 01:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 12:59	12/07/24 01:42	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 01:42	1
Toluene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 01:42	1
Xylenes, Total	ND		0.097		mg/Kg		12/05/24 12:59	12/07/24 01:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 01:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:28	12/09/24 14:20	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:28	12/09/24 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/06/24 13:28*	*12/09/24 14:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**460**		60		mg/Kg		12/05/24 14:25	12/05/24 19:13	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-23 3.5'

Date Collected: 12/03/24 08:55
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 12:59	12/07/24 02:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*35 - 166*	*12/05/24 12:59*	*12/07/24 02:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 12:59	12/07/24 02:04	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:04	1
Toluene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:04	1
Xylenes, Total	ND		0.097		mg/Kg		12/05/24 12:59	12/07/24 02:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 02:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/06/24 13:28	12/09/24 14:31	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/06/24 13:28	12/09/24 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*12/06/24 13:28*	*12/09/24 14:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**310**		60		mg/Kg		12/05/24 14:25	12/05/24 19:23	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-24 3.5'
Lab Sample ID: 885-16356-7

Date Collected: 12/03/24 10:30
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 12:59	12/07/24 02:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*35 - 166*	*12/05/24 12:59*	*12/07/24 02:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 12:59	12/07/24 02:25	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:25	1
Toluene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:25	1
Xylenes, Total	ND		0.095		mg/Kg		12/05/24 12:59	12/07/24 02:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/05/24 12:59*	*12/07/24 02:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/06/24 13:28	12/09/24 14:42	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/06/24 13:28	12/09/24 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*12/06/24 13:28*	*12/09/24 14:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		12/05/24 14:25	12/05/24 19:33	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-25 3.5'
Lab Sample ID: 885-16356-8
Date Collected: 12/03/24 10:35
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 12:59	12/07/24 02:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*35 - 166*	*12/05/24 12:59*	*12/07/24 02:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 12:59	12/07/24 02:47	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:47	1
Toluene	ND		0.048		mg/Kg		12/05/24 12:59	12/07/24 02:47	1
Xylenes, Total	ND		0.095		mg/Kg		12/05/24 12:59	12/07/24 02:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 12:59*	*12/07/24 02:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:28	12/10/24 16:27	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/06/24 13:28	12/10/24 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*76*		*62 - 134*	*12/06/24 13:28*	*12/10/24 16:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**74**		60		mg/Kg		12/05/24 14:25	12/05/24 19:43	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-26 3.5'
Lab Sample ID: 885-16356-9
Date Collected: 12/03/24 10:40
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 15:00	12/10/24 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/05/24 15:00*	*12/10/24 00:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/10/24 00:55	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 00:55	1
Toluene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 00:55	1
Xylenes, Total	ND		0.10		mg/Kg		12/05/24 15:00	12/10/24 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 15:00*	*12/10/24 00:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:28	12/09/24 15:04	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:28	12/09/24 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*67*		*62 - 134*	*12/06/24 13:28*	*12/09/24 15:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		60		mg/Kg		12/09/24 07:43	12/09/24 13:31	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-27 3.5'

Date Collected: 12/03/24 10:45
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-10

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 15:00	12/10/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*35 - 166*	*12/05/24 15:00*	*12/10/24 01:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/10/24 01:59	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 01:59	1
Toluene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 01:59	1
Xylenes, Total	ND		0.099		mg/Kg		12/05/24 15:00	12/10/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/05/24 15:00*	*12/10/24 01:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:28	12/09/24 15:15	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/06/24 13:28	12/09/24 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*12/06/24 13:28*	*12/09/24 15:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		12/09/24 07:43	12/09/24 13:42	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-28 3.5'
Lab Sample ID: 885-16356-11
Date Collected: 12/03/24 10:50
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 15:00	12/10/24 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/05/24 15:00*	*12/10/24 03:03*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 15:00	12/10/24 03:03	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 03:03	1
Toluene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 03:03	1
Xylenes, Total	ND		0.095		mg/Kg		12/05/24 15:00	12/10/24 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/05/24 15:00*	*12/10/24 03:03*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:28	12/10/24 16:38	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/06/24 13:28	12/10/24 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*71*		*62 - 134*	*12/06/24 13:28*	*12/10/24 16:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**		60		mg/Kg		12/09/24 12:52	12/09/24 15:12	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-29 3.5'

Date Collected: 12/03/24 10:55
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/05/24 15:00	12/10/24 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*35 - 166*	*12/05/24 15:00*	*12/10/24 03:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/10/24 03:25	1
Ethylbenzene	ND		0.049		mg/Kg		12/05/24 15:00	12/10/24 03:25	1
Toluene	ND		0.049		mg/Kg		12/05/24 15:00	12/10/24 03:25	1
Xylenes, Total	ND		0.099		mg/Kg		12/05/24 15:00	12/10/24 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/05/24 15:00*	*12/10/24 03:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/06/24 13:28	12/09/24 15:37	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/06/24 13:28	12/09/24 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*79*		*62 - 134*	*12/06/24 13:28*	*12/09/24 15:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**190**		60		mg/Kg		12/09/24 12:52	12/09/24 16:04	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-30 3.5'
Lab Sample ID: 885-16356-13
Date Collected: 12/03/24 11:00
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 15:00	12/10/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/05/24 15:00*	*12/10/24 03:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 15:00	12/10/24 03:47	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 03:47	1
Toluene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 03:47	1
Xylenes, Total	ND		0.096		mg/Kg		12/05/24 15:00	12/10/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/05/24 15:00*	*12/10/24 03:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:28	12/09/24 15:58	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:28	12/09/24 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*12/06/24 13:28*	*12/09/24 15:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**74**		60		mg/Kg		12/09/24 12:52	12/09/24 16:35	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-31 3.5'
Lab Sample ID: 885-16356-14

Date Collected: 12/03/24 13:00
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/05/24 15:00	12/10/24 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/05/24 15:00*	*12/10/24 04:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/05/24 15:00	12/10/24 04:08	1
Ethylbenzene	ND		0.046		mg/Kg		12/05/24 15:00	12/10/24 04:08	1
Toluene	ND		0.046		mg/Kg		12/05/24 15:00	12/10/24 04:08	1
Xylenes, Total	ND		0.093		mg/Kg		12/05/24 15:00	12/10/24 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*12/05/24 15:00*	*12/10/24 04:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/06/24 13:28	12/09/24 16:30	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/06/24 13:28	12/09/24 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*72*		*62 - 134*	*12/06/24 13:28*	*12/09/24 16:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**		60		mg/Kg		12/09/24 12:52	12/09/24 16:45	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-32 3.5'
Lab Sample ID: 885-16356-15
Date Collected: 12/03/24 13:05
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/05/24 15:00	12/10/24 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/05/24 15:00*	*12/10/24 04:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 15:00	12/10/24 04:29	1
Ethylbenzene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 04:29	1
Toluene	ND		0.048		mg/Kg		12/05/24 15:00	12/10/24 04:29	1
Xylenes, Total	ND		0.096		mg/Kg		12/05/24 15:00	12/10/24 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/05/24 15:00*	*12/10/24 04:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/06/24 13:46	12/09/24 17:03	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/06/24 13:46	12/09/24 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*79*		*62 - 134*	*12/06/24 13:46*	*12/09/24 17:03*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**200**		59		mg/Kg		12/09/24 12:52	12/09/24 16:56	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-33 3.5'
Lab Sample ID: 885-16356-16
Date Collected: 12/03/24 13:10
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/05/24 15:00	12/11/24 04:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/05/24 15:00*	*12/11/24 04:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/11/24 04:55	1
Ethylbenzene	ND		0.049		mg/Kg		12/05/24 15:00	12/11/24 04:55	1
Toluene	ND		0.049		mg/Kg		12/05/24 15:00	12/11/24 04:55	1
Xylenes, Total	ND		0.098		mg/Kg		12/05/24 15:00	12/11/24 04:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*12/05/24 15:00*	*12/11/24 04:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/06/24 13:46	12/09/24 17:34	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/06/24 13:46	12/09/24 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*75*		*62 - 134*	*12/06/24 13:46*	*12/09/24 17:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		60		mg/Kg		12/09/24 12:52	12/09/24 17:06	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Client Sample ID: BS24-34 3.5'

Date Collected: 12/03/24 13:15
Date Received: 12/05/24 08:20

Lab Sample ID: 885-16356-17

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 15:00	12/11/24 05:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*35 - 166*	*12/05/24 15:00*	*12/11/24 05:16*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/11/24 05:16	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 15:00	12/11/24 05:16	1
Toluene	ND		0.050		mg/Kg		12/05/24 15:00	12/11/24 05:16	1
Xylenes, Total	ND		0.10		mg/Kg		12/05/24 15:00	12/11/24 05:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/05/24 15:00*	*12/11/24 05:16*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:46	12/09/24 17:56	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:46	12/09/24 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*68*		*62 - 134*	*12/06/24 13:46*	*12/09/24 17:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**77**		59		mg/Kg		12/09/24 12:52	12/09/24 17:16	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-35 3.5'
Lab Sample ID: 885-16356-18
Date Collected: 12/03/24 13:20
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/05/24 15:00	12/11/24 05:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*35 - 166*	*12/05/24 15:00*	*12/11/24 05:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/05/24 15:00	12/11/24 05:38	1
Ethylbenzene	ND		0.047		mg/Kg		12/05/24 15:00	12/11/24 05:38	1
Toluene	ND		0.047		mg/Kg		12/05/24 15:00	12/11/24 05:38	1
Xylenes, Total	ND		0.093		mg/Kg		12/05/24 15:00	12/11/24 05:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/05/24 15:00*	*12/11/24 05:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/06/24 13:46	12/09/24 18:06	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/06/24 13:46	12/09/24 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*72*		*62 - 134*	*12/06/24 13:46*	*12/09/24 18:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**200**		59		mg/Kg		12/09/24 12:52	12/09/24 17:47	20

Client Sample Results

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-36 3.5'
Lab Sample ID: 885-16356-19

Date Collected: 12/03/24 13:25
Matrix: Solid
Date Received: 12/05/24 08:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/05/24 15:00	12/11/24 05:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*35 - 166*	*12/05/24 15:00*	*12/11/24 05:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/05/24 15:00	12/11/24 05:59	1
Ethylbenzene	ND		0.047		mg/Kg		12/05/24 15:00	12/11/24 05:59	1
Toluene	ND		0.047		mg/Kg		12/05/24 15:00	12/11/24 05:59	1
Xylenes, Total	ND		0.094		mg/Kg		12/05/24 15:00	12/11/24 05:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/05/24 15:00*	*12/11/24 05:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/06/24 13:46	12/10/24 16:49	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/06/24 13:46	12/10/24 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*67*		*62 - 134*	*12/06/24 13:46*	*12/10/24 16:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**190**		61		mg/Kg		12/09/24 12:52	12/09/24 17:58	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-17098/1-A
Matrix: Solid
Analysis Batch: 17251

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 11:26	12/06/24 17:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/05/24 11:26*	*12/06/24 17:45*	*1*

Lab Sample ID: LCS 885-17098/2-A
Matrix: Solid
Analysis Batch: 17251

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	19.9		mg/Kg		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*170*		*35 - 166*

Lab Sample ID: MB 885-17134/1-A
Matrix: Solid
Analysis Batch: 17437

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17134

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/05/24 15:00	12/10/24 00:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/05/24 15:00*	*12/10/24 00:33*	*1*

Lab Sample ID: LCS 885-17134/2-A
Matrix: Solid
Analysis Batch: 17437

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17134

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	20.0		mg/Kg		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*184*		*35 - 166*

Lab Sample ID: 885-16356-9 MS
Matrix: Solid
Analysis Batch: 17437

Client Sample ID: BS24-26 3.5'
Prep Type: Total/NA
Prep Batch: 17134

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		25.0	21.7		mg/Kg		87	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*185*		*35 - 166*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-16356-9 MSD
Matrix: Solid
Analysis Batch: 17437

Client Sample ID: BS24-26 3.5'
Prep Type: Total/NA
Prep Batch: 17134

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.9	19.2		mg/Kg		77	70 - 130	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*185*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-17098/1-A
Matrix: Solid
Analysis Batch: 17252

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 11:26	12/06/24 17:45	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 11:26	12/06/24 17:45	1
Toluene	ND		0.050		mg/Kg		12/05/24 11:26	12/06/24 17:45	1
Xylenes, Total	ND		0.10		mg/Kg		12/05/24 11:26	12/06/24 17:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/05/24 11:26*	*12/06/24 17:45*	*1*

Lab Sample ID: LCS 885-17098/3-A
Matrix: Solid
Analysis Batch: 17252

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.968		mg/Kg		97	70 - 130		
Ethylbenzene			1.00	0.990		mg/Kg		99	70 - 130		
m,p-Xylene			2.00	1.96		mg/Kg		98	70 - 130		
o-Xylene			1.00	0.982		mg/Kg		98	70 - 130		
Toluene			1.00	0.974		mg/Kg		97	70 - 130		
Xylenes, Total			3.00	2.94		mg/Kg		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*

Lab Sample ID: MB 885-17134/1-A
Matrix: Solid
Analysis Batch: 17438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17134

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/05/24 15:00	12/10/24 00:33	1
Ethylbenzene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 00:33	1
Toluene	ND		0.050		mg/Kg		12/05/24 15:00	12/10/24 00:33	1
Xylenes, Total	ND		0.10		mg/Kg		12/05/24 15:00	12/10/24 00:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/05/24 15:00*	*12/10/24 00:33*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: LCS 885-17134/3-A
Matrix: Solid
Analysis Batch: 17438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17134

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.961		mg/Kg		96	70 - 130		
Ethylbenzene			1.00	0.957		mg/Kg		96	70 - 130		
m,p-Xylene			2.00	1.89		mg/Kg		94	70 - 130		
o-Xylene			1.00	0.952		mg/Kg		95	70 - 130		
Toluene			1.00	0.957		mg/Kg		96	70 - 130		
Xylenes, Total			3.00	2.84		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-16356-10 MS
Matrix: Solid
Analysis Batch: 17438

Client Sample ID: BS24-27 3.5'
Prep Type: Total/NA
Prep Batch: 17134

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		1.00	0.992		mg/Kg		99	70 - 130		
Ethylbenzene	ND		1.00	1.01		mg/Kg		101	70 - 130		
m,p-Xylene	ND		2.00	1.98		mg/Kg		99	70 - 130		
o-Xylene	ND		1.00	1.01		mg/Kg		101	70 - 130		
Toluene	ND		1.00	1.01		mg/Kg		101	70 - 130		
Xylenes, Total	ND		3.00	3.00		mg/Kg		100	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*

Lab Sample ID: 885-16356-10 MSD
Matrix: Solid
Analysis Batch: 17438

Client Sample ID: BS24-27 3.5'
Prep Type: Total/NA
Prep Batch: 17134

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.994	0.980		mg/Kg		99	70 - 130	1	20
Ethylbenzene	ND		0.994	0.986		mg/Kg		99	70 - 130	3	20
m,p-Xylene	ND		1.99	1.95		mg/Kg		98	70 - 130	2	20
o-Xylene	ND		0.994	0.979		mg/Kg		98	70 - 130	3	20
Toluene	ND		0.994	0.990		mg/Kg		100	70 - 130	2	20
Xylenes, Total	ND		2.98	2.93		mg/Kg		98	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-17206/1-A
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17206

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:28	12/09/24 12:01	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-17206/1-A
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17206

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:28	12/09/24 12:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*12/06/24 13:28*	*12/09/24 12:01*	*1*

Lab Sample ID: LCS 885-17206/2-A
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17206

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	56.4		mg/Kg		113	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*138*	*S1+*	*62 - 134*

Lab Sample ID: 885-16356-13 MS
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: BS24-30 3.5'
Prep Type: Total/NA
Prep Batch: 17206

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		48.0	34.7		mg/Kg		72	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*77*		*62 - 134*

Lab Sample ID: 885-16356-13 MSD
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: BS24-30 3.5'
Prep Type: Total/NA
Prep Batch: 17206

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		47.7	36.7		mg/Kg		77	44 - 136	6	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*

Lab Sample ID: MB 885-17207/1-A
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17207

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/06/24 13:46	12/09/24 16:41	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/06/24 13:46	12/09/24 16:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/06/24 13:46*	*12/09/24 16:41*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: LCS 885-17207/2-A
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17207

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	54.7		mg/Kg		109	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*

Lab Sample ID: 885-16356-15 MS
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: BS24-32 3.5'
Prep Type: Total/NA
Prep Batch: 17207

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		48.4	37.5		mg/Kg		77	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*84*		*62 - 134*

Lab Sample ID: 885-16356-15 MSD
Matrix: Solid
Analysis Batch: 17280

Client Sample ID: BS24-32 3.5'
Prep Type: Total/NA
Prep Batch: 17207

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		47.1	36.9		mg/Kg		78	44 - 136	1	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-17129/1-A
Matrix: Solid
Analysis Batch: 17068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17129

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/05/24 14:25	12/05/24 16:16	1

Lab Sample ID: LCS 885-17129/2-A
Matrix: Solid
Analysis Batch: 17068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17129

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.4		mg/Kg		95	90 - 110		

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 885-17257/1-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17257

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/09/24 07:43	12/09/24 08:42	1

Lab Sample ID: LCS 885-17257/2-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17257

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	30.2		mg/Kg		101	90 - 110		

Lab Sample ID: MB 885-17298/1-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17298

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/09/24 12:52	12/09/24 13:52	1

Lab Sample ID: LCS 885-17298/2-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17298

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.7		mg/Kg		99	90 - 110		

Lab Sample ID: 885-16356-11 MS
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-28 3.5'
Prep Type: Total/NA
Prep Batch: 17298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	220		30.2	244	4	mg/Kg		91	50 - 150		

Lab Sample ID: 885-16356-11 MSD
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-28 3.5'
Prep Type: Total/NA
Prep Batch: 17298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	220		29.8	242	4	mg/Kg		86	50 - 150	1	20

Lab Sample ID: 885-16356-12 MS
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-29 3.5'
Prep Type: Total/NA
Prep Batch: 17298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	190		29.9	220	4	mg/Kg		109	50 - 150		

Lab Sample ID: 885-16356-12 MSD
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-29 3.5'
Prep Type: Total/NA
Prep Batch: 17298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	190		30.1	220	4	mg/Kg		108	50 - 150	0	20

QC Association Summary

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

GC VOA

Prep Batch: 17098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	5030C	
885-16356-2	BS24-19 3.5'	Total/NA	Solid	5030C	
885-16356-3	BS24-20 3.5'	Total/NA	Solid	5030C	
885-16356-4	BS24-21 3.5'	Total/NA	Solid	5030C	
885-16356-5	BS24-22 3.5'	Total/NA	Solid	5030C	
885-16356-6	BS24-23 3.5'	Total/NA	Solid	5030C	
885-16356-7	BS24-24 3.5'	Total/NA	Solid	5030C	
885-16356-8	BS24-25 3.5'	Total/NA	Solid	5030C	
MB 885-17098/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17098/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17098/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 17134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-9	BS24-26 3.5'	Total/NA	Solid	5030C	
885-16356-10	BS24-27 3.5'	Total/NA	Solid	5030C	
885-16356-11	BS24-28 3.5'	Total/NA	Solid	5030C	
885-16356-12	BS24-29 3.5'	Total/NA	Solid	5030C	
885-16356-13	BS24-30 3.5'	Total/NA	Solid	5030C	
885-16356-14	BS24-31 3.5'	Total/NA	Solid	5030C	
885-16356-15	BS24-32 3.5'	Total/NA	Solid	5030C	
885-16356-16	BS24-33 3.5'	Total/NA	Solid	5030C	
885-16356-17	BS24-34 3.5'	Total/NA	Solid	5030C	
885-16356-18	BS24-35 3.5'	Total/NA	Solid	5030C	
885-16356-19	BS24-36 3.5'	Total/NA	Solid	5030C	
MB 885-17134/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17134/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17134/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16356-9 MS	BS24-26 3.5'	Total/NA	Solid	5030C	
885-16356-9 MSD	BS24-26 3.5'	Total/NA	Solid	5030C	
885-16356-10 MS	BS24-27 3.5'	Total/NA	Solid	5030C	
885-16356-10 MSD	BS24-27 3.5'	Total/NA	Solid	5030C	

Analysis Batch: 17251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-2	BS24-19 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-3	BS24-20 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-4	BS24-21 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-5	BS24-22 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-6	BS24-23 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-7	BS24-24 3.5'	Total/NA	Solid	8015M/D	17098
885-16356-8	BS24-25 3.5'	Total/NA	Solid	8015M/D	17098
MB 885-17098/1-A	Method Blank	Total/NA	Solid	8015M/D	17098
LCS 885-17098/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17098

Analysis Batch: 17252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	8021B	17098
885-16356-2	BS24-19 3.5'	Total/NA	Solid	8021B	17098
885-16356-3	BS24-20 3.5'	Total/NA	Solid	8021B	17098

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

GC VOA (Continued)

Analysis Batch: 17252 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-4	BS24-21 3.5'	Total/NA	Solid	8021B	17098
885-16356-5	BS24-22 3.5'	Total/NA	Solid	8021B	17098
885-16356-6	BS24-23 3.5'	Total/NA	Solid	8021B	17098
885-16356-7	BS24-24 3.5'	Total/NA	Solid	8021B	17098
885-16356-8	BS24-25 3.5'	Total/NA	Solid	8021B	17098
MB 885-17098/1-A	Method Blank	Total/NA	Solid	8021B	17098
LCS 885-17098/3-A	Lab Control Sample	Total/NA	Solid	8021B	17098

Analysis Batch: 17437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-9	BS24-26 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-10	BS24-27 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-11	BS24-28 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-12	BS24-29 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-13	BS24-30 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-14	BS24-31 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-15	BS24-32 3.5'	Total/NA	Solid	8015M/D	17134
MB 885-17134/1-A	Method Blank	Total/NA	Solid	8015M/D	17134
LCS 885-17134/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17134
885-16356-9 MS	BS24-26 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-9 MSD	BS24-26 3.5'	Total/NA	Solid	8015M/D	17134

Analysis Batch: 17438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-9	BS24-26 3.5'	Total/NA	Solid	8021B	17134
885-16356-10	BS24-27 3.5'	Total/NA	Solid	8021B	17134
885-16356-11	BS24-28 3.5'	Total/NA	Solid	8021B	17134
885-16356-12	BS24-29 3.5'	Total/NA	Solid	8021B	17134
885-16356-13	BS24-30 3.5'	Total/NA	Solid	8021B	17134
885-16356-14	BS24-31 3.5'	Total/NA	Solid	8021B	17134
885-16356-15	BS24-32 3.5'	Total/NA	Solid	8021B	17134
MB 885-17134/1-A	Method Blank	Total/NA	Solid	8021B	17134
LCS 885-17134/3-A	Lab Control Sample	Total/NA	Solid	8021B	17134
885-16356-10 MS	BS24-27 3.5'	Total/NA	Solid	8021B	17134
885-16356-10 MSD	BS24-27 3.5'	Total/NA	Solid	8021B	17134

Analysis Batch: 17474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-16	BS24-33 3.5'	Total/NA	Solid	8021B	17134
885-16356-17	BS24-34 3.5'	Total/NA	Solid	8021B	17134
885-16356-18	BS24-35 3.5'	Total/NA	Solid	8021B	17134
885-16356-19	BS24-36 3.5'	Total/NA	Solid	8021B	17134

Analysis Batch: 17475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-16	BS24-33 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-17	BS24-34 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-18	BS24-35 3.5'	Total/NA	Solid	8015M/D	17134
885-16356-19	BS24-36 3.5'	Total/NA	Solid	8015M/D	17134

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal 002E

Job ID: 885-16356-1

GC Semi VOA

Prep Batch: 17206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	SHAKE	
885-16356-2	BS24-19 3.5'	Total/NA	Solid	SHAKE	
885-16356-3	BS24-20 3.5'	Total/NA	Solid	SHAKE	
885-16356-4	BS24-21 3.5'	Total/NA	Solid	SHAKE	
885-16356-5	BS24-22 3.5'	Total/NA	Solid	SHAKE	
885-16356-6	BS24-23 3.5'	Total/NA	Solid	SHAKE	
885-16356-7	BS24-24 3.5'	Total/NA	Solid	SHAKE	
885-16356-8	BS24-25 3.5'	Total/NA	Solid	SHAKE	
885-16356-9	BS24-26 3.5'	Total/NA	Solid	SHAKE	
885-16356-10	BS24-27 3.5'	Total/NA	Solid	SHAKE	
885-16356-11	BS24-28 3.5'	Total/NA	Solid	SHAKE	
885-16356-12	BS24-29 3.5'	Total/NA	Solid	SHAKE	
885-16356-13	BS24-30 3.5'	Total/NA	Solid	SHAKE	
885-16356-14	BS24-31 3.5'	Total/NA	Solid	SHAKE	
MB 885-17206/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17206/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16356-13 MS	BS24-30 3.5'	Total/NA	Solid	SHAKE	
885-16356-13 MSD	BS24-30 3.5'	Total/NA	Solid	SHAKE	

Prep Batch: 17207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-15	BS24-32 3.5'	Total/NA	Solid	SHAKE	
885-16356-16	BS24-33 3.5'	Total/NA	Solid	SHAKE	
885-16356-17	BS24-34 3.5'	Total/NA	Solid	SHAKE	
885-16356-18	BS24-35 3.5'	Total/NA	Solid	SHAKE	
885-16356-19	BS24-36 3.5'	Total/NA	Solid	SHAKE	
MB 885-17207/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17207/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16356-15 MS	BS24-32 3.5'	Total/NA	Solid	SHAKE	
885-16356-15 MSD	BS24-32 3.5'	Total/NA	Solid	SHAKE	

Analysis Batch: 17280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-2	BS24-19 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-3	BS24-20 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-4	BS24-21 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-5	BS24-22 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-6	BS24-23 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-7	BS24-24 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-9	BS24-26 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-10	BS24-27 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-12	BS24-29 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-13	BS24-30 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-14	BS24-31 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-15	BS24-32 3.5'	Total/NA	Solid	8015M/D	17207
885-16356-16	BS24-33 3.5'	Total/NA	Solid	8015M/D	17207
885-16356-17	BS24-34 3.5'	Total/NA	Solid	8015M/D	17207
885-16356-18	BS24-35 3.5'	Total/NA	Solid	8015M/D	17207
MB 885-17206/1-A	Method Blank	Total/NA	Solid	8015M/D	17206
MB 885-17207/1-A	Method Blank	Total/NA	Solid	8015M/D	17207

QC Association Summary

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

GC Semi VOA (Continued)

Analysis Batch: 17280 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-17206/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17206
LCS 885-17207/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17207
885-16356-13 MS	BS24-30 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-13 MSD	BS24-30 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-15 MS	BS24-32 3.5'	Total/NA	Solid	8015M/D	17207
885-16356-15 MSD	BS24-32 3.5'	Total/NA	Solid	8015M/D	17207

Analysis Batch: 17386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-8	BS24-25 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-11	BS24-28 3.5'	Total/NA	Solid	8015M/D	17206
885-16356-19	BS24-36 3.5'	Total/NA	Solid	8015M/D	17207

HPLC/IC

Analysis Batch: 17068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	300.0	17129
885-16356-2	BS24-19 3.5'	Total/NA	Solid	300.0	17129
885-16356-3	BS24-20 3.5'	Total/NA	Solid	300.0	17129
885-16356-4	BS24-21 3.5'	Total/NA	Solid	300.0	17129
885-16356-5	BS24-22 3.5'	Total/NA	Solid	300.0	17129
885-16356-6	BS24-23 3.5'	Total/NA	Solid	300.0	17129
885-16356-7	BS24-24 3.5'	Total/NA	Solid	300.0	17129
885-16356-8	BS24-25 3.5'	Total/NA	Solid	300.0	17129
MB 885-17129/1-A	Method Blank	Total/NA	Solid	300.0	17129
LCS 885-17129/2-A	Lab Control Sample	Total/NA	Solid	300.0	17129

Prep Batch: 17129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-1	BS24-18 3.5'	Total/NA	Solid	300_Prep	
885-16356-2	BS24-19 3.5'	Total/NA	Solid	300_Prep	
885-16356-3	BS24-20 3.5'	Total/NA	Solid	300_Prep	
885-16356-4	BS24-21 3.5'	Total/NA	Solid	300_Prep	
885-16356-5	BS24-22 3.5'	Total/NA	Solid	300_Prep	
885-16356-6	BS24-23 3.5'	Total/NA	Solid	300_Prep	
885-16356-7	BS24-24 3.5'	Total/NA	Solid	300_Prep	
885-16356-8	BS24-25 3.5'	Total/NA	Solid	300_Prep	
MB 885-17129/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17129/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 17257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-9	BS24-26 3.5'	Total/NA	Solid	300_Prep	
885-16356-10	BS24-27 3.5'	Total/NA	Solid	300_Prep	
MB 885-17257/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17257/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 17260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-9	BS24-26 3.5'	Total/NA	Solid	300.0	17257

QC Association Summary

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

HPLC/IC (Continued)

Analysis Batch: 17260 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-10	BS24-27 3.5'	Total/NA	Solid	300.0	17257
885-16356-11	BS24-28 3.5'	Total/NA	Solid	300.0	17298
885-16356-12	BS24-29 3.5'	Total/NA	Solid	300.0	17298
885-16356-13	BS24-30 3.5'	Total/NA	Solid	300.0	17298
885-16356-14	BS24-31 3.5'	Total/NA	Solid	300.0	17298
885-16356-15	BS24-32 3.5'	Total/NA	Solid	300.0	17298
885-16356-16	BS24-33 3.5'	Total/NA	Solid	300.0	17298
885-16356-17	BS24-34 3.5'	Total/NA	Solid	300.0	17298
885-16356-18	BS24-35 3.5'	Total/NA	Solid	300.0	17298
885-16356-19	BS24-36 3.5'	Total/NA	Solid	300.0	17298
MB 885-17257/1-A	Method Blank	Total/NA	Solid	300.0	17257
MB 885-17298/1-A	Method Blank	Total/NA	Solid	300.0	17298
LCS 885-17257/2-A	Lab Control Sample	Total/NA	Solid	300.0	17257
LCS 885-17298/2-A	Lab Control Sample	Total/NA	Solid	300.0	17298
885-16356-11 MS	BS24-28 3.5'	Total/NA	Solid	300.0	17298
885-16356-11 MSD	BS24-28 3.5'	Total/NA	Solid	300.0	17298
885-16356-12 MS	BS24-29 3.5'	Total/NA	Solid	300.0	17298
885-16356-12 MSD	BS24-29 3.5'	Total/NA	Solid	300.0	17298

Prep Batch: 17298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16356-11	BS24-28 3.5'	Total/NA	Solid	300_Prep	
885-16356-12	BS24-29 3.5'	Total/NA	Solid	300_Prep	
885-16356-13	BS24-30 3.5'	Total/NA	Solid	300_Prep	
885-16356-14	BS24-31 3.5'	Total/NA	Solid	300_Prep	
885-16356-15	BS24-32 3.5'	Total/NA	Solid	300_Prep	
885-16356-16	BS24-33 3.5'	Total/NA	Solid	300_Prep	
885-16356-17	BS24-34 3.5'	Total/NA	Solid	300_Prep	
885-16356-18	BS24-35 3.5'	Total/NA	Solid	300_Prep	
885-16356-19	BS24-36 3.5'	Total/NA	Solid	300_Prep	
MB 885-17298/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17298/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-16356-11 MS	BS24-28 3.5'	Total/NA	Solid	300_Prep	
885-16356-11 MSD	BS24-28 3.5'	Total/NA	Solid	300_Prep	
885-16356-12 MS	BS24-29 3.5'	Total/NA	Solid	300_Prep	
885-16356-12 MSD	BS24-29 3.5'	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-18 3.5'
Lab Sample ID: 885-16356-1
Date Collected: 12/03/24 08:30
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 00:16
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 00:16
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 13:26
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 18:34

Client Sample ID: BS24-19 3.5'
Lab Sample ID: 885-16356-2
Date Collected: 12/03/24 08:35
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 00:38
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 00:38
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 13:37
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 18:44

Client Sample ID: BS24-20 3.5'
Lab Sample ID: 885-16356-3
Date Collected: 12/03/24 08:40
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 00:59
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 00:59
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 13:59
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 18:54

Client Sample ID: BS24-21 3.5'
Lab Sample ID: 885-16356-4
Date Collected: 12/03/24 08:45
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 01:21

Lab Chronicle

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-21 3.5'
Lab Sample ID: 885-16356-4
Date Collected: 12/03/24 08:45
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 01:21
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 14:09
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 19:04

Client Sample ID: BS24-22 3.5'
Lab Sample ID: 885-16356-5
Date Collected: 12/03/24 08:50
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 01:42
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 01:42
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 14:20
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 19:13

Client Sample ID: BS24-23 3.5'
Lab Sample ID: 885-16356-6
Date Collected: 12/03/24 08:55
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 02:04
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 02:04
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 14:31
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 19:23

Client Sample ID: BS24-24 3.5'
Lab Sample ID: 885-16356-7
Date Collected: 12/03/24 10:30
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 02:25
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 02:25

Lab Chronicle

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-24 3.5'
Lab Sample ID: 885-16356-7
Date Collected: 12/03/24 10:30
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 14:42
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 19:33

Client Sample ID: BS24-25 3.5'
Lab Sample ID: 885-16356-8
Date Collected: 12/03/24 10:35
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8015M/D		1	17251	AT	EET ALB	12/07/24 02:47
Total/NA	Prep	5030C			17098	AT	EET ALB	12/05/24 12:59
Total/NA	Analysis	8021B		1	17252	AT	EET ALB	12/07/24 02:47
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17386	MI	EET ALB	12/10/24 16:27
Total/NA	Prep	300_Prep			17129	EH	EET ALB	12/05/24 14:25
Total/NA	Analysis	300.0		20	17068	ES	EET ALB	12/05/24 19:43

Client Sample ID: BS24-26 3.5'
Lab Sample ID: 885-16356-9
Date Collected: 12/03/24 10:40
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 00:55
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 00:55
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 15:04
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 13:31

Client Sample ID: BS24-27 3.5'
Lab Sample ID: 885-16356-10
Date Collected: 12/03/24 10:45
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 01:59
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 01:59
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 15:15

Lab Chronicle

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-27 3.5'
Lab Sample ID: 885-16356-10
Date Collected: 12/03/24 10:45
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 13:42

Client Sample ID: BS24-28 3.5'
Lab Sample ID: 885-16356-11
Date Collected: 12/03/24 10:50
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 03:03
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 03:03
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17386	MI	EET ALB	12/10/24 16:38
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 15:12

Client Sample ID: BS24-29 3.5'
Lab Sample ID: 885-16356-12
Date Collected: 12/03/24 10:55
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 03:25
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 03:25
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 15:37
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 16:04

Client Sample ID: BS24-30 3.5'
Lab Sample ID: 885-16356-13
Date Collected: 12/03/24 11:00
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 03:47
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 03:47
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 15:58
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 16:35

Lab Chronicle

Client: Vertex
Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-31 3.5'
Lab Sample ID: 885-16356-14
Date Collected: 12/03/24 13:00
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 04:08
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 04:08
Total/NA	Prep	SHAKE			17206	MI	EET ALB	12/06/24 13:28
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 16:30
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 16:45

Client Sample ID: BS24-32 3.5'
Lab Sample ID: 885-16356-15
Date Collected: 12/03/24 13:05
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17437	AT	EET ALB	12/10/24 04:29
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17438	AT	EET ALB	12/10/24 04:29
Total/NA	Prep	SHAKE			17207	MI	EET ALB	12/06/24 13:46
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 17:03
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 16:56

Client Sample ID: BS24-33 3.5'
Lab Sample ID: 885-16356-16
Date Collected: 12/03/24 13:10
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17475	AT	EET ALB	12/11/24 04:55
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17474	AT	EET ALB	12/11/24 04:55
Total/NA	Prep	SHAKE			17207	MI	EET ALB	12/06/24 13:46
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 17:34
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 17:06

Client Sample ID: BS24-34 3.5'
Lab Sample ID: 885-16356-17
Date Collected: 12/03/24 13:15
Matrix: Solid
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17475	AT	EET ALB	12/11/24 05:16

Lab Chronicle

Client: Vertex Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Client Sample ID: BS24-34 3.5' Lab Sample ID: 885-16356-17

Date Collected: 12/03/24 13:15 **Matrix: Solid**
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17474	AT	EET ALB	12/11/24 05:16
Total/NA	Prep	SHAKE			17207	MI	EET ALB	12/06/24 13:46
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 17:56
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 17:16

Client Sample ID: BS24-35 3.5' Lab Sample ID: 885-16356-18

Date Collected: 12/03/24 13:20 **Matrix: Solid**
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17475	AT	EET ALB	12/11/24 05:38
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17474	AT	EET ALB	12/11/24 05:38
Total/NA	Prep	SHAKE			17207	MI	EET ALB	12/06/24 13:46
Total/NA	Analysis	8015M/D		1	17280	MI	EET ALB	12/09/24 18:06
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 17:47

Client Sample ID: BS24-36 3.5' Lab Sample ID: 885-16356-19

Date Collected: 12/03/24 13:25 **Matrix: Solid**
Date Received: 12/05/24 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8015M/D		1	17475	AT	EET ALB	12/11/24 05:59
Total/NA	Prep	5030C			17134	AT	EET ALB	12/05/24 15:00
Total/NA	Analysis	8021B		1	17474	AT	EET ALB	12/11/24 05:59
Total/NA	Prep	SHAKE			17207	MI	EET ALB	12/06/24 13:46
Total/NA	Analysis	8015M/D		1	17386	MI	EET ALB	12/10/24 16:49
Total/NA	Prep	300_Prep			17298	JT	EET ALB	12/09/24 12:52
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 17:58

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-16356-1
Project/Site: Calgary Federal 002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (Bill to Mack Energy, Matt Buckles)

Mailing Address: Vertex Resource Services Inc
3101 Boyd Dr., Carlsbad, NM 88220

Phone #: On file

email or Fax#: ↓

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☐ Yes ☐ No

# of Coolers: 1 409

Cooler Temp (Including CF): 0.3+0.3=0.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABO
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8 885-16356 COC
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
~~12.02.24~~	~~1415~~	~~Soil~~	~~BS24-13 3.5'~~	~~4oz~~	ICE											
	~~1420~~		~~BS24-14 3.5'~~	~~"~~												
	~~1425~~		~~BS24-15 3.5'~~	~~"~~												
	~~1430~~		~~BS24-16 3.5'~~	~~"~~												
↓	~~1445~~	↓	~~BS24-17 3.5'~~	~~"~~												
12.03.24	0830		BS24-18 3.5'													
	0835		BS24-19 3.5'													
	0840		BS24-20 3.5'													
	0845		BS24-21 3.5'													
	0850		BS24-22 3.5'													
	0855		BS24-23 3.5'													
↓	1030	↓	BS24-24 3.5'	↓	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

Date	Time	Relinquished by	Received by	Via	Date	Time
12/4/24	1015				12/4/24	
12/4/24	1910			courier	12/5/24	8:20

Remarks: Direct Bill to Mack Energy ATTN: Matt Buckles
cc: Scarttar@vertexresource.com
ALudvik@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex

(Bill to Mack Energy, Matt Buckles)

Mailing Address: Vertex Resource Services Inc

3101 Boyd Dr. Carlsbad, NM 88220

Phone #: On File

email or Fax#: ↓

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 1 4oz

Cooler Temp(including CF): 0.3+0.3=0.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
12.03.24	1035	Soil	BS24-25 3.5'	4oz	ICE	
	1040		BS24-26 3.5'			
	1045		BS24-27 3.5'			
	1050		BS24-28 3.5'			
	1055		BS24-29 3.5'			
	1100		BS24-30 3.5'			
	1300		BS24-31 3.5'			
	1305		BS24-32 3.5'			
	1310		BS24-33 3.5'			
	1315		BS24-34 3.5'			
	1320		BS24-35 3.5'			
↓	1325	↓	BS24-36 3.5'			

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
12/4/24	1015				12/4/24	1015
12/4/24	1900			courier	12/5/24	8:20

Remarks: Direct bill to Mack Energy ATTN: Matt Buckles

cc: Scarttar@vertexresource.com

ALudvik@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-16356-1

Login Number: 16356 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Rojas, Juan

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/13/2024 1:58:53 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-16437-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

my EOL

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/13/2024 1:58:53 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-16437-1

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Definitions/Glossary

Client: Vertex Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Calgary Federal #002E

Job ID: 885-16437-1

Job ID: 885-16437-1 Eurofins Albuquerque

Job Narrative
885-16437-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/6/2024 8:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.2°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-37 3.5'

Date Collected: 12/04/24 08:45
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/12/24 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 12:42*	*12/12/24 00:46*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 00:46	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 00:46	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 00:46	1
Xylenes, Total	ND		0.092		mg/Kg		12/06/24 12:42	12/12/24 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 12:42*	*12/12/24 00:46*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/10/24 12:33	12/10/24 17:34	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/10/24 12:33	12/10/24 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*12/10/24 12:33*	*12/10/24 17:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		60		mg/Kg		12/09/24 08:13	12/09/24 10:48	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-38 3.5'
Lab Sample ID: 885-16437-2
Date Collected: 12/04/24 08:50
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/12/24 01:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/06/24 12:42*	*12/12/24 01:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 01:08	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:08	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:08	1
Xylenes, Total	ND		0.098		mg/Kg		12/06/24 12:42	12/12/24 01:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*12/06/24 12:42*	*12/12/24 01:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/10/24 12:33	12/10/24 17:46	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/10/24 12:33	12/10/24 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*12/10/24 12:33*	*12/10/24 17:46*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		12/09/24 08:13	12/09/24 11:17	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-39 3.5'

Date Collected: 12/04/24 08:55
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/12/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/06/24 12:42*	*12/12/24 01:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 12:42	12/12/24 01:29	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:29	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:29	1
Xylenes, Total	ND		0.099		mg/Kg		12/06/24 12:42	12/12/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/06/24 12:42*	*12/12/24 01:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/10/24 12:33	12/10/24 17:57	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/10/24 12:33*	*12/10/24 17:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/09/24 08:13	12/09/24 11:47	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-40 3.5

Date Collected: 12/04/24 09:00
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/12/24 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 12:42*	*12/12/24 01:51*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 01:51	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:51	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 01:51	1
Xylenes, Total	ND		0.097		mg/Kg		12/06/24 12:42	12/12/24 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/06/24 12:42*	*12/12/24 01:51*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/10/24 12:33	12/10/24 18:09	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*12/10/24 12:33*	*12/10/24 18:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		59		mg/Kg		12/09/24 08:13	12/09/24 11:56	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-41 3.5'
Lab Sample ID: 885-16437-5
Date Collected: 12/04/24 09:05
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/12/24 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/06/24 12:42*	*12/12/24 02:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 02:12	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 02:12	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 02:12	1
Xylenes, Total	ND		0.097		mg/Kg		12/06/24 12:42	12/12/24 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/06/24 12:42*	*12/12/24 02:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/10/24 12:33	12/10/24 18:21	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 12:33	12/10/24 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/10/24 12:33*	*12/10/24 18:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		60		mg/Kg		12/09/24 08:13	12/09/24 12:26	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-42 3.5'
Lab Sample ID: 885-16437-6

Date Collected: 12/04/24 09:10
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/06/24 12:42	12/12/24 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 12:42*	*12/12/24 02:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 02:55	1
Ethylbenzene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 02:55	1
Toluene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 02:55	1
Xylenes, Total	ND		0.095		mg/Kg		12/06/24 12:42	12/12/24 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/06/24 12:42*	*12/12/24 02:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/10/24 12:33	12/10/24 18:33	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/10/24 12:33*	*12/10/24 18:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**190**		60		mg/Kg		12/09/24 08:13	12/09/24 12:36	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-43 3.5'

Date Collected: 12/04/24 09:15
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/12/24 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*35 - 166*	*12/06/24 12:42*	*12/12/24 03:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 03:17	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 03:17	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 03:17	1
Xylenes, Total	ND		0.091		mg/Kg		12/06/24 12:42	12/12/24 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/06/24 12:42*	*12/12/24 03:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**9.9**		9.4		mg/Kg		12/10/24 12:33	12/10/24 18:44	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/10/24 12:33	12/10/24 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 18:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/09/24 08:13	12/09/24 12:46	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-44 3.5'
Lab Sample ID: 885-16437-8
Date Collected: 12/04/24 09:20
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/06/24 12:42	12/12/24 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/06/24 12:42*	*12/12/24 03:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 03:38	1
Ethylbenzene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 03:38	1
Toluene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 03:38	1
Xylenes, Total	ND		0.096		mg/Kg		12/06/24 12:42	12/12/24 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 12:42*	*12/12/24 03:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/10/24 12:33	12/10/24 18:56	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 18:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/10/24 12:33*	*12/10/24 18:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/09/24 08:13	12/09/24 12:56	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-45 3.5'
Lab Sample ID: 885-16437-9

Date Collected: 12/04/24 09:25
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/06/24 12:42	12/12/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/06/24 12:42*	*12/12/24 04:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 04:00	1
Ethylbenzene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 04:00	1
Toluene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 04:00	1
Xylenes, Total	ND		0.093		mg/Kg		12/06/24 12:42	12/12/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/06/24 12:42*	*12/12/24 04:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**14**		10		mg/Kg		12/10/24 12:33	12/10/24 19:19	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/10/24 12:33	12/10/24 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 19:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**300**		60		mg/Kg		12/09/24 08:13	12/09/24 13:05	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-46 3.5'

Date Collected: 12/04/24 09:30
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-10

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/12/24 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*35 - 166*	*12/06/24 12:42*	*12/12/24 04:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 12:42	12/12/24 04:21	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 04:21	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/12/24 04:21	1
Xylenes, Total	ND		0.098		mg/Kg		12/06/24 12:42	12/12/24 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/06/24 12:42*	*12/12/24 04:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/10/24 12:33	12/10/24 19:31	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/10/24 12:33	12/10/24 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 19:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**98**		60		mg/Kg		12/09/24 08:13	12/09/24 13:15	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-47 3.5'

Date Collected: 12/04/24 09:35
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/12/24 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 12:42*	*12/12/24 04:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 04:43	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 04:43	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 04:43	1
Xylenes, Total	ND		0.091		mg/Kg		12/06/24 12:42	12/12/24 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*12/06/24 12:42*	*12/12/24 04:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**16**		9.7		mg/Kg		12/10/24 12:33	12/10/24 19:42	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 12:33	12/10/24 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/10/24 12:33*	*12/10/24 19:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		59		mg/Kg		12/09/24 08:13	12/09/24 13:25	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-48 3.5'

Date Collected: 12/04/24 09:40
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/06/24 12:42	12/12/24 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/06/24 12:42*	*12/12/24 05:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 05:04	1
Ethylbenzene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 05:04	1
Toluene	ND		0.047		mg/Kg		12/06/24 12:42	12/12/24 05:04	1
Xylenes, Total	ND		0.094		mg/Kg		12/06/24 12:42	12/12/24 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*12/06/24 12:42*	*12/12/24 05:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.7		mg/Kg		12/10/24 12:33	12/10/24 19:54	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 19:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**340**		60		mg/Kg		12/09/24 08:13	12/09/24 13:35	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-49 3.5'

Date Collected: 12/04/24 09:45
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-13

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/06/24 12:42	12/12/24 05:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 12:42*	*12/12/24 05:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 05:25	1
Ethylbenzene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 05:25	1
Toluene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 05:25	1
Xylenes, Total	ND		0.097		mg/Kg		12/06/24 12:42	12/12/24 05:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/06/24 12:42*	*12/12/24 05:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**12**		9.3		mg/Kg		12/10/24 12:33	12/10/24 20:06	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/10/24 12:33	12/10/24 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/10/24 12:33*	*12/10/24 20:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		12/09/24 08:13	12/09/24 13:45	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-50 3.5'

Date Collected: 12/04/24 09:50
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-14

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/12/24 05:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*35 - 166*	*12/06/24 12:42*	*12/12/24 05:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 05:47	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 05:47	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 05:47	1
Xylenes, Total	ND		0.092		mg/Kg		12/06/24 12:42	12/12/24 05:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*12/06/24 12:42*	*12/12/24 05:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.0		mg/Kg		12/10/24 12:33	12/10/24 20:17	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/10/24 12:33	12/10/24 20:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/10/24 12:33*	*12/10/24 20:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		60		mg/Kg		12/09/24 08:13	12/09/24 13:55	20

Client Sample Results

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-51 3.5'
Lab Sample ID: 885-16437-15
Date Collected: 12/04/24 09:55
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 15:09	12/09/24 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 15:09*	*12/09/24 19:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 15:09	12/09/24 19:31	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 19:31	1
Toluene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 19:31	1
Xylenes, Total	ND		0.10		mg/Kg		12/06/24 15:09	12/09/24 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 15:09*	*12/09/24 19:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**11**		9.8		mg/Kg		12/10/24 12:33	12/10/24 20:29	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 12:33	12/10/24 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 20:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**300**		60		mg/Kg		12/09/24 08:13	12/09/24 14:24	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-52 3.5'

Date Collected: 12/04/24 10:00
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-16

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 15:09	12/09/24 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 15:09*	*12/09/24 20:36*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 15:09	12/09/24 20:36	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 20:36	1
Toluene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 20:36	1
Xylenes, Total	ND		0.099		mg/Kg		12/06/24 15:09	12/09/24 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 15:09*	*12/09/24 20:36*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**12**		9.6		mg/Kg		12/10/24 12:33	12/10/24 20:41	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 12:33	12/10/24 20:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/10/24 12:33*	*12/10/24 20:41*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**63**		60		mg/Kg		12/09/24 08:13	12/09/24 14:34	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-53 3.5'

Date Collected: 12/04/24 10:05
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-17

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/06/24 15:09	12/09/24 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 15:09*	*12/09/24 21:41*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 15:09	12/09/24 21:41	1
Ethylbenzene	ND		0.048		mg/Kg		12/06/24 15:09	12/09/24 21:41	1
Toluene	ND		0.048		mg/Kg		12/06/24 15:09	12/09/24 21:41	1
Xylenes, Total	ND		0.096		mg/Kg		12/06/24 15:09	12/09/24 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/06/24 15:09*	*12/09/24 21:41*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/10/24 12:33	12/10/24 20:53	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/10/24 12:33	12/10/24 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/10/24 12:33*	*12/10/24 20:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**330**		61		mg/Kg		12/09/24 08:13	12/09/24 14:44	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-54 3.5'

Date Collected: 12/04/24 10:10
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-18

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 15:09	12/09/24 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 15:09*	*12/09/24 22:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 15:09	12/09/24 22:45	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 15:09	12/09/24 22:45	1
Toluene	ND		0.049		mg/Kg		12/06/24 15:09	12/09/24 22:45	1
Xylenes, Total	ND		0.098		mg/Kg		12/06/24 15:09	12/09/24 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/06/24 15:09*	*12/09/24 22:45*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**12**		9.8		mg/Kg		12/10/24 12:33	12/10/24 21:05	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 12:33	12/10/24 21:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/10/24 12:33*	*12/10/24 21:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		60		mg/Kg		12/09/24 08:13	12/09/24 14:54	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-55 3.5'

Date Collected: 12/04/24 10:15
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-19

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 15:09	12/09/24 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/06/24 15:09*	*12/09/24 23:07*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 15:09	12/09/24 23:07	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 15:09	12/09/24 23:07	1
Toluene	ND		0.049		mg/Kg		12/06/24 15:09	12/09/24 23:07	1
Xylenes, Total	ND		0.099		mg/Kg		12/06/24 15:09	12/09/24 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/06/24 15:09*	*12/09/24 23:07*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.8		mg/Kg		12/10/24 12:33	12/10/24 21:28	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 12:33	12/10/24 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 12:33*	*12/10/24 21:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**65**		60		mg/Kg		12/09/24 08:13	12/09/24 15:04	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Client Sample ID: BS24-56 3.5'

Date Collected: 12/04/24 10:20
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16437-20

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 15:09	12/09/24 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 15:09*	*12/09/24 23:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 15:09	12/09/24 23:29	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 23:29	1
Toluene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 23:29	1
Xylenes, Total	ND		0.10		mg/Kg		12/06/24 15:09	12/09/24 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/06/24 15:09*	*12/09/24 23:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**10**		9.5		mg/Kg		12/10/24 12:33	12/10/24 22:03	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/10/24 12:33	12/10/24 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/10/24 12:33*	*12/10/24 22:03*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**240**		60		mg/Kg		12/09/24 08:13	12/09/24 15:13	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-17203/1-A
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 12:42	12/11/24 21:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/06/24 12:42*	*12/11/24 21:11*	*1*

Lab Sample ID: LCS 885-17203/3-A
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17203

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.6		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*189*		*35 - 166*

Lab Sample ID: MB 885-17218/1-A
Matrix: Solid
Analysis Batch: 17435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17218

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 15:09	12/09/24 19:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 15:09*	*12/09/24 19:09*	*1*

Lab Sample ID: LCS 885-17218/2-A
Matrix: Solid
Analysis Batch: 17435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17218

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	20.8		mg/Kg		83	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*189*		*35 - 166*

Lab Sample ID: 885-16437-15 MS
Matrix: Solid
Analysis Batch: 17435

Client Sample ID: BS24-51 3.5'
Prep Type: Total/NA
Prep Batch: 17218

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.8	20.9		mg/Kg		85	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*190*		*35 - 166*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-16437-15 MSD
Matrix: Solid
Analysis Batch: 17435

Client Sample ID: BS24-51 3.5'
Prep Type: Total/NA
Prep Batch: 17218

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.9	22.2		mg/Kg		89	70 - 130	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-17203/1-A
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 12:42	12/11/24 21:11	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 12:42	12/11/24 21:11	1
Toluene	ND		0.050		mg/Kg		12/06/24 12:42	12/11/24 21:11	1
Xylenes, Total	ND		0.10		mg/Kg		12/06/24 12:42	12/11/24 21:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 12:42*	*12/11/24 21:11*	*1*

Lab Sample ID: LCS 885-17203/4-A
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17203

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.938		mg/Kg		94	70 - 130		
Ethylbenzene			1.00	0.958		mg/Kg		96	70 - 130		
m,p-Xylene			2.00	1.91		mg/Kg		96	70 - 130		
o-Xylene			1.00	0.957		mg/Kg		96	70 - 130		
Toluene			1.00	0.942		mg/Kg		94	70 - 130		
Xylenes, Total			3.00	2.87		mg/Kg		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*

Lab Sample ID: MB 885-17218/1-A
Matrix: Solid
Analysis Batch: 17436

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17218

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 15:09	12/09/24 19:09	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 19:09	1
Toluene	ND		0.050		mg/Kg		12/06/24 15:09	12/09/24 19:09	1
Xylenes, Total	ND		0.10		mg/Kg		12/06/24 15:09	12/09/24 19:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/06/24 15:09*	*12/09/24 19:09*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: LCS 885-17218/3-A
Matrix: Solid
Analysis Batch: 17436

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17218

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.999		mg/Kg		100	70 - 130		
Ethylbenzene			1.00	1.01		mg/Kg		101	70 - 130		
m,p-Xylene			2.00	2.02		mg/Kg		101	70 - 130		
o-Xylene			1.00	1.01		mg/Kg		101	70 - 130		
Toluene			1.00	1.00		mg/Kg		100	70 - 130		
Xylenes, Total			3.00	3.04		mg/Kg		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Lab Sample ID: 885-16437-16 MS
Matrix: Solid
Analysis Batch: 17436

Client Sample ID: BS24-52 3.5'
Prep Type: Total/NA
Prep Batch: 17218

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.994	0.959		mg/Kg		96	70 - 130		
Ethylbenzene	ND		0.994	0.995		mg/Kg		100	70 - 130		
m,p-Xylene	ND		1.99	1.96		mg/Kg		99	70 - 130		
o-Xylene	ND		0.994	0.989		mg/Kg		99	70 - 130		
Toluene	ND		0.994	0.970		mg/Kg		98	70 - 130		
Xylenes, Total	ND		2.98	2.95		mg/Kg		99	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-16437-16 MSD
Matrix: Solid
Analysis Batch: 17436

Client Sample ID: BS24-52 3.5'
Prep Type: Total/NA
Prep Batch: 17218

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.992	0.963		mg/Kg		97	70 - 130	0	20
Ethylbenzene	ND		0.992	0.998		mg/Kg		101	70 - 130	0	20
m,p-Xylene	ND		1.98	1.97		mg/Kg		99	70 - 130	0	20
o-Xylene	ND		0.992	0.992		mg/Kg		100	70 - 130	0	20
Toluene	ND		0.992	0.980		mg/Kg		99	70 - 130	1	20
Xylenes, Total	ND		2.98	2.96		mg/Kg		99	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-17411/1-A
Matrix: Solid
Analysis Batch: 17408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17411

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/10/24 12:33	12/10/24 17:10	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-17411/1-A
Matrix: Solid
Analysis Batch: 17408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17411

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/10/24 12:33	12/10/24 17:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*12/10/24 12:33*	*12/10/24 17:10*	*1*

Lab Sample ID: LCS 885-17411/2-A
Matrix: Solid
Analysis Batch: 17408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17411

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	54.7		mg/Kg		109	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*

Lab Sample ID: 885-16437-19 MS
Matrix: Solid
Analysis Batch: 17408

Client Sample ID: BS24-55 3.5'
Prep Type: Total/NA
Prep Batch: 17411

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	13		47.4	51.2		mg/Kg		81	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*

Lab Sample ID: 885-16437-19 MSD
Matrix: Solid
Analysis Batch: 17408

Client Sample ID: BS24-55 3.5'
Prep Type: Total/NA
Prep Batch: 17411

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	13		49.6	56.7		mg/Kg		89	44 - 136	10	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-17262/1-A
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17262

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/09/24 08:13	12/09/24 09:58	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-17262/2-A
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17262

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.5		mg/Kg		98	90 - 110		

Lab Sample ID: 885-16437-1 MS
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: BS24-37 3.5'
Prep Type: Total/NA
Prep Batch: 17262

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	160		30.1	189	4	mg/Kg		94	50 - 150		

Lab Sample ID: 885-16437-1 MSD
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: BS24-37 3.5'
Prep Type: Total/NA
Prep Batch: 17262

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	160		30.2	188	4	mg/Kg		90	50 - 150	1	20

Lab Sample ID: 885-16437-2 MS
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: BS24-38 3.5'
Prep Type: Total/NA
Prep Batch: 17262

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	100		30.2	132		mg/Kg		107	50 - 150		

Lab Sample ID: 885-16437-2 MSD
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: BS24-38 3.5'
Prep Type: Total/NA
Prep Batch: 17262

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	100		29.8	126		mg/Kg		87	50 - 150	5	20

Lab Sample ID: MB 885-17277/34
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/Kg			12/09/24 15:33	1

Lab Sample ID: LCS 885-17277/35
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			5.00	4.94		mg/Kg		99	90 - 110		

Lab Sample ID: MRL 885-17277/33
Matrix: Solid
Analysis Batch: 17277

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.522		mg/L		104	50 - 150		

QC Association Summary

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 17203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	5030C	
885-16437-2	BS24-38 3.5'	Total/NA	Solid	5030C	
885-16437-3	BS24-39 3.5'	Total/NA	Solid	5030C	
885-16437-4	BS24-40 3.5	Total/NA	Solid	5030C	
885-16437-5	BS24-41 3.5'	Total/NA	Solid	5030C	
885-16437-6	BS24-42 3.5'	Total/NA	Solid	5030C	
885-16437-7	BS24-43 3.5'	Total/NA	Solid	5030C	
885-16437-8	BS24-44 3.5'	Total/NA	Solid	5030C	
885-16437-9	BS24-45 3.5'	Total/NA	Solid	5030C	
885-16437-10	BS24-46 3.5'	Total/NA	Solid	5030C	
885-16437-11	BS24-47 3.5'	Total/NA	Solid	5030C	
885-16437-12	BS24-48 3.5'	Total/NA	Solid	5030C	
885-16437-13	BS24-49 3.5'	Total/NA	Solid	5030C	
885-16437-14	BS24-50 3.5'	Total/NA	Solid	5030C	
MB 885-17203/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17203/3-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17203/4-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 17218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-15	BS24-51 3.5'	Total/NA	Solid	5030C	
885-16437-16	BS24-52 3.5'	Total/NA	Solid	5030C	
885-16437-17	BS24-53 3.5'	Total/NA	Solid	5030C	
885-16437-18	BS24-54 3.5'	Total/NA	Solid	5030C	
885-16437-19	BS24-55 3.5'	Total/NA	Solid	5030C	
885-16437-20	BS24-56 3.5'	Total/NA	Solid	5030C	
MB 885-17218/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17218/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17218/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16437-15 MS	BS24-51 3.5'	Total/NA	Solid	5030C	
885-16437-15 MSD	BS24-51 3.5'	Total/NA	Solid	5030C	
885-16437-16 MS	BS24-52 3.5'	Total/NA	Solid	5030C	
885-16437-16 MSD	BS24-52 3.5'	Total/NA	Solid	5030C	

Analysis Batch: 17435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-15	BS24-51 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-16	BS24-52 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-17	BS24-53 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-18	BS24-54 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-19	BS24-55 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-20	BS24-56 3.5'	Total/NA	Solid	8015M/D	17218
MB 885-17218/1-A	Method Blank	Total/NA	Solid	8015M/D	17218
LCS 885-17218/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17218
885-16437-15 MS	BS24-51 3.5'	Total/NA	Solid	8015M/D	17218
885-16437-15 MSD	BS24-51 3.5'	Total/NA	Solid	8015M/D	17218

Analysis Batch: 17436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-15	BS24-51 3.5'	Total/NA	Solid	8021B	17218
885-16437-16	BS24-52 3.5'	Total/NA	Solid	8021B	17218

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

GC VOA (Continued)

Analysis Batch: 17436 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-17	BS24-53 3.5'	Total/NA	Solid	8021B	17218
885-16437-18	BS24-54 3.5'	Total/NA	Solid	8021B	17218
885-16437-19	BS24-55 3.5'	Total/NA	Solid	8021B	17218
885-16437-20	BS24-56 3.5'	Total/NA	Solid	8021B	17218
MB 885-17218/1-A	Method Blank	Total/NA	Solid	8021B	17218
LCS 885-17218/3-A	Lab Control Sample	Total/NA	Solid	8021B	17218
885-16437-16 MS	BS24-52 3.5'	Total/NA	Solid	8021B	17218
885-16437-16 MSD	BS24-52 3.5'	Total/NA	Solid	8021B	17218

Analysis Batch: 17596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-2	BS24-38 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-3	BS24-39 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-4	BS24-40 3.5	Total/NA	Solid	8015M/D	17203
885-16437-5	BS24-41 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-6	BS24-42 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-7	BS24-43 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-8	BS24-44 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-9	BS24-45 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-10	BS24-46 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-11	BS24-47 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-12	BS24-48 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-13	BS24-49 3.5'	Total/NA	Solid	8015M/D	17203
885-16437-14	BS24-50 3.5'	Total/NA	Solid	8015M/D	17203
MB 885-17203/1-A	Method Blank	Total/NA	Solid	8015M/D	17203
LCS 885-17203/3-A	Lab Control Sample	Total/NA	Solid	8015M/D	17203

Analysis Batch: 17597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	8021B	17203
885-16437-2	BS24-38 3.5'	Total/NA	Solid	8021B	17203
885-16437-3	BS24-39 3.5'	Total/NA	Solid	8021B	17203
885-16437-4	BS24-40 3.5	Total/NA	Solid	8021B	17203
885-16437-5	BS24-41 3.5'	Total/NA	Solid	8021B	17203
885-16437-6	BS24-42 3.5'	Total/NA	Solid	8021B	17203
885-16437-7	BS24-43 3.5'	Total/NA	Solid	8021B	17203
885-16437-8	BS24-44 3.5'	Total/NA	Solid	8021B	17203
885-16437-9	BS24-45 3.5'	Total/NA	Solid	8021B	17203
885-16437-10	BS24-46 3.5'	Total/NA	Solid	8021B	17203
885-16437-11	BS24-47 3.5'	Total/NA	Solid	8021B	17203
885-16437-12	BS24-48 3.5'	Total/NA	Solid	8021B	17203
885-16437-13	BS24-49 3.5'	Total/NA	Solid	8021B	17203
885-16437-14	BS24-50 3.5'	Total/NA	Solid	8021B	17203
MB 885-17203/1-A	Method Blank	Total/NA	Solid	8021B	17203
LCS 885-17203/4-A	Lab Control Sample	Total/NA	Solid	8021B	17203

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

GC Semi VOA

Analysis Batch: 17408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-2	BS24-38 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-3	BS24-39 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-4	BS24-40 3.5	Total/NA	Solid	8015M/D	17411
885-16437-5	BS24-41 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-6	BS24-42 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-7	BS24-43 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-8	BS24-44 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-9	BS24-45 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-10	BS24-46 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-11	BS24-47 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-12	BS24-48 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-13	BS24-49 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-14	BS24-50 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-15	BS24-51 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-16	BS24-52 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-17	BS24-53 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-18	BS24-54 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-19	BS24-55 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-20	BS24-56 3.5'	Total/NA	Solid	8015M/D	17411
MB 885-17411/1-A	Method Blank	Total/NA	Solid	8015M/D	17411
LCS 885-17411/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17411
885-16437-19 MS	BS24-55 3.5'	Total/NA	Solid	8015M/D	17411
885-16437-19 MSD	BS24-55 3.5'	Total/NA	Solid	8015M/D	17411

Prep Batch: 17411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	SHAKE	
885-16437-2	BS24-38 3.5'	Total/NA	Solid	SHAKE	
885-16437-3	BS24-39 3.5'	Total/NA	Solid	SHAKE	
885-16437-4	BS24-40 3.5	Total/NA	Solid	SHAKE	
885-16437-5	BS24-41 3.5'	Total/NA	Solid	SHAKE	
885-16437-6	BS24-42 3.5'	Total/NA	Solid	SHAKE	
885-16437-7	BS24-43 3.5'	Total/NA	Solid	SHAKE	
885-16437-8	BS24-44 3.5'	Total/NA	Solid	SHAKE	
885-16437-9	BS24-45 3.5'	Total/NA	Solid	SHAKE	
885-16437-10	BS24-46 3.5'	Total/NA	Solid	SHAKE	
885-16437-11	BS24-47 3.5'	Total/NA	Solid	SHAKE	
885-16437-12	BS24-48 3.5'	Total/NA	Solid	SHAKE	
885-16437-13	BS24-49 3.5'	Total/NA	Solid	SHAKE	
885-16437-14	BS24-50 3.5'	Total/NA	Solid	SHAKE	
885-16437-15	BS24-51 3.5'	Total/NA	Solid	SHAKE	
885-16437-16	BS24-52 3.5'	Total/NA	Solid	SHAKE	
885-16437-17	BS24-53 3.5'	Total/NA	Solid	SHAKE	
885-16437-18	BS24-54 3.5'	Total/NA	Solid	SHAKE	
885-16437-19	BS24-55 3.5'	Total/NA	Solid	SHAKE	
885-16437-20	BS24-56 3.5'	Total/NA	Solid	SHAKE	
MB 885-17411/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17411/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16437-19 MS	BS24-55 3.5'	Total/NA	Solid	SHAKE	
885-16437-19 MSD	BS24-55 3.5'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16437-1

HPLC/IC

Prep Batch: 17262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	300_Prep	
885-16437-2	BS24-38 3.5'	Total/NA	Solid	300_Prep	
885-16437-3	BS24-39 3.5'	Total/NA	Solid	300_Prep	
885-16437-4	BS24-40 3.5	Total/NA	Solid	300_Prep	
885-16437-5	BS24-41 3.5'	Total/NA	Solid	300_Prep	
885-16437-6	BS24-42 3.5'	Total/NA	Solid	300_Prep	
885-16437-7	BS24-43 3.5'	Total/NA	Solid	300_Prep	
885-16437-8	BS24-44 3.5'	Total/NA	Solid	300_Prep	
885-16437-9	BS24-45 3.5'	Total/NA	Solid	300_Prep	
885-16437-10	BS24-46 3.5'	Total/NA	Solid	300_Prep	
885-16437-11	BS24-47 3.5'	Total/NA	Solid	300_Prep	
885-16437-12	BS24-48 3.5'	Total/NA	Solid	300_Prep	
885-16437-13	BS24-49 3.5'	Total/NA	Solid	300_Prep	
885-16437-14	BS24-50 3.5'	Total/NA	Solid	300_Prep	
885-16437-15	BS24-51 3.5'	Total/NA	Solid	300_Prep	
885-16437-16	BS24-52 3.5'	Total/NA	Solid	300_Prep	
885-16437-17	BS24-53 3.5'	Total/NA	Solid	300_Prep	
885-16437-18	BS24-54 3.5'	Total/NA	Solid	300_Prep	
885-16437-19	BS24-55 3.5'	Total/NA	Solid	300_Prep	
885-16437-20	BS24-56 3.5'	Total/NA	Solid	300_Prep	
MB 885-17262/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17262/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-16437-1 MS	BS24-37 3.5'	Total/NA	Solid	300_Prep	
885-16437-1 MSD	BS24-37 3.5'	Total/NA	Solid	300_Prep	
885-16437-2 MS	BS24-38 3.5'	Total/NA	Solid	300_Prep	
885-16437-2 MSD	BS24-38 3.5'	Total/NA	Solid	300_Prep	

Analysis Batch: 17277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16437-1	BS24-37 3.5'	Total/NA	Solid	300.0	17262
885-16437-2	BS24-38 3.5'	Total/NA	Solid	300.0	17262
885-16437-3	BS24-39 3.5'	Total/NA	Solid	300.0	17262
885-16437-4	BS24-40 3.5	Total/NA	Solid	300.0	17262
885-16437-5	BS24-41 3.5'	Total/NA	Solid	300.0	17262
885-16437-6	BS24-42 3.5'	Total/NA	Solid	300.0	17262
885-16437-7	BS24-43 3.5'	Total/NA	Solid	300.0	17262
885-16437-8	BS24-44 3.5'	Total/NA	Solid	300.0	17262
885-16437-9	BS24-45 3.5'	Total/NA	Solid	300.0	17262
885-16437-10	BS24-46 3.5'	Total/NA	Solid	300.0	17262
885-16437-11	BS24-47 3.5'	Total/NA	Solid	300.0	17262
885-16437-12	BS24-48 3.5'	Total/NA	Solid	300.0	17262
885-16437-13	BS24-49 3.5'	Total/NA	Solid	300.0	17262
885-16437-14	BS24-50 3.5'	Total/NA	Solid	300.0	17262
885-16437-15	BS24-51 3.5'	Total/NA	Solid	300.0	17262
885-16437-16	BS24-52 3.5'	Total/NA	Solid	300.0	17262
885-16437-17	BS24-53 3.5'	Total/NA	Solid	300.0	17262
885-16437-18	BS24-54 3.5'	Total/NA	Solid	300.0	17262
885-16437-19	BS24-55 3.5'	Total/NA	Solid	300.0	17262
885-16437-20	BS24-56 3.5'	Total/NA	Solid	300.0	17262
MB 885-17262/1-A	Method Blank	Total/NA	Solid	300.0	17262
MB 885-17277/34	Method Blank	Total/NA	Solid	300.0	

QC Association Summary

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

HPLC/IC (Continued)

Analysis Batch: 17277 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-17262/2-A	Lab Control Sample	Total/NA	Solid	300.0	17262
LCS 885-17277/35	Lab Control Sample	Total/NA	Solid	300.0	
MRL 885-17277/33	Lab Control Sample	Total/NA	Solid	300.0	
885-16437-1 MS	BS24-37 3.5'	Total/NA	Solid	300.0	17262
885-16437-1 MSD	BS24-37 3.5'	Total/NA	Solid	300.0	17262
885-16437-2 MS	BS24-38 3.5'	Total/NA	Solid	300.0	17262
885-16437-2 MSD	BS24-38 3.5'	Total/NA	Solid	300.0	17262

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-37 3.5'
Lab Sample ID: 885-16437-1
Date Collected: 12/04/24 08:45
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 00:46
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 00:46
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 17:34
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 10:48

Client Sample ID: BS24-38 3.5'
Lab Sample ID: 885-16437-2
Date Collected: 12/04/24 08:50
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 01:08
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 01:08
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 17:46
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 11:17

Client Sample ID: BS24-39 3.5'
Lab Sample ID: 885-16437-3
Date Collected: 12/04/24 08:55
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 01:29
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 01:29
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 17:57
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 11:47

Client Sample ID: BS24-40 3.5
Lab Sample ID: 885-16437-4
Date Collected: 12/04/24 09:00
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 01:51

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-40 3.5
Lab Sample ID: 885-16437-4
Date Collected: 12/04/24 09:00
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 01:51
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 18:09
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 11:56

Client Sample ID: BS24-41 3.5'
Lab Sample ID: 885-16437-5
Date Collected: 12/04/24 09:05
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 02:12
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 02:12
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 18:21
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 12:26

Client Sample ID: BS24-42 3.5'
Lab Sample ID: 885-16437-6
Date Collected: 12/04/24 09:10
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 02:55
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 02:55
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 18:33
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 12:36

Client Sample ID: BS24-43 3.5'
Lab Sample ID: 885-16437-7
Date Collected: 12/04/24 09:15
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 03:17
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 03:17

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-43 3.5'
Lab Sample ID: 885-16437-7
Date Collected: 12/04/24 09:15
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 18:44
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 12:46

Client Sample ID: BS24-44 3.5'
Lab Sample ID: 885-16437-8
Date Collected: 12/04/24 09:20
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 03:38
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 03:38
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 18:56
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 12:56

Client Sample ID: BS24-45 3.5'
Lab Sample ID: 885-16437-9
Date Collected: 12/04/24 09:25
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 04:00
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 04:00
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 19:19
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:05

Client Sample ID: BS24-46 3.5'
Lab Sample ID: 885-16437-10
Date Collected: 12/04/24 09:30
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 04:21
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 04:21
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 19:31

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-46 3.5'
Lab Sample ID: 885-16437-10
Date Collected: 12/04/24 09:30
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:15

Client Sample ID: BS24-47 3.5'
Lab Sample ID: 885-16437-11
Date Collected: 12/04/24 09:35
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 04:43
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 04:43
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 19:42
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:25

Client Sample ID: BS24-48 3.5'
Lab Sample ID: 885-16437-12
Date Collected: 12/04/24 09:40
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 05:04
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 05:04
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 19:54
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:35

Client Sample ID: BS24-49 3.5'
Lab Sample ID: 885-16437-13
Date Collected: 12/04/24 09:45
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 05:25
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 05:25
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 20:06
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:45

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-50 3.5'
Lab Sample ID: 885-16437-14
Date Collected: 12/04/24 09:50
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 05:47
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 05:47
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 20:17
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 13:55

Client Sample ID: BS24-51 3.5'
Lab Sample ID: 885-16437-15
Date Collected: 12/04/24 09:55
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 19:31
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 19:31
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 20:29
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 14:24

Client Sample ID: BS24-52 3.5'
Lab Sample ID: 885-16437-16
Date Collected: 12/04/24 10:00
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 20:36
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 20:36
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 20:41
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 14:34

Client Sample ID: BS24-53 3.5'
Lab Sample ID: 885-16437-17
Date Collected: 12/04/24 10:05
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 21:41

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-53 3.5'
Lab Sample ID: 885-16437-17
Date Collected: 12/04/24 10:05
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 21:41
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 20:53
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 14:44

Client Sample ID: BS24-54 3.5'
Lab Sample ID: 885-16437-18
Date Collected: 12/04/24 10:10
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 22:45
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 22:45
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 21:05
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 14:54

Client Sample ID: BS24-55 3.5'
Lab Sample ID: 885-16437-19
Date Collected: 12/04/24 10:15
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 23:07
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 23:07
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 21:28
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 15:04

Client Sample ID: BS24-56 3.5'
Lab Sample ID: 885-16437-20
Date Collected: 12/04/24 10:20
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8015M/D		1	17435	AT	EET ALB	12/09/24 23:29
Total/NA	Prep	5030C			17218	AT	EET ALB	12/06/24 15:09
Total/NA	Analysis	8021B		1	17436	AT	EET ALB	12/09/24 23:29

Lab Chronicle

Client: Vertex
Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-56 3.5'
Lab Sample ID: 885-16437-20

Date Collected: 12/04/24 10:20
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17411	EM	EET ALB	12/10/24 12:33
Total/NA	Analysis	8015M/D		1	17408	MI	EET ALB	12/10/24 22:03
Total/NA	Prep	300_Prep			17262	JT	EET ALB	12/09/24 08:13
Total/NA	Analysis	300.0		20	17277	EH	EET ALB	12/09/24 15:13

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-16437-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (bill to Mack Energy)

Mailing Address: Vertex Resources Services Inc

3101 Boyd Dr, Carlsbad NM 88220

Phone #: on File

email or Fax#: ✓

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (Including CF): 0.1+0.1=0.2 (°C)

1/2

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107

885-16437 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
12.04.24	0845	soil	BS24-37 3.5'	4oz	ICE	1
	0850		BS24-38 3.5'			2
	0855		BS24-39 3.5'			3
	0900		BS24-40 3.5'			4
	0905		BS24-41 3.5'			5
	0910		BS24-42 3.5'			6
	0915		BS24-43 3.5'			7
	0920		BS24-44 3.5'			8
	0925		BS24-45 3.5'			9
	0930		BS24-46 3.5'			10
	0935		BS24-47 3.5'			11
↓	0940	↓	BS24-48 3.5'	↓	↓	12

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
12.05.24	1030				12/5/24	1030
12/5/24	1900			Courier	12/6/24	8:10

Remarks:
Direct bill to Mack Energy ATTN: Matt Buckles
cc: Scarttar@vertexresource.com
ALuduk@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

2/2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Vertex (bill to Mack Energy)

Mailing Address: Vertex Resources Services Inc.

3101 Boyd Drive, Carlsbad NM 88220

Phone #: On File

email or Fax#: ↓

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☐ Yes ☐ No

# of Coolers: 1 Yogi

Cooler Temp(including CF): 0.1+0.1=0.2 (°C)

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.04.24	0945	Soil	BS24-49 3.5'	4oz	ICE	13										
	0950		BS24-50 3.5'			14										
	0955		BS24-51 3.5'			15										
	1000		BS24-52 3.5'			16										
	1005		BS24-53 3.5'			17										
	1010		BS24-54 3.5'			18										
	1015		BS24-55 3.5'			19										
↓	1020	↓	BS24-56 3.5'	↓	↓	20	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
12.05.24	1030				12/5/24	1030
12/5/24	1900			courier	12/6/24	8:10

Remarks: Direct Bill to Mack Energy ATTN: Matt Buckles

cc: Scarttar@vertexresource.com

Alvdvik@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-16437-1

Login Number: 16437 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/14/2024 12:38:34 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-16440-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/14/2024 12:38:34 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-16440-1

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Definitions/Glossary

Client: Vertex Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-16440-1
Project: Calgary Federal #002E

Job ID: 885-16440-1 Eurofins Albuquerque

Job Narrative
885-16440-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/6/2024 8:10 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.2°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Client Sample ID: BS24-13 3.5'

Date Collected: 12/02/24 14:15
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16440-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/06/24 12:42	12/11/24 21:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/06/24 12:42*	*12/11/24 21:32*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/11/24 21:32	1
Ethylbenzene	ND		0.047		mg/Kg		12/06/24 12:42	12/11/24 21:32	1
Toluene	ND		0.047		mg/Kg		12/06/24 12:42	12/11/24 21:32	1
Xylenes, Total	ND		0.094		mg/Kg		12/06/24 12:42	12/11/24 21:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/06/24 12:42*	*12/11/24 21:32*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/10/24 15:50	12/12/24 15:29	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/10/24 15:50	12/12/24 15:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/10/24 15:50*	*12/12/24 15:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**97**		59		mg/Kg		12/09/24 07:43	12/09/24 09:02	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Client Sample ID: BS24-14 3.5'

Date Collected: 12/02/24 14:20
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16440-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/06/24 12:42	12/11/24 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 12:42*	*12/11/24 22:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/11/24 22:37	1
Ethylbenzene	ND		0.049		mg/Kg		12/06/24 12:42	12/11/24 22:37	1
Toluene	ND		0.049		mg/Kg		12/06/24 12:42	12/11/24 22:37	1
Xylenes, Total	ND		0.097		mg/Kg		12/06/24 12:42	12/11/24 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/06/24 12:42*	*12/11/24 22:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/10/24 15:50	12/12/24 15:40	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/10/24 15:50	12/12/24 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/10/24 15:50*	*12/12/24 15:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/09/24 07:43	12/09/24 09:33	20

Client Sample Results

Client: Vertex
Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-15 3.5'
Lab Sample ID: 885-16440-3
Date Collected: 12/02/24 14:25
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/11/24 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/06/24 12:42*	*12/11/24 23:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/11/24 23:42	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/11/24 23:42	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/11/24 23:42	1
Xylenes, Total	ND		0.092		mg/Kg		12/06/24 12:42	12/11/24 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/06/24 12:42*	*12/11/24 23:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/10/24 15:50	12/12/24 15:51	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/10/24 15:50	12/12/24 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/10/24 15:50*	*12/12/24 15:51*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**66**		59		mg/Kg		12/09/24 07:43	12/09/24 10:04	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Client Sample ID: BS24-16 3.5'

Date Collected: 12/02/24 14:30
Date Received: 12/06/24 08:10

Lab Sample ID: 885-16440-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/06/24 12:42	12/12/24 00:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*35 - 166*	*12/06/24 12:42*	*12/12/24 00:03*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/06/24 12:42	12/12/24 00:03	1
Ethylbenzene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 00:03	1
Toluene	ND		0.046		mg/Kg		12/06/24 12:42	12/12/24 00:03	1
Xylenes, Total	ND		0.093		mg/Kg		12/06/24 12:42	12/12/24 00:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/06/24 12:42*	*12/12/24 00:03*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/10/24 15:50	12/12/24 16:51	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/10/24 15:50	12/12/24 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/10/24 15:50*	*12/12/24 16:51*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		60		mg/Kg		12/09/24 07:43	12/09/24 10:15	20

Client Sample Results

Client: Vertex
Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-17 3.5'
Lab Sample ID: 885-16440-5

Date Collected: 12/02/24 14:45
Matrix: Solid
Date Received: 12/06/24 08:10

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/06/24 12:42	12/12/24 00:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/06/24 12:42*	*12/12/24 00:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/06/24 12:42	12/12/24 00:25	1
Ethylbenzene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 00:25	1
Toluene	ND		0.048		mg/Kg		12/06/24 12:42	12/12/24 00:25	1
Xylenes, Total	ND		0.096		mg/Kg		12/06/24 12:42	12/12/24 00:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*12/06/24 12:42*	*12/12/24 00:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/10/24 15:50	12/11/24 10:28	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/10/24 15:50	12/11/24 10:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/10/24 15:50*	*12/11/24 10:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**		61		mg/Kg		12/09/24 07:43	12/09/24 13:21	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-17203/1-A
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/06/24 12:42	12/11/24 21:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/06/24 12:42*	*12/11/24 21:11*	*1*

Lab Sample ID: LCS 885-17203/3-A
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17203

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.6		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*189*		*35 - 166*

Lab Sample ID: 885-16440-1 MS
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: BS24-13 3.5'
Prep Type: Total/NA
Prep Batch: 17203

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		23.5	18.5		mg/Kg		79	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*179*		*35 - 166*

Lab Sample ID: 885-16440-1 MSD
Matrix: Solid
Analysis Batch: 17596

Client Sample ID: BS24-13 3.5'
Prep Type: Total/NA
Prep Batch: 17203

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		23.4	19.2		mg/Kg		82	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*185*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-17203/1-A
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/06/24 12:42	12/11/24 21:11	1
Ethylbenzene	ND		0.050		mg/Kg		12/06/24 12:42	12/11/24 21:11	1
Toluene	ND		0.050		mg/Kg		12/06/24 12:42	12/11/24 21:11	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-17203/1-A
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		12/06/24 12:42	12/11/24 21:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/06/24 12:42*	*12/11/24 21:11*	*1*

Lab Sample ID: LCS 885-17203/4-A
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17203

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.938		mg/Kg		94	70 - 130		
Ethylbenzene			1.00	0.958		mg/Kg		96	70 - 130		
m,p-Xylene			2.00	1.91		mg/Kg		96	70 - 130		
o-Xylene			1.00	0.957		mg/Kg		96	70 - 130		
Toluene			1.00	0.942		mg/Kg		94	70 - 130		
Xylenes, Total			3.00	2.87		mg/Kg		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*

Lab Sample ID: 885-16440-2 MS
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: BS24-14 3.5'
Prep Type: Total/NA
Prep Batch: 17203

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.967	0.886		mg/Kg		92	70 - 130		
Ethylbenzene	ND		0.967	0.942		mg/Kg		97	70 - 130		
m,p-Xylene	ND		1.93	1.88		mg/Kg		97	70 - 130		
o-Xylene	ND		0.967	0.933		mg/Kg		96	70 - 130		
Toluene	ND		0.967	0.928		mg/Kg		96	70 - 130		
Xylenes, Total	ND		2.90	2.82		mg/Kg		97	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-16440-2 MSD
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: BS24-14 3.5'
Prep Type: Total/NA
Prep Batch: 17203

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.969	0.899		mg/Kg		93	70 - 130	1	20
Ethylbenzene	ND		0.969	0.953		mg/Kg		98	70 - 130	1	20
m,p-Xylene	ND		1.94	1.87		mg/Kg		96	70 - 130	1	20
o-Xylene	ND		0.969	0.950		mg/Kg		98	70 - 130	2	20
Toluene	ND		0.969	0.933		mg/Kg		96	70 - 130	1	20
Xylenes, Total	ND		2.91	2.82		mg/Kg		97	70 - 130	0	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-16440-2 MSD
Matrix: Solid
Analysis Batch: 17597

Client Sample ID: BS24-14 3.5'
Prep Type: Total/NA
Prep Batch: 17203

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-17439/1-A
Matrix: Solid
Analysis Batch: 17588

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17439

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/10/24 15:50	12/12/24 15:08	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/10/24 15:50	12/12/24 15:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/10/24 15:50*	*12/12/24 15:08*	*1*

Lab Sample ID: LCS 885-17439/2-A
Matrix: Solid
Analysis Batch: 17588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17439

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	49.7		mg/Kg		99	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*

Lab Sample ID: 885-16440-3 MS
Matrix: Solid
Analysis Batch: 17588

Client Sample ID: BS24-15 3.5'
Prep Type: Total/NA
Prep Batch: 17439

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		46.8	55.7		mg/Kg		119	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*116*		*62 - 134*

Lab Sample ID: 885-16440-3 MSD
Matrix: Solid
Analysis Batch: 17588

Client Sample ID: BS24-15 3.5'
Prep Type: Total/NA
Prep Batch: 17439

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		46.3	42.4		mg/Kg		92	44 - 136	27	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-17257/1-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17257

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/09/24 07:43	12/09/24 08:42	1

Lab Sample ID: LCS 885-17257/2-A
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17257

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	30.2		mg/Kg		101	90 - 110		

Lab Sample ID: 885-16440-1 MS
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-13 3.5'
Prep Type: Total/NA
Prep Batch: 17257

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	97		29.9	121		mg/Kg		83	50 - 150		

Lab Sample ID: 885-16440-1 MSD
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-13 3.5'
Prep Type: Total/NA
Prep Batch: 17257

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	97		29.8	124		mg/Kg		91	50 - 150	2	20

Lab Sample ID: 885-16440-2 MS
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-14 3.5'
Prep Type: Total/NA
Prep Batch: 17257

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	ND		29.8	72.8		mg/Kg		NC	50 - 150		

Lab Sample ID: 885-16440-2 MSD
Matrix: Solid
Analysis Batch: 17260

Client Sample ID: BS24-14 3.5'
Prep Type: Total/NA
Prep Batch: 17257

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		29.9	74.3		mg/Kg		NC	50 - 150	2	20

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16440-1

GC VOA

Prep Batch: 17203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	5030C	
885-16440-2	BS24-14 3.5'	Total/NA	Solid	5030C	
885-16440-3	BS24-15 3.5'	Total/NA	Solid	5030C	
885-16440-4	BS24-16 3.5'	Total/NA	Solid	5030C	
885-16440-5	BS24-17 3.5'	Total/NA	Solid	5030C	
MB 885-17203/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17203/3-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17203/4-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16440-1 MS	BS24-13 3.5'	Total/NA	Solid	5030C	
885-16440-1 MSD	BS24-13 3.5'	Total/NA	Solid	5030C	
885-16440-2 MS	BS24-14 3.5'	Total/NA	Solid	5030C	
885-16440-2 MSD	BS24-14 3.5'	Total/NA	Solid	5030C	

Analysis Batch: 17596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	8015M/D	17203
885-16440-2	BS24-14 3.5'	Total/NA	Solid	8015M/D	17203
885-16440-3	BS24-15 3.5'	Total/NA	Solid	8015M/D	17203
885-16440-4	BS24-16 3.5'	Total/NA	Solid	8015M/D	17203
885-16440-5	BS24-17 3.5'	Total/NA	Solid	8015M/D	17203
MB 885-17203/1-A	Method Blank	Total/NA	Solid	8015M/D	17203
LCS 885-17203/3-A	Lab Control Sample	Total/NA	Solid	8015M/D	17203
885-16440-1 MS	BS24-13 3.5'	Total/NA	Solid	8015M/D	17203
885-16440-1 MSD	BS24-13 3.5'	Total/NA	Solid	8015M/D	17203

Analysis Batch: 17597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	8021B	17203
885-16440-2	BS24-14 3.5'	Total/NA	Solid	8021B	17203
885-16440-3	BS24-15 3.5'	Total/NA	Solid	8021B	17203
885-16440-4	BS24-16 3.5'	Total/NA	Solid	8021B	17203
885-16440-5	BS24-17 3.5'	Total/NA	Solid	8021B	17203
MB 885-17203/1-A	Method Blank	Total/NA	Solid	8021B	17203
LCS 885-17203/4-A	Lab Control Sample	Total/NA	Solid	8021B	17203
885-16440-2 MS	BS24-14 3.5'	Total/NA	Solid	8021B	17203
885-16440-2 MSD	BS24-14 3.5'	Total/NA	Solid	8021B	17203

GC Semi VOA

Prep Batch: 17439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	SHAKE	
885-16440-2	BS24-14 3.5'	Total/NA	Solid	SHAKE	
885-16440-3	BS24-15 3.5'	Total/NA	Solid	SHAKE	
885-16440-4	BS24-16 3.5'	Total/NA	Solid	SHAKE	
885-16440-5	BS24-17 3.5'	Total/NA	Solid	SHAKE	
MB 885-17439/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17439/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16440-3 MS	BS24-15 3.5'	Total/NA	Solid	SHAKE	
885-16440-3 MSD	BS24-15 3.5'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

GC Semi VOA

Analysis Batch: 17477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-5	BS24-17 3.5'	Total/NA	Solid	8015M/D	17439

Analysis Batch: 17588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	8015M/D	17439
885-16440-2	BS24-14 3.5'	Total/NA	Solid	8015M/D	17439
885-16440-3	BS24-15 3.5'	Total/NA	Solid	8015M/D	17439
885-16440-4	BS24-16 3.5'	Total/NA	Solid	8015M/D	17439
MB 885-17439/1-A	Method Blank	Total/NA	Solid	8015M/D	17439
LCS 885-17439/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17439
885-16440-3 MS	BS24-15 3.5'	Total/NA	Solid	8015M/D	17439
885-16440-3 MSD	BS24-15 3.5'	Total/NA	Solid	8015M/D	17439

HPLC/IC

Prep Batch: 17257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	300_Prep	
885-16440-2	BS24-14 3.5'	Total/NA	Solid	300_Prep	
885-16440-3	BS24-15 3.5'	Total/NA	Solid	300_Prep	
885-16440-4	BS24-16 3.5'	Total/NA	Solid	300_Prep	
885-16440-5	BS24-17 3.5'	Total/NA	Solid	300_Prep	
MB 885-17257/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17257/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-16440-1 MS	BS24-13 3.5'	Total/NA	Solid	300_Prep	
885-16440-1 MSD	BS24-13 3.5'	Total/NA	Solid	300_Prep	
885-16440-2 MS	BS24-14 3.5'	Total/NA	Solid	300_Prep	
885-16440-2 MSD	BS24-14 3.5'	Total/NA	Solid	300_Prep	

Analysis Batch: 17260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16440-1	BS24-13 3.5'	Total/NA	Solid	300.0	17257
885-16440-2	BS24-14 3.5'	Total/NA	Solid	300.0	17257
885-16440-3	BS24-15 3.5'	Total/NA	Solid	300.0	17257
885-16440-4	BS24-16 3.5'	Total/NA	Solid	300.0	17257
885-16440-5	BS24-17 3.5'	Total/NA	Solid	300.0	17257
MB 885-17257/1-A	Method Blank	Total/NA	Solid	300.0	17257
LCS 885-17257/2-A	Lab Control Sample	Total/NA	Solid	300.0	17257
885-16440-1 MS	BS24-13 3.5'	Total/NA	Solid	300.0	17257
885-16440-1 MSD	BS24-13 3.5'	Total/NA	Solid	300.0	17257
885-16440-2 MS	BS24-14 3.5'	Total/NA	Solid	300.0	17257
885-16440-2 MSD	BS24-14 3.5'	Total/NA	Solid	300.0	17257

Lab Chronicle

Client: Vertex
Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-13 3.5'
Lab Sample ID: 885-16440-1
Date Collected: 12/02/24 14:15
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/11/24 21:32
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/11/24 21:32
Total/NA	Prep	SHAKE			17439	MI	EET ALB	12/10/24 15:50
Total/NA	Analysis	8015M/D		1	17588	MI	EET ALB	12/12/24 15:29
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 09:02

Client Sample ID: BS24-14 3.5'
Lab Sample ID: 885-16440-2
Date Collected: 12/02/24 14:20
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/11/24 22:37
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/11/24 22:37
Total/NA	Prep	SHAKE			17439	MI	EET ALB	12/10/24 15:50
Total/NA	Analysis	8015M/D		1	17588	MI	EET ALB	12/12/24 15:40
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 09:33

Client Sample ID: BS24-15 3.5'
Lab Sample ID: 885-16440-3
Date Collected: 12/02/24 14:25
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/11/24 23:42
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/11/24 23:42
Total/NA	Prep	SHAKE			17439	MI	EET ALB	12/10/24 15:50
Total/NA	Analysis	8015M/D		1	17588	MI	EET ALB	12/12/24 15:51
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 10:04

Client Sample ID: BS24-16 3.5'
Lab Sample ID: 885-16440-4
Date Collected: 12/02/24 14:30
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 00:03

Lab Chronicle

Client: Vertex
Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-16 3.5'
Lab Sample ID: 885-16440-4
Date Collected: 12/02/24 14:30
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 00:03
Total/NA	Prep	SHAKE			17439	MI	EET ALB	12/10/24 15:50
Total/NA	Analysis	8015M/D		1	17588	MI	EET ALB	12/12/24 16:51
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 10:15

Client Sample ID: BS24-17 3.5'
Lab Sample ID: 885-16440-5
Date Collected: 12/02/24 14:45
Matrix: Solid
Date Received: 12/06/24 08:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8015M/D		1	17596	AT	EET ALB	12/12/24 00:25
Total/NA	Prep	5030C			17203	JR	EET ALB	12/06/24 12:42
Total/NA	Analysis	8021B		1	17597	AT	EET ALB	12/12/24 00:25
Total/NA	Prep	SHAKE			17439	MI	EET ALB	12/10/24 15:50
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/11/24 10:28
Total/NA	Prep	300_Prep			17257	JT	EET ALB	12/09/24 07:43
Total/NA	Analysis	300.0		20	17260	JT	EET ALB	12/09/24 13:21

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-16440-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (Bill to Mack Energy

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package.
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☒ ~~Rush~~ 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carthar

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 1 40%

Cooler Temp (including CF): 0.1+0.1 = 0.2 (°C)

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8710
Tel. 505-345-3975 Fax 505-345-4107

885-16440 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	Analysis Request: BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/3/24	1415	soil	BS24-13 3.5'	4oz jar	ice	1	X	X					X			
"	1420	"	BS24-14 3.5'	"	"	2										
"	1425	"	BS24-15 3.5'	"	"	3										
"	1430	"	BS24-16 3.5'	"	"	4										
"	1445	"	BS24-17 3.5'	"	"	5										

Date	Time	Relinquished by	Received by	Via	Date	Time
12/5/24	1030				12/5/24	1030
12/5/24	1900			UPS	12/6/24	8:10

Remarks:
Direct Bill Mack Energy
ATTN: Matt Buckles
cc: scarthar@vertexresource.com, AUdvik@vertexresource.c

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-16440-1

Login Number: 16440 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/27/2024 2:50:08 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-17179-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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12/27/2024 2:50:08 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-17179-1

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Definitions/Glossary

Client: Vertex Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-17179-1
Project: Calgary Federal #002E

Job ID: 885-17179-1 Eurofins Albuquerque

Job Narrative
885-17179-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/18/2024 7:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.9°C and 1.9°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-18102 and analytical batch 885-18344 recovered outside control limits for the following analytes: Diesel Range Organics [C10-C28]. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_OF_28D_PREC: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 885-18033 and analytical batch 885-18045 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-10 0'

Date Collected: 12/15/24 08:25
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 10:19	12/19/24 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/18/24 10:19*	*12/19/24 19:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/19/24 19:11	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 19:11	1
Toluene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 19:11	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 10:19	12/19/24 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/18/24 10:19*	*12/19/24 19:11*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/18/24 11:49	12/19/24 10:40	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/18/24 11:49	12/19/24 10:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*12/18/24 11:49*	*12/19/24 10:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 17:21	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-84 0'

Date Collected: 12/15/24 08:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 10:19	12/19/24 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/18/24 10:19*	*12/19/24 20:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/19/24 20:21	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 20:21	1
Toluene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 20:21	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 10:19	12/19/24 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/18/24 10:19*	*12/19/24 20:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/18/24 11:49	12/19/24 10:51	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/18/24 11:49	12/19/24 10:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*12/18/24 11:49*	*12/19/24 10:51*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 17:31	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-85 0'
Lab Sample ID: 885-17179-3
Date Collected: 12/15/24 08:35
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 10:19	12/19/24 21:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/18/24 10:19*	*12/19/24 21:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/19/24 21:31	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 10:19	12/19/24 21:31	1
Toluene	ND		0.048		mg/Kg		12/18/24 10:19	12/19/24 21:31	1
Xylenes, Total	ND		0.095		mg/Kg		12/18/24 10:19	12/19/24 21:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/18/24 10:19*	*12/19/24 21:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/18/24 11:49	12/19/24 11:01	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/18/24 11:49	12/19/24 11:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 17:41	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-86 0'
Lab Sample ID: 885-17179-4
Date Collected: 12/15/24 08:40
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/19/24 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 10:19*	*12/19/24 21:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/19/24 21:55	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 21:55	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 21:55	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 10:19	12/19/24 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/18/24 10:19*	*12/19/24 21:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/18/24 11:49	12/19/24 11:12	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/18/24 11:49	12/19/24 11:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 17:51	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-87 0'

Date Collected: 12/15/24 08:40
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/19/24 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 10:19*	*12/19/24 22:18*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 10:19	12/19/24 22:18	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/19/24 22:18	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/19/24 22:18	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 10:19	12/19/24 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/18/24 10:19*	*12/19/24 22:18*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/18/24 11:49	12/19/24 11:22	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/18/24 11:49	12/19/24 11:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 18:00	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-88 0'

Date Collected: 12/15/24 08:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/19/24 22:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/18/24 10:19*	*12/19/24 22:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/19/24 22:42	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 22:42	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 22:42	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 10:19	12/19/24 22:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/18/24 10:19*	*12/19/24 22:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/18/24 11:49	12/19/24 11:33	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/18/24 11:49	12/19/24 11:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 18:30	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-89 0'

Date Collected: 12/15/24 08:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 10:19	12/19/24 23:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 10:19*	*12/19/24 23:05*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/19/24 23:05	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 10:19	12/19/24 23:05	1
Toluene	ND		0.048		mg/Kg		12/18/24 10:19	12/19/24 23:05	1
Xylenes, Total	ND		0.096		mg/Kg		12/18/24 10:19	12/19/24 23:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/18/24 10:19*	*12/19/24 23:05*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/18/24 11:49	12/19/24 11:44	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/19/24 11:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 18:40	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-90 0'
Lab Sample ID: 885-17179-8
Date Collected: 12/15/24 08:50
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/19/24 23:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 10:19*	*12/19/24 23:28*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/19/24 23:28	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 23:28	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/19/24 23:28	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 10:19	12/19/24 23:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/18/24 10:19*	*12/19/24 23:28*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/18/24 11:49	12/19/24 11:54	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/18/24 11:49	12/19/24 11:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/18/24 11:49*	*12/19/24 11:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 18:50	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-91 0'
Lab Sample ID: 885-17179-9
Date Collected: 12/15/24 08:50
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/19/24 23:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 10:19*	*12/19/24 23:52*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/19/24 23:52	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/19/24 23:52	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/19/24 23:52	1
Xylenes, Total	ND		0.095		mg/Kg		12/18/24 10:19	12/19/24 23:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/18/24 10:19*	*12/19/24 23:52*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/18/24 11:49	12/19/24 12:16	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/18/24 11:49	12/19/24 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/18/24 11:49*	*12/19/24 12:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:00	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-92 0'

Date Collected: 12/15/24 08:55
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-10

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 00:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 10:19*	*12/20/24 00:15*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/20/24 00:15	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 00:15	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 00:15	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 10:19	12/20/24 00:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/18/24 10:19*	*12/20/24 00:15*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/18/24 11:49	12/19/24 12:26	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/19/24 12:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/18/24 11:49*	*12/19/24 12:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:09	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-93 0'

Date Collected: 12/15/24 08:55
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 10:19*	*12/20/24 01:02*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/20/24 01:02	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 01:02	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 01:02	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 10:19	12/20/24 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 10:19*	*12/20/24 01:02*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/18/24 11:49	12/19/24 12:37	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/19/24 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/18/24 11:49*	*12/19/24 12:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:19	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-101 0'

Date Collected: 12/15/24 09:10
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 10:19*	*12/20/24 01:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/20/24 01:25	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 01:25	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 01:25	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 10:19	12/20/24 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 10:19*	*12/20/24 01:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/18/24 11:49	12/19/24 12:48	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/19/24 12:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/18/24 11:49*	*12/19/24 12:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:29	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-102 0'

Date Collected: 12/15/24 09:15
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-13

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/20/24 01:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/18/24 10:19*	*12/20/24 01:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 10:19	12/20/24 01:48	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 01:48	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 01:48	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 10:19	12/20/24 01:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 10:19*	*12/20/24 01:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/18/24 11:49	12/19/24 12:58	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/18/24 11:49	12/19/24 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/18/24 11:49*	*12/19/24 12:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:39	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-103 0'

Date Collected: 12/15/24 09:20
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-14

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/18/24 10:19*	*12/20/24 02:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/20/24 02:11	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 02:11	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 02:11	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 10:19	12/20/24 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 10:19*	*12/20/24 02:11*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/18/24 11:49	12/19/24 13:09	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/18/24 11:49	12/19/24 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/18/24 11:49*	*12/19/24 13:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:49	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-104 0'

Date Collected: 12/15/24 09:25
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-15

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/20/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 10:19*	*12/20/24 02:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 10:19	12/20/24 02:34	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 02:34	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 02:34	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 10:19	12/20/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 10:19*	*12/20/24 02:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/18/24 11:49	12/23/24 14:56	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/23/24 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*12/18/24 11:49*	*12/23/24 14:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:26	12/18/24 19:59	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-105 0'

Date Collected: 12/15/24 09:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-16

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/20/24 02:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 10:19*	*12/20/24 02:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 10:19	12/20/24 02:57	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 02:57	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 02:57	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 10:19	12/20/24 02:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 10:19*	*12/20/24 02:57*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/18/24 11:49	12/23/24 15:06	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/18/24 11:49	12/23/24 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*12/18/24 11:49*	*12/23/24 15:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 20:28	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-106 0'

Date Collected: 12/15/24 09:35
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-17

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 10:19	12/20/24 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/18/24 10:19*	*12/20/24 03:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/20/24 03:20	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 03:20	1
Toluene	ND		0.047		mg/Kg		12/18/24 10:19	12/20/24 03:20	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 10:19	12/20/24 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 10:19*	*12/20/24 03:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/18/24 11:49	12/23/24 15:17	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/23/24 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*12/18/24 11:49*	*12/23/24 15:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 20:58	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-107 0'

Date Collected: 12/15/24 09:40
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-18

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 03:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 10:19*	*12/20/24 03:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/20/24 03:43	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 03:43	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 03:43	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 10:19	12/20/24 03:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/18/24 10:19*	*12/20/24 03:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/18/24 11:49	12/23/24 17:01	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/18/24 11:49	12/23/24 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*117*		*62 - 134*	*12/18/24 11:49*	*12/23/24 17:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 21:27	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-108 0'

Date Collected: 12/15/24 09:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-19

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/18/24 10:19*	*12/20/24 04:06*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/20/24 04:06	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 04:06	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 04:06	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 10:19	12/20/24 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 10:19*	*12/20/24 04:06*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/18/24 11:49	12/23/24 17:12	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/18/24 11:49	12/23/24 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*12/18/24 11:49*	*12/23/24 17:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 21:37	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-109 0'

Date Collected: 12/15/24 09:50
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-20

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 10:19	12/20/24 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/18/24 10:19*	*12/20/24 04:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 10:19	12/20/24 04:29	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 04:29	1
Toluene	ND		0.049		mg/Kg		12/18/24 10:19	12/20/24 04:29	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 10:19	12/20/24 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 10:19*	*12/20/24 04:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/19/24 10:35	12/24/24 02:55	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*12/19/24 10:35*	*12/24/24 02:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/18/24 11:49	12/18/24 21:47	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-110 0'
Lab Sample ID: 885-17179-21
Date Collected: 12/15/24 09:55
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 11:48	12/20/24 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/18/24 11:48*	*12/20/24 12:27*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 11:48	12/20/24 12:27	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 12:27	1
Toluene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 12:27	1
Xylenes, Total	ND		0.098		mg/Kg		12/18/24 11:48	12/20/24 12:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 12:27*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/19/24 10:35	12/24/24 03:27	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 03:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*12/19/24 10:35*	*12/24/24 03:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 21:57	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-111 0'

Date Collected: 12/15/24 10:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-22

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 11:48	12/20/24 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 11:48*	*12/20/24 13:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 11:48	12/20/24 13:33	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 13:33	1
Toluene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 13:33	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 11:48	12/20/24 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 13:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 03:37	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 03:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*12/19/24 10:35*	*12/24/24 03:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/18/24 11:49	12/18/24 22:26	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-112 0'

Date Collected: 12/15/24 10:05
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-23

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 11:48	12/20/24 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 11:48*	*12/20/24 14:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 14:38	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 14:38	1
Toluene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 14:38	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 11:48	12/20/24 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 11:48*	*12/20/24 14:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 03:48	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 03:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*12/19/24 10:35*	*12/24/24 03:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 22:36	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-113 0'
Lab Sample ID: 885-17179-24
Date Collected: 12/15/24 10:10
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 11:48	12/20/24 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 11:48*	*12/20/24 15:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 11:48	12/20/24 15:00	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 15:00	1
Toluene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 15:00	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 11:48	12/20/24 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 15:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/19/24 10:35	12/24/24 03:58	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 03:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*114*		*62 - 134*	*12/19/24 10:35*	*12/24/24 03:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 22:46	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-114 0'

Date Collected: 12/15/24 10:15
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-25

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 11:48	12/20/24 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/18/24 11:48*	*12/20/24 15:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 15:21	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 15:21	1
Toluene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 15:21	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 11:48	12/20/24 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 15:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/19/24 10:35	12/24/24 04:08	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*12/19/24 10:35*	*12/24/24 04:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 22:56	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-115 0'
Lab Sample ID: 885-17179-26
Date Collected: 12/16/24 09:25
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 11:48	12/20/24 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 11:48*	*12/20/24 15:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 11:48	12/20/24 15:43	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 15:43	1
Toluene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 15:43	1
Xylenes, Total	ND		0.092		mg/Kg		12/18/24 11:48	12/20/24 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 15:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/19/24 10:35	12/24/24 04:19	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 04:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/19/24 10:35*	*12/24/24 04:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:06	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-116 0'

Date Collected: 12/16/24 09:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-27

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 11:48	12/20/24 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/18/24 11:48*	*12/20/24 16:05*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 16:05	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 16:05	1
Toluene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 16:05	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 11:48	12/20/24 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 16:05*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 04:29	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 04:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*12/19/24 10:35*	*12/24/24 04:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:16	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-117 0'

Date Collected: 12/16/24 09:35
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-28

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 11:48	12/20/24 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 11:48*	*12/20/24 16:26*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 16:26	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 16:26	1
Toluene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 16:26	1
Xylenes, Total	ND		0.095		mg/Kg		12/18/24 11:48	12/20/24 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 16:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 04:50	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 04:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/19/24 10:35*	*12/24/24 04:50*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:25	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-118 0'
Lab Sample ID: 885-17179-29
Date Collected: 12/16/24 09:40
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 11:48	12/20/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 11:48*	*12/20/24 16:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 16:48	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 16:48	1
Toluene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 16:48	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 11:48	12/20/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 16:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 05:00	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 05:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:35	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-119 0'

Date Collected: 12/16/24 09:40
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-30

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 11:48	12/20/24 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/18/24 11:48*	*12/20/24 17:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 17:10	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 17:10	1
Toluene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 17:10	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 11:48	12/20/24 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 11:48*	*12/20/24 17:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/19/24 10:35	12/24/24 05:11	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 05:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:45	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-120 0'

Date Collected: 12/16/24 09:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-31

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 11:48	12/20/24 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 11:48*	*12/20/24 17:53*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 17:53	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 17:53	1
Toluene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 17:53	1
Xylenes, Total	ND		0.095		mg/Kg		12/18/24 11:48	12/20/24 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 17:53*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/19/24 10:35	12/24/24 05:21	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/19/24 10:35	12/24/24 05:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/18/24 23:55	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-121 0'

Date Collected: 12/16/24 09:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-32

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 11:48	12/20/24 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/18/24 11:48*	*12/20/24 18:15*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 18:15	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 18:15	1
Toluene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 18:15	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 11:48	12/20/24 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 18:15*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/19/24 10:35	12/24/24 05:31	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/19/24 10:35	12/24/24 05:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/19/24 08:05	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-122 0'

Date Collected: 12/16/24 09:55
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-33

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 11:48	12/20/24 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/18/24 11:48*	*12/20/24 18:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 18:37	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 18:37	1
Toluene	ND		0.049		mg/Kg		12/18/24 11:48	12/20/24 18:37	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 11:48	12/20/24 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 11:48*	*12/20/24 18:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/19/24 10:35	12/24/24 05:42	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 05:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*114*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/19/24 08:15	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-123 0'

Date Collected: 12/16/24 09:55
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-34

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 11:48	12/20/24 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 11:48*	*12/20/24 18:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 11:48	12/20/24 18:58	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 18:58	1
Toluene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 18:58	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 11:48	12/20/24 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/18/24 11:48*	*12/20/24 18:58*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/19/24 10:35	12/24/24 05:52	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 05:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*12/19/24 10:35*	*12/24/24 05:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/18/24 11:49	12/19/24 08:25	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-124 0'

Date Collected: 12/16/24 10:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-35

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 11:48	12/20/24 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/18/24 11:48*	*12/20/24 19:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 19:20	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 19:20	1
Toluene	ND		0.048		mg/Kg		12/18/24 11:48	12/20/24 19:20	1
Xylenes, Total	ND		0.096		mg/Kg		12/18/24 11:48	12/20/24 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 19:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/19/24 10:35	12/24/24 06:02	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 06:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*12/19/24 10:35*	*12/24/24 06:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 11:49	12/19/24 08:35	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-125 0'

Date Collected: 12/16/24 10:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-36

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 11:48	12/20/24 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 11:48*	*12/20/24 19:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 11:48	12/20/24 19:42	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 19:42	1
Toluene	ND		0.046		mg/Kg		12/18/24 11:48	12/20/24 19:42	1
Xylenes, Total	ND		0.092		mg/Kg		12/18/24 11:48	12/20/24 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 19:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/19/24 10:35	12/24/24 06:13	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:35	12/24/24 06:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*12/19/24 10:35*	*12/24/24 06:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/18/24 14:15	12/19/24 08:44	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-126 0'

Date Collected: 12/16/24 10:05
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-37

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 11:48	12/20/24 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/18/24 11:48*	*12/20/24 20:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 11:48	12/20/24 20:04	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 20:04	1
Toluene	ND		0.047		mg/Kg		12/18/24 11:48	12/20/24 20:04	1
Xylenes, Total	ND		0.095		mg/Kg		12/18/24 11:48	12/20/24 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 11:48*	*12/20/24 20:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/19/24 10:35	12/24/24 06:23	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:35	12/24/24 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*113*		*62 - 134*	*12/19/24 10:35*	*12/24/24 06:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 14:15	12/19/24 09:14	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-127 0'

Date Collected: 12/16/24 10:10
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-38

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 11:48	12/20/24 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/18/24 11:48*	*12/20/24 20:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 11:48	12/20/24 20:25	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 20:25	1
Toluene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 20:25	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 11:48	12/20/24 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/18/24 11:48*	*12/20/24 20:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/19/24 10:35	12/24/24 06:34	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 06:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*114*		*62 - 134*	*12/19/24 10:35*	*12/24/24 06:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 14:15	12/19/24 09:24	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-128 0'

Date Collected: 12/16/24 10:15
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-39

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 11:48	12/20/24 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 11:48*	*12/20/24 20:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 11:48	12/20/24 20:47	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 20:47	1
Toluene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 20:47	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 11:48	12/20/24 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/18/24 11:48*	*12/20/24 20:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/19/24 10:35	12/24/24 06:44	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/19/24 10:35	12/24/24 06:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*12/19/24 10:35*	*12/24/24 06:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/18/24 14:15	12/19/24 09:34	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-129 0'

Date Collected: 12/16/24 10:20
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-40

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 11:48	12/20/24 21:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 11:48*	*12/20/24 21:09*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 11:48	12/20/24 21:09	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 21:09	1
Toluene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 21:09	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 11:48	12/20/24 21:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 11:48*	*12/20/24 21:09*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.3		mg/Kg		12/19/24 10:39	12/24/24 07:27	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:39	12/24/24 07:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/19/24 10:39*	*12/24/24 07:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/18/24 14:15	12/19/24 10:03	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-130 0'

Date Collected: 12/16/24 10:25
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-41

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 13:42	12/20/24 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 13:42*	*12/20/24 23:19*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/20/24 23:19	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 13:42	12/20/24 23:19	1
Toluene	ND		0.047		mg/Kg		12/18/24 13:42	12/20/24 23:19	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 13:42	12/20/24 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 13:42*	*12/20/24 23:19*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.8		mg/Kg		12/19/24 10:39	12/24/24 07:59	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:39	12/24/24 07:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*132*		*62 - 134*	*12/19/24 10:39*	*12/24/24 07:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 12:48	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-131 0'

Date Collected: 12/16/24 10:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-42

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 13:42	12/21/24 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/18/24 13:42*	*12/21/24 00:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 00:24	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 00:24	1
Toluene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 00:24	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 13:42	12/21/24 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 13:42*	*12/21/24 00:24*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.1		mg/Kg		12/19/24 10:39	12/24/24 08:09	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:39	12/24/24 08:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/19/24 10:39*	*12/24/24 08:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/19/24 09:58	12/19/24 13:37	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-132 0'

Date Collected: 12/16/24 10:35
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-43

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 13:42	12/21/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/18/24 13:42*	*12/21/24 01:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 13:42	12/21/24 01:29	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 01:29	1
Toluene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 01:29	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 13:42	12/21/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/18/24 13:42*	*12/21/24 01:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.8		mg/Kg		12/19/24 10:39	12/24/24 08:20	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:39	12/24/24 08:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*12/19/24 10:39*	*12/24/24 08:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 14:07	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-133 0'
Date Collected: 12/16/24 10:40
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-44
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 13:42	12/21/24 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 13:42*	*12/21/24 01:51*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 01:51	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 01:51	1
Toluene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 01:51	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 13:42	12/21/24 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 13:42*	*12/21/24 01:51*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.3		mg/Kg		12/19/24 10:39	12/24/24 08:31	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:39	12/24/24 08:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*12/19/24 10:39*	*12/24/24 08:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 14:17	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-134 0'

Date Collected: 12/16/24 10:45
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-45

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 13:42	12/21/24 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/18/24 13:42*	*12/21/24 02:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 13:42	12/21/24 02:12	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 02:12	1
Toluene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 02:12	1
Xylenes, Total	ND		0.092		mg/Kg		12/18/24 13:42	12/21/24 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 13:42*	*12/21/24 02:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.9		mg/Kg		12/19/24 10:39	12/24/24 08:41	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/19/24 10:39	12/24/24 08:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*12/19/24 10:39*	*12/24/24 08:41*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 14:27	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-135 0'

Date Collected: 12/16/24 11:15
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-46

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 13:42	12/21/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/18/24 13:42*	*12/21/24 02:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 13:42	12/21/24 02:34	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 02:34	1
Toluene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 02:34	1
Xylenes, Total	ND		0.099		mg/Kg		12/18/24 13:42	12/21/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/18/24 13:42*	*12/21/24 02:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.5		mg/Kg		12/19/24 10:39	12/24/24 08:52	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/19/24 10:39	12/24/24 08:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/19/24 10:39*	*12/24/24 08:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 14:37	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-136 0'

Date Collected: 12/16/24 11:20
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-47

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 13:42	12/21/24 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/18/24 13:42*	*12/21/24 02:56*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 02:56	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 02:56	1
Toluene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 02:56	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 13:42	12/21/24 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 13:42*	*12/21/24 02:56*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.8		mg/Kg		12/19/24 10:39	12/24/24 09:02	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:39	12/24/24 09:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/19/24 10:39*	*12/24/24 09:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/19/24 09:58	12/19/24 14:46	20

Client Sample Results

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-137 0'
Lab Sample ID: 885-17179-48
Date Collected: 12/16/24 11:25
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 13:42	12/21/24 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/18/24 13:42*	*12/21/24 03:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 13:42	12/21/24 03:17	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 03:17	1
Toluene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 03:17	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 13:42	12/21/24 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 13:42*	*12/21/24 03:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.1		mg/Kg		12/19/24 10:39	12/24/24 09:23	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:39	12/24/24 09:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/19/24 10:39*	*12/24/24 09:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/19/24 09:58	12/19/24 14:56	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-138 0'

Date Collected: 12/16/24 11:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-49

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 13:42	12/21/24 03:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/18/24 13:42*	*12/21/24 03:39*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 13:42	12/21/24 03:39	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 03:39	1
Toluene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 03:39	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 13:42	12/21/24 03:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/18/24 13:42*	*12/21/24 03:39*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.2		mg/Kg		12/19/24 10:39	12/24/24 09:34	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/19/24 10:39	12/24/24 09:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/19/24 10:39*	*12/24/24 09:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 15:06	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Client Sample ID: BS24-139 0'

Date Collected: 12/16/24 11:35
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17179-50

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 13:42	12/21/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 13:42*	*12/21/24 04:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 04:00	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 04:00	1
Toluene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 04:00	1
Xylenes, Total	ND		0.096		mg/Kg		12/18/24 13:42	12/21/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/18/24 13:42*	*12/21/24 04:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/19/24 10:39	12/24/24 09:44	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/19/24 10:39	12/24/24 09:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*12/19/24 10:39*	*12/24/24 09:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 15:36	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-18009/1-A
Matrix: Solid
Analysis Batch: 18172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18009

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 10:19	12/19/24 18:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/18/24 10:19*	*12/19/24 18:47*	*1*

Lab Sample ID: LCS 885-18009/2-A
Matrix: Solid
Analysis Batch: 18172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	26.8		mg/Kg		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*206*		*35 - 166*

Lab Sample ID: 885-17179-1 MS
Matrix: Solid
Analysis Batch: 18172

Client Sample ID: BS24-10 0'
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.9	26.8		mg/Kg		108	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*213*		*35 - 166*

Lab Sample ID: 885-17179-1 MSD
Matrix: Solid
Analysis Batch: 18172

Client Sample ID: BS24-10 0'
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.8	24.3		mg/Kg		98	70 - 130	10	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*199*		*35 - 166*

Lab Sample ID: MB 885-18031/1-A
Matrix: Solid
Analysis Batch: 18203

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18031

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 11:48	12/20/24 12:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/18/24 11:48*	*12/20/24 12:06*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCS 885-18031/2-A
Matrix: Solid
Analysis Batch: 18203

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18031

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	22.3		mg/Kg		89	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*192*		*35 - 166*

Lab Sample ID: 885-17179-21 MS
Matrix: Solid
Analysis Batch: 18203

Client Sample ID: BS24-110 0'
Prep Type: Total/NA
Prep Batch: 18031

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.5	23.8		mg/Kg		97	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*203*		*35 - 166*

Lab Sample ID: 885-17179-21 MSD
Matrix: Solid
Analysis Batch: 18203

Client Sample ID: BS24-110 0'
Prep Type: Total/NA
Prep Batch: 18031

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.7	26.7		mg/Kg		108	70 - 130	11	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*213*		*35 - 166*

Lab Sample ID: MB 885-18044/1-A
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18044

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 13:42	12/20/24 22:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 13:42*	*12/20/24 22:57*	*1*

Lab Sample ID: LCS 885-18044/2-A
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.3		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*189*		*35 - 166*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: 885-17179-41 MS
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: BS24-130 0'
Prep Type: Total/NA
Prep Batch: 18044

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics [C6 - C10]	ND		23.5	23.9		mg/Kg		102	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*199*		*35 - 166*

Lab Sample ID: 885-17179-41 MSD
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: BS24-130 0'
Prep Type: Total/NA
Prep Batch: 18044

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		23.4	21.7		mg/Kg		93	70 - 130	10	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*194*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-18009/1-A
Matrix: Solid
Analysis Batch: 18173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18009

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 10:19	12/19/24 18:47	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 18:47	1
Toluene	ND		0.050		mg/Kg		12/18/24 10:19	12/19/24 18:47	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 10:19	12/19/24 18:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/18/24 10:19*	*12/19/24 18:47*	*1*

Lab Sample ID: LCS 885-18009/3-A
Matrix: Solid
Analysis Batch: 18173

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene			1.00	1.15		mg/Kg		115	70 - 130
Ethylbenzene			1.00	1.19		mg/Kg		119	70 - 130
m,p-Xylene			2.00	2.36		mg/Kg		118	70 - 130
o-Xylene			1.00	1.17		mg/Kg		117	70 - 130
Toluene			1.00	1.18		mg/Kg		118	70 - 130
Xylenes, Total			3.00	3.53		mg/Kg		118	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-17179-2 MS
Matrix: Solid
Analysis Batch: 18173

Client Sample ID: BS24-84 0'
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.999	1.14		mg/Kg		114	70 - 130
Ethylbenzene	ND		0.999	1.18		mg/Kg		119	70 - 130
m,p-Xylene	ND		2.00	2.31		mg/Kg		115	70 - 130
o-Xylene	ND		0.999	1.15		mg/Kg		115	70 - 130
Toluene	ND		0.999	1.18		mg/Kg		118	70 - 130
Xylenes, Total	ND		3.00	3.46		mg/Kg		115	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*

Lab Sample ID: 885-17179-2 MSD
Matrix: Solid
Analysis Batch: 18173

Client Sample ID: BS24-84 0'
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.995	1.09		mg/Kg		110	70 - 130	4	20
Ethylbenzene	ND		0.995	1.16		mg/Kg		116	70 - 130	2	20
m,p-Xylene	ND		1.99	2.27		mg/Kg		114	70 - 130	2	20
o-Xylene	ND		0.995	1.12		mg/Kg		112	70 - 130	3	20
Toluene	ND		0.995	1.12		mg/Kg		113	70 - 130	4	20
Xylenes, Total	ND		2.99	3.38		mg/Kg		113	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

Lab Sample ID: MB 885-18031/1-A
Matrix: Solid
Analysis Batch: 18204

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18031

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 11:48	12/20/24 12:06	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 12:06	1
Toluene	ND		0.050		mg/Kg		12/18/24 11:48	12/20/24 12:06	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 11:48	12/20/24 12:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/18/24 11:48*	*12/20/24 12:06*	*1*

Lab Sample ID: LCS 885-18031/3-A
Matrix: Solid
Analysis Batch: 18204

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18031

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.957		mg/Kg		96	70 - 130
Ethylbenzene	1.00	0.970		mg/Kg		97	70 - 130
m,p-Xylene	2.00	1.92		mg/Kg		96	70 - 130
o-Xylene	1.00	0.953		mg/Kg		95	70 - 130
Toluene	1.00	0.954		mg/Kg		95	70 - 130

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-18031/3-A
Matrix: Solid
Analysis Batch: 18204

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18031

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Xylenes, Total			3.00	2.87		mg/Kg		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*

Lab Sample ID: 885-17179-22 MS
Matrix: Solid
Analysis Batch: 18204

Client Sample ID: BS24-111 0'
Prep Type: Total/NA
Prep Batch: 18031

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.922	0.939		mg/Kg		102	70 - 130		
Ethylbenzene	ND		0.922	0.983		mg/Kg		107	70 - 130		
m,p-Xylene	ND		1.84	1.90		mg/Kg		103	70 - 130		
o-Xylene	ND		0.922	0.957		mg/Kg		104	70 - 130		
Toluene	ND		0.922	0.941		mg/Kg		102	70 - 130		
Xylenes, Total	ND		2.76	2.86		mg/Kg		103	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-17179-22 MSD
Matrix: Solid
Analysis Batch: 18204

Client Sample ID: BS24-111 0'
Prep Type: Total/NA
Prep Batch: 18031

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.921	0.907		mg/Kg		99	70 - 130	3	20
Ethylbenzene	ND		0.921	0.936		mg/Kg		102	70 - 130	5	20
m,p-Xylene	ND		1.84	1.89		mg/Kg		103	70 - 130	0	20
o-Xylene	ND		0.921	0.930		mg/Kg		101	70 - 130	3	20
Toluene	ND		0.921	0.935		mg/Kg		102	70 - 130	1	20
Xylenes, Total	ND		2.76	2.82		mg/Kg		102	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*

Lab Sample ID: MB 885-18044/1-A
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18044

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Toluene	ND		0.050		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 13:42	12/20/24 22:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 13:42*	*12/20/24 22:57*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-18044/3-A
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.00		mg/Kg		100	70 - 130		
Ethylbenzene			1.00	1.01		mg/Kg		101	70 - 130		
m,p-Xylene			2.00	1.97		mg/Kg		99	70 - 130		
o-Xylene			1.00	0.986		mg/Kg		99	70 - 130		
Toluene			1.00	1.01		mg/Kg		101	70 - 130		
Xylenes, Total			3.00	2.96		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*

Lab Sample ID: 885-17179-42 MS
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: BS24-131 0'
Prep Type: Total/NA
Prep Batch: 18044

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.969	1.03		mg/Kg		106	70 - 130		
Ethylbenzene	ND		0.969	1.04		mg/Kg		107	70 - 130		
m,p-Xylene	ND		1.94	2.04		mg/Kg		105	70 - 130		
o-Xylene	ND		0.969	1.03		mg/Kg		106	70 - 130		
Toluene	ND		0.969	1.03		mg/Kg		106	70 - 130		
Xylenes, Total	ND		2.91	3.06		mg/Kg		105	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*

Lab Sample ID: 885-17179-42 MSD
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: BS24-131 0'
Prep Type: Total/NA
Prep Batch: 18044

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.973	0.980		mg/Kg		101	70 - 130	5	20
Ethylbenzene	ND		0.973	1.00		mg/Kg		103	70 - 130	3	20
m,p-Xylene	ND		1.95	1.99		mg/Kg		102	70 - 130	2	20
o-Xylene	ND		0.973	0.990		mg/Kg		102	70 - 130	4	20
Toluene	ND		0.973	0.999		mg/Kg		103	70 - 130	3	20
Xylenes, Total	ND		2.92	2.98		mg/Kg		102	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-18032/1-A
Matrix: Solid
Analysis Batch: 18098

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18032

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/18/24 11:49	12/19/24 10:20	1

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QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-18032/1-A
Matrix: Solid
Analysis Batch: 18098

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18032

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/18/24 11:49	12/19/24 10:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*12/18/24 11:49*	*12/19/24 10:20*	*1*

Lab Sample ID: LCS 885-18032/2-A
Matrix: Solid
Analysis Batch: 18098

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18032

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	44.5		mg/Kg		89	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*

Lab Sample ID: 885-17179-19 MS
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-108 0'
Prep Type: Total/NA
Prep Batch: 18032

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*62*		*62 - 134*

Lab Sample ID: 885-17179-19 MSD
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-108 0'
Prep Type: Total/NA
Prep Batch: 18032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		45.5	41.8		mg/Kg					

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*

Lab Sample ID: MB 885-18101/1-A
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18101

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/19/24 10:35	12/24/24 02:34	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/19/24 10:35	12/24/24 02:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*12/19/24 10:35*	*12/24/24 02:34*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 885-18101/2-A
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18101

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	56.9		mg/Kg		114	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*

Lab Sample ID: 885-17179-20 MS
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-109 0'
Prep Type: Total/NA
Prep Batch: 18101

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		45.9	44.2		mg/Kg		96	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*

Lab Sample ID: 885-17179-20 MSD
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-109 0'
Prep Type: Total/NA
Prep Batch: 18101

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		47.5	45.4		mg/Kg		96	44 - 136	3	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*

Lab Sample ID: MB 885-18102/1-A
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18102

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/19/24 10:39	12/24/24 07:05	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/19/24 10:39	12/24/24 07:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*12/19/24 10:39*	*12/24/24 07:05*	*1*

Lab Sample ID: LCS 885-18102/2-A
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18102

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	69.1	*+	mg/Kg		138	60 - 135		

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 885-18102/2-A
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18102

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	135	S1+	62 - 134

Lab Sample ID: 885-17179-40 MS
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-129 0'
Prep Type: Total/NA
Prep Batch: 18102

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND	*+	46.9	49.9		mg/Kg		106	44 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	100		62 - 134

Lab Sample ID: 885-17179-40 MSD
Matrix: Solid
Analysis Batch: 18344

Client Sample ID: BS24-129 0'
Prep Type: Total/NA
Prep Batch: 18102

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND	*+	49.2	47.2		mg/Kg		96	44 - 136	6	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	94		62 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-18025/1-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18025

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/18/24 11:26	12/18/24 14:34	1

Lab Sample ID: LCS 885-18025/2-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18025

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride			30.0	28.9		mg/Kg		96	90 - 110

Lab Sample ID: MB 885-18033/1-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18033

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/18/24 11:49	12/18/24 14:53	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-18033/2-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.2		mg/Kg		97	90 - 110

Lab Sample ID: MB 885-18048/1-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18048

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/18/24 14:15	12/18/24 15:13	1

Lab Sample ID: LCS 885-18048/2-A
Matrix: Solid
Analysis Batch: 18045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18048

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.2		mg/Kg		97	90 - 110

Lab Sample ID: MB 885-18097/1-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18097

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/19/24 09:58	12/19/24 11:42	1

Lab Sample ID: LCS 885-18097/2-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18097

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.0		mg/Kg		97	90 - 110

QC Association Summary

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 18009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	5030C	
885-17179-2	BS24-84 0'	Total/NA	Solid	5030C	
885-17179-3	BS24-85 0'	Total/NA	Solid	5030C	
885-17179-4	BS24-86 0'	Total/NA	Solid	5030C	
885-17179-5	BS24-87 0'	Total/NA	Solid	5030C	
885-17179-6	BS24-88 0'	Total/NA	Solid	5030C	
885-17179-7	BS24-89 0'	Total/NA	Solid	5030C	
885-17179-8	BS24-90 0'	Total/NA	Solid	5030C	
885-17179-9	BS24-91 0'	Total/NA	Solid	5030C	
885-17179-10	BS24-92 0'	Total/NA	Solid	5030C	
885-17179-11	BS24-93 0'	Total/NA	Solid	5030C	
885-17179-12	BS24-101 0'	Total/NA	Solid	5030C	
885-17179-13	BS24-102 0'	Total/NA	Solid	5030C	
885-17179-14	BS24-103 0'	Total/NA	Solid	5030C	
885-17179-15	BS24-104 0'	Total/NA	Solid	5030C	
885-17179-16	BS24-105 0'	Total/NA	Solid	5030C	
885-17179-17	BS24-106 0'	Total/NA	Solid	5030C	
885-17179-18	BS24-107 0'	Total/NA	Solid	5030C	
885-17179-19	BS24-108 0'	Total/NA	Solid	5030C	
885-17179-20	BS24-109 0'	Total/NA	Solid	5030C	
MB 885-18009/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18009/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18009/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17179-1 MS	BS24-10 0'	Total/NA	Solid	5030C	
885-17179-1 MSD	BS24-10 0'	Total/NA	Solid	5030C	
885-17179-2 MS	BS24-84 0'	Total/NA	Solid	5030C	
885-17179-2 MSD	BS24-84 0'	Total/NA	Solid	5030C	

Prep Batch: 18031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-21	BS24-110 0'	Total/NA	Solid	5030C	
885-17179-22	BS24-111 0'	Total/NA	Solid	5030C	
885-17179-23	BS24-112 0'	Total/NA	Solid	5030C	
885-17179-24	BS24-113 0'	Total/NA	Solid	5030C	
885-17179-25	BS24-114 0'	Total/NA	Solid	5030C	
885-17179-26	BS24-115 0'	Total/NA	Solid	5030C	
885-17179-27	BS24-116 0'	Total/NA	Solid	5030C	
885-17179-28	BS24-117 0'	Total/NA	Solid	5030C	
885-17179-29	BS24-118 0'	Total/NA	Solid	5030C	
885-17179-30	BS24-119 0'	Total/NA	Solid	5030C	
885-17179-31	BS24-120 0'	Total/NA	Solid	5030C	
885-17179-32	BS24-121 0'	Total/NA	Solid	5030C	
885-17179-33	BS24-122 0'	Total/NA	Solid	5030C	
885-17179-34	BS24-123 0'	Total/NA	Solid	5030C	
885-17179-35	BS24-124 0'	Total/NA	Solid	5030C	
885-17179-36	BS24-125 0'	Total/NA	Solid	5030C	
885-17179-37	BS24-126 0'	Total/NA	Solid	5030C	
885-17179-38	BS24-127 0'	Total/NA	Solid	5030C	
885-17179-39	BS24-128 0'	Total/NA	Solid	5030C	
885-17179-40	BS24-129 0'	Total/NA	Solid	5030C	
MB 885-18031/1-A	Method Blank	Total/NA	Solid	5030C	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

GC VOA (Continued)

Prep Batch: 18031 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-18031/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18031/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17179-21 MS	BS24-110 0'	Total/NA	Solid	5030C	
885-17179-21 MSD	BS24-110 0'	Total/NA	Solid	5030C	
885-17179-22 MS	BS24-111 0'	Total/NA	Solid	5030C	
885-17179-22 MSD	BS24-111 0'	Total/NA	Solid	5030C	

Prep Batch: 18044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-41	BS24-130 0'	Total/NA	Solid	5030C	
885-17179-42	BS24-131 0'	Total/NA	Solid	5030C	
885-17179-43	BS24-132 0'	Total/NA	Solid	5030C	
885-17179-44	BS24-133 0'	Total/NA	Solid	5030C	
885-17179-45	BS24-134 0'	Total/NA	Solid	5030C	
885-17179-46	BS24-135 0'	Total/NA	Solid	5030C	
885-17179-47	BS24-136 0'	Total/NA	Solid	5030C	
885-17179-48	BS24-137 0'	Total/NA	Solid	5030C	
885-17179-49	BS24-138 0'	Total/NA	Solid	5030C	
885-17179-50	BS24-139 0'	Total/NA	Solid	5030C	
MB 885-18044/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18044/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18044/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17179-41 MS	BS24-130 0'	Total/NA	Solid	5030C	
885-17179-41 MSD	BS24-130 0'	Total/NA	Solid	5030C	
885-17179-42 MS	BS24-131 0'	Total/NA	Solid	5030C	
885-17179-42 MSD	BS24-131 0'	Total/NA	Solid	5030C	

Analysis Batch: 18172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	8015M/D	18009
885-17179-2	BS24-84 0'	Total/NA	Solid	8015M/D	18009
885-17179-3	BS24-85 0'	Total/NA	Solid	8015M/D	18009
885-17179-4	BS24-86 0'	Total/NA	Solid	8015M/D	18009
885-17179-5	BS24-87 0'	Total/NA	Solid	8015M/D	18009
885-17179-6	BS24-88 0'	Total/NA	Solid	8015M/D	18009
885-17179-7	BS24-89 0'	Total/NA	Solid	8015M/D	18009
885-17179-8	BS24-90 0'	Total/NA	Solid	8015M/D	18009
885-17179-9	BS24-91 0'	Total/NA	Solid	8015M/D	18009
885-17179-10	BS24-92 0'	Total/NA	Solid	8015M/D	18009
885-17179-11	BS24-93 0'	Total/NA	Solid	8015M/D	18009
885-17179-12	BS24-101 0'	Total/NA	Solid	8015M/D	18009
885-17179-13	BS24-102 0'	Total/NA	Solid	8015M/D	18009
885-17179-14	BS24-103 0'	Total/NA	Solid	8015M/D	18009
885-17179-15	BS24-104 0'	Total/NA	Solid	8015M/D	18009
885-17179-16	BS24-105 0'	Total/NA	Solid	8015M/D	18009
885-17179-17	BS24-106 0'	Total/NA	Solid	8015M/D	18009
885-17179-18	BS24-107 0'	Total/NA	Solid	8015M/D	18009
885-17179-19	BS24-108 0'	Total/NA	Solid	8015M/D	18009
885-17179-20	BS24-109 0'	Total/NA	Solid	8015M/D	18009
MB 885-18009/1-A	Method Blank	Total/NA	Solid	8015M/D	18009
LCS 885-18009/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18009

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

GC VOA (Continued)

Analysis Batch: 18172 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1 MS	BS24-10 0'	Total/NA	Solid	8015M/D	18009
885-17179-1 MSD	BS24-10 0'	Total/NA	Solid	8015M/D	18009

Analysis Batch: 18173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	8021B	18009
885-17179-2	BS24-84 0'	Total/NA	Solid	8021B	18009
885-17179-3	BS24-85 0'	Total/NA	Solid	8021B	18009
885-17179-4	BS24-86 0'	Total/NA	Solid	8021B	18009
885-17179-5	BS24-87 0'	Total/NA	Solid	8021B	18009
885-17179-6	BS24-88 0'	Total/NA	Solid	8021B	18009
885-17179-7	BS24-89 0'	Total/NA	Solid	8021B	18009
885-17179-8	BS24-90 0'	Total/NA	Solid	8021B	18009
885-17179-9	BS24-91 0'	Total/NA	Solid	8021B	18009
885-17179-10	BS24-92 0'	Total/NA	Solid	8021B	18009
885-17179-11	BS24-93 0'	Total/NA	Solid	8021B	18009
885-17179-12	BS24-101 0'	Total/NA	Solid	8021B	18009
885-17179-13	BS24-102 0'	Total/NA	Solid	8021B	18009
885-17179-14	BS24-103 0'	Total/NA	Solid	8021B	18009
885-17179-15	BS24-104 0'	Total/NA	Solid	8021B	18009
885-17179-16	BS24-105 0'	Total/NA	Solid	8021B	18009
885-17179-17	BS24-106 0'	Total/NA	Solid	8021B	18009
885-17179-18	BS24-107 0'	Total/NA	Solid	8021B	18009
885-17179-19	BS24-108 0'	Total/NA	Solid	8021B	18009
885-17179-20	BS24-109 0'	Total/NA	Solid	8021B	18009
MB 885-18009/1-A	Method Blank	Total/NA	Solid	8021B	18009
LCS 885-18009/3-A	Lab Control Sample	Total/NA	Solid	8021B	18009
885-17179-2 MS	BS24-84 0'	Total/NA	Solid	8021B	18009
885-17179-2 MSD	BS24-84 0'	Total/NA	Solid	8021B	18009

Analysis Batch: 18203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-21	BS24-110 0'	Total/NA	Solid	8015M/D	18031
885-17179-22	BS24-111 0'	Total/NA	Solid	8015M/D	18031
885-17179-23	BS24-112 0'	Total/NA	Solid	8015M/D	18031
885-17179-24	BS24-113 0'	Total/NA	Solid	8015M/D	18031
885-17179-25	BS24-114 0'	Total/NA	Solid	8015M/D	18031
885-17179-26	BS24-115 0'	Total/NA	Solid	8015M/D	18031
885-17179-27	BS24-116 0'	Total/NA	Solid	8015M/D	18031
885-17179-28	BS24-117 0'	Total/NA	Solid	8015M/D	18031
885-17179-29	BS24-118 0'	Total/NA	Solid	8015M/D	18031
885-17179-30	BS24-119 0'	Total/NA	Solid	8015M/D	18031
885-17179-31	BS24-120 0'	Total/NA	Solid	8015M/D	18031
885-17179-32	BS24-121 0'	Total/NA	Solid	8015M/D	18031
885-17179-33	BS24-122 0'	Total/NA	Solid	8015M/D	18031
885-17179-34	BS24-123 0'	Total/NA	Solid	8015M/D	18031
885-17179-35	BS24-124 0'	Total/NA	Solid	8015M/D	18031
885-17179-36	BS24-125 0'	Total/NA	Solid	8015M/D	18031
885-17179-37	BS24-126 0'	Total/NA	Solid	8015M/D	18031
885-17179-38	BS24-127 0'	Total/NA	Solid	8015M/D	18031
885-17179-39	BS24-128 0'	Total/NA	Solid	8015M/D	18031

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

GC VOA (Continued)

Analysis Batch: 18203 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-40	BS24-129 0'	Total/NA	Solid	8015M/D	18031
MB 885-18031/1-A	Method Blank	Total/NA	Solid	8015M/D	18031
LCS 885-18031/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18031
885-17179-21 MS	BS24-110 0'	Total/NA	Solid	8015M/D	18031
885-17179-21 MSD	BS24-110 0'	Total/NA	Solid	8015M/D	18031

Analysis Batch: 18204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-21	BS24-110 0'	Total/NA	Solid	8021B	18031
885-17179-22	BS24-111 0'	Total/NA	Solid	8021B	18031
885-17179-23	BS24-112 0'	Total/NA	Solid	8021B	18031
885-17179-24	BS24-113 0'	Total/NA	Solid	8021B	18031
885-17179-25	BS24-114 0'	Total/NA	Solid	8021B	18031
885-17179-26	BS24-115 0'	Total/NA	Solid	8021B	18031
885-17179-27	BS24-116 0'	Total/NA	Solid	8021B	18031
885-17179-28	BS24-117 0'	Total/NA	Solid	8021B	18031
885-17179-29	BS24-118 0'	Total/NA	Solid	8021B	18031
885-17179-30	BS24-119 0'	Total/NA	Solid	8021B	18031
885-17179-31	BS24-120 0'	Total/NA	Solid	8021B	18031
885-17179-32	BS24-121 0'	Total/NA	Solid	8021B	18031
885-17179-33	BS24-122 0'	Total/NA	Solid	8021B	18031
885-17179-34	BS24-123 0'	Total/NA	Solid	8021B	18031
885-17179-35	BS24-124 0'	Total/NA	Solid	8021B	18031
885-17179-36	BS24-125 0'	Total/NA	Solid	8021B	18031
885-17179-37	BS24-126 0'	Total/NA	Solid	8021B	18031
885-17179-38	BS24-127 0'	Total/NA	Solid	8021B	18031
885-17179-39	BS24-128 0'	Total/NA	Solid	8021B	18031
885-17179-40	BS24-129 0'	Total/NA	Solid	8021B	18031
MB 885-18031/1-A	Method Blank	Total/NA	Solid	8021B	18031
LCS 885-18031/3-A	Lab Control Sample	Total/NA	Solid	8021B	18031
885-17179-22 MS	BS24-111 0'	Total/NA	Solid	8021B	18031
885-17179-22 MSD	BS24-111 0'	Total/NA	Solid	8021B	18031

Analysis Batch: 18279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-41	BS24-130 0'	Total/NA	Solid	8015M/D	18044
885-17179-42	BS24-131 0'	Total/NA	Solid	8015M/D	18044
885-17179-43	BS24-132 0'	Total/NA	Solid	8015M/D	18044
885-17179-44	BS24-133 0'	Total/NA	Solid	8015M/D	18044
885-17179-45	BS24-134 0'	Total/NA	Solid	8015M/D	18044
885-17179-46	BS24-135 0'	Total/NA	Solid	8015M/D	18044
885-17179-47	BS24-136 0'	Total/NA	Solid	8015M/D	18044
885-17179-48	BS24-137 0'	Total/NA	Solid	8015M/D	18044
885-17179-49	BS24-138 0'	Total/NA	Solid	8015M/D	18044
885-17179-50	BS24-139 0'	Total/NA	Solid	8015M/D	18044
MB 885-18044/1-A	Method Blank	Total/NA	Solid	8015M/D	18044
LCS 885-18044/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18044
885-17179-41 MS	BS24-130 0'	Total/NA	Solid	8015M/D	18044
885-17179-41 MSD	BS24-130 0'	Total/NA	Solid	8015M/D	18044

QC Association Summary

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

GC VOA

Analysis Batch: 18280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-41	BS24-130 0'	Total/NA	Solid	8021B	18044
885-17179-42	BS24-131 0'	Total/NA	Solid	8021B	18044
885-17179-43	BS24-132 0'	Total/NA	Solid	8021B	18044
885-17179-44	BS24-133 0'	Total/NA	Solid	8021B	18044
885-17179-45	BS24-134 0'	Total/NA	Solid	8021B	18044
885-17179-46	BS24-135 0'	Total/NA	Solid	8021B	18044
885-17179-47	BS24-136 0'	Total/NA	Solid	8021B	18044
885-17179-48	BS24-137 0'	Total/NA	Solid	8021B	18044
885-17179-49	BS24-138 0'	Total/NA	Solid	8021B	18044
885-17179-50	BS24-139 0'	Total/NA	Solid	8021B	18044
MB 885-18044/1-A	Method Blank	Total/NA	Solid	8021B	18044
LCS 885-18044/3-A	Lab Control Sample	Total/NA	Solid	8021B	18044
885-17179-42 MS	BS24-131 0'	Total/NA	Solid	8021B	18044
885-17179-42 MSD	BS24-131 0'	Total/NA	Solid	8021B	18044

GC Semi VOA

Prep Batch: 18032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	SHAKE	
885-17179-2	BS24-84 0'	Total/NA	Solid	SHAKE	
885-17179-3	BS24-85 0'	Total/NA	Solid	SHAKE	
885-17179-4	BS24-86 0'	Total/NA	Solid	SHAKE	
885-17179-5	BS24-87 0'	Total/NA	Solid	SHAKE	
885-17179-6	BS24-88 0'	Total/NA	Solid	SHAKE	
885-17179-7	BS24-89 0'	Total/NA	Solid	SHAKE	
885-17179-8	BS24-90 0'	Total/NA	Solid	SHAKE	
885-17179-9	BS24-91 0'	Total/NA	Solid	SHAKE	
885-17179-10	BS24-92 0'	Total/NA	Solid	SHAKE	
885-17179-11	BS24-93 0'	Total/NA	Solid	SHAKE	
885-17179-12	BS24-101 0'	Total/NA	Solid	SHAKE	
885-17179-13	BS24-102 0'	Total/NA	Solid	SHAKE	
885-17179-14	BS24-103 0'	Total/NA	Solid	SHAKE	
885-17179-15	BS24-104 0'	Total/NA	Solid	SHAKE	
885-17179-16	BS24-105 0'	Total/NA	Solid	SHAKE	
885-17179-17	BS24-106 0'	Total/NA	Solid	SHAKE	
885-17179-18	BS24-107 0'	Total/NA	Solid	SHAKE	
885-17179-19	BS24-108 0'	Total/NA	Solid	SHAKE	
MB 885-18032/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18032/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17179-19 MS	BS24-108 0'	Total/NA	Solid	SHAKE	
885-17179-19 MSD	BS24-108 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	8015M/D	18032
885-17179-2	BS24-84 0'	Total/NA	Solid	8015M/D	18032
885-17179-3	BS24-85 0'	Total/NA	Solid	8015M/D	18032
885-17179-4	BS24-86 0'	Total/NA	Solid	8015M/D	18032
885-17179-5	BS24-87 0'	Total/NA	Solid	8015M/D	18032
885-17179-6	BS24-88 0'	Total/NA	Solid	8015M/D	18032

QC Association Summary

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Analysis Batch: 18098 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-7	BS24-89 0'	Total/NA	Solid	8015M/D	18032
885-17179-8	BS24-90 0'	Total/NA	Solid	8015M/D	18032
885-17179-9	BS24-91 0'	Total/NA	Solid	8015M/D	18032
885-17179-10	BS24-92 0'	Total/NA	Solid	8015M/D	18032
885-17179-11	BS24-93 0'	Total/NA	Solid	8015M/D	18032
885-17179-12	BS24-101 0'	Total/NA	Solid	8015M/D	18032
885-17179-13	BS24-102 0'	Total/NA	Solid	8015M/D	18032
885-17179-14	BS24-103 0'	Total/NA	Solid	8015M/D	18032
MB 885-18032/1-A	Method Blank	Total/NA	Solid	8015M/D	18032
LCS 885-18032/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18032

Prep Batch: 18101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-20	BS24-109 0'	Total/NA	Solid	SHAKE	
885-17179-21	BS24-110 0'	Total/NA	Solid	SHAKE	
885-17179-22	BS24-111 0'	Total/NA	Solid	SHAKE	
885-17179-23	BS24-112 0'	Total/NA	Solid	SHAKE	
885-17179-24	BS24-113 0'	Total/NA	Solid	SHAKE	
885-17179-25	BS24-114 0'	Total/NA	Solid	SHAKE	
885-17179-26	BS24-115 0'	Total/NA	Solid	SHAKE	
885-17179-27	BS24-116 0'	Total/NA	Solid	SHAKE	
885-17179-28	BS24-117 0'	Total/NA	Solid	SHAKE	
885-17179-29	BS24-118 0'	Total/NA	Solid	SHAKE	
885-17179-30	BS24-119 0'	Total/NA	Solid	SHAKE	
885-17179-31	BS24-120 0'	Total/NA	Solid	SHAKE	
885-17179-32	BS24-121 0'	Total/NA	Solid	SHAKE	
885-17179-33	BS24-122 0'	Total/NA	Solid	SHAKE	
885-17179-34	BS24-123 0'	Total/NA	Solid	SHAKE	
885-17179-35	BS24-124 0'	Total/NA	Solid	SHAKE	
885-17179-36	BS24-125 0'	Total/NA	Solid	SHAKE	
885-17179-37	BS24-126 0'	Total/NA	Solid	SHAKE	
885-17179-38	BS24-127 0'	Total/NA	Solid	SHAKE	
885-17179-39	BS24-128 0'	Total/NA	Solid	SHAKE	
MB 885-18101/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18101/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17179-20 MS	BS24-109 0'	Total/NA	Solid	SHAKE	
885-17179-20 MSD	BS24-109 0'	Total/NA	Solid	SHAKE	

Prep Batch: 18102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-40	BS24-129 0'	Total/NA	Solid	SHAKE	
885-17179-41	BS24-130 0'	Total/NA	Solid	SHAKE	
885-17179-42	BS24-131 0'	Total/NA	Solid	SHAKE	
885-17179-43	BS24-132 0'	Total/NA	Solid	SHAKE	
885-17179-44	BS24-133 0'	Total/NA	Solid	SHAKE	
885-17179-45	BS24-134 0'	Total/NA	Solid	SHAKE	
885-17179-46	BS24-135 0'	Total/NA	Solid	SHAKE	
885-17179-47	BS24-136 0'	Total/NA	Solid	SHAKE	
885-17179-48	BS24-137 0'	Total/NA	Solid	SHAKE	
885-17179-49	BS24-138 0'	Total/NA	Solid	SHAKE	
885-17179-50	BS24-139 0'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

GC Semi VOA (Continued)

Prep Batch: 18102 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-18102/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18102/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17179-40 MS	BS24-129 0'	Total/NA	Solid	SHAKE	
885-17179-40 MSD	BS24-129 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-15	BS24-104 0'	Total/NA	Solid	8015M/D	18032
885-17179-16	BS24-105 0'	Total/NA	Solid	8015M/D	18032
885-17179-17	BS24-106 0'	Total/NA	Solid	8015M/D	18032
885-17179-18	BS24-107 0'	Total/NA	Solid	8015M/D	18032
885-17179-19	BS24-108 0'	Total/NA	Solid	8015M/D	18032
885-17179-20	BS24-109 0'	Total/NA	Solid	8015M/D	18101
885-17179-21	BS24-110 0'	Total/NA	Solid	8015M/D	18101
885-17179-22	BS24-111 0'	Total/NA	Solid	8015M/D	18101
885-17179-23	BS24-112 0'	Total/NA	Solid	8015M/D	18101
885-17179-24	BS24-113 0'	Total/NA	Solid	8015M/D	18101
885-17179-25	BS24-114 0'	Total/NA	Solid	8015M/D	18101
885-17179-26	BS24-115 0'	Total/NA	Solid	8015M/D	18101
885-17179-27	BS24-116 0'	Total/NA	Solid	8015M/D	18101
885-17179-28	BS24-117 0'	Total/NA	Solid	8015M/D	18101
885-17179-29	BS24-118 0'	Total/NA	Solid	8015M/D	18101
885-17179-30	BS24-119 0'	Total/NA	Solid	8015M/D	18101
885-17179-31	BS24-120 0'	Total/NA	Solid	8015M/D	18101
885-17179-32	BS24-121 0'	Total/NA	Solid	8015M/D	18101
885-17179-33	BS24-122 0'	Total/NA	Solid	8015M/D	18101
885-17179-34	BS24-123 0'	Total/NA	Solid	8015M/D	18101
885-17179-35	BS24-124 0'	Total/NA	Solid	8015M/D	18101
885-17179-36	BS24-125 0'	Total/NA	Solid	8015M/D	18101
885-17179-37	BS24-126 0'	Total/NA	Solid	8015M/D	18101
885-17179-38	BS24-127 0'	Total/NA	Solid	8015M/D	18101
885-17179-39	BS24-128 0'	Total/NA	Solid	8015M/D	18101
885-17179-40	BS24-129 0'	Total/NA	Solid	8015M/D	18102
885-17179-41	BS24-130 0'	Total/NA	Solid	8015M/D	18102
885-17179-42	BS24-131 0'	Total/NA	Solid	8015M/D	18102
885-17179-43	BS24-132 0'	Total/NA	Solid	8015M/D	18102
885-17179-44	BS24-133 0'	Total/NA	Solid	8015M/D	18102
885-17179-45	BS24-134 0'	Total/NA	Solid	8015M/D	18102
885-17179-46	BS24-135 0'	Total/NA	Solid	8015M/D	18102
885-17179-47	BS24-136 0'	Total/NA	Solid	8015M/D	18102
885-17179-48	BS24-137 0'	Total/NA	Solid	8015M/D	18102
885-17179-49	BS24-138 0'	Total/NA	Solid	8015M/D	18102
885-17179-50	BS24-139 0'	Total/NA	Solid	8015M/D	18102
MB 885-18101/1-A	Method Blank	Total/NA	Solid	8015M/D	18101
MB 885-18102/1-A	Method Blank	Total/NA	Solid	8015M/D	18102
LCS 885-18101/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18101
LCS 885-18102/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18102
885-17179-19 MS	BS24-108 0'	Total/NA	Solid	8015M/D	18032
885-17179-19 MSD	BS24-108 0'	Total/NA	Solid	8015M/D	18032
885-17179-20 MS	BS24-109 0'	Total/NA	Solid	8015M/D	18101
885-17179-20 MSD	BS24-109 0'	Total/NA	Solid	8015M/D	18101

QC Association Summary

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Analysis Batch: 18344 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-40 MS	BS24-129 0'	Total/NA	Solid	8015M/D	18102
885-17179-40 MSD	BS24-129 0'	Total/NA	Solid	8015M/D	18102

HPLC/IC

Prep Batch: 18025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	300_Prep	
885-17179-2	BS24-84 0'	Total/NA	Solid	300_Prep	
885-17179-3	BS24-85 0'	Total/NA	Solid	300_Prep	
885-17179-4	BS24-86 0'	Total/NA	Solid	300_Prep	
885-17179-5	BS24-87 0'	Total/NA	Solid	300_Prep	
885-17179-6	BS24-88 0'	Total/NA	Solid	300_Prep	
885-17179-7	BS24-89 0'	Total/NA	Solid	300_Prep	
885-17179-8	BS24-90 0'	Total/NA	Solid	300_Prep	
885-17179-9	BS24-91 0'	Total/NA	Solid	300_Prep	
885-17179-10	BS24-92 0'	Total/NA	Solid	300_Prep	
885-17179-11	BS24-93 0'	Total/NA	Solid	300_Prep	
885-17179-12	BS24-101 0'	Total/NA	Solid	300_Prep	
885-17179-13	BS24-102 0'	Total/NA	Solid	300_Prep	
885-17179-14	BS24-103 0'	Total/NA	Solid	300_Prep	
885-17179-15	BS24-104 0'	Total/NA	Solid	300_Prep	
MB 885-18025/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18025/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 18033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-16	BS24-105 0'	Total/NA	Solid	300_Prep	
885-17179-17	BS24-106 0'	Total/NA	Solid	300_Prep	
885-17179-18	BS24-107 0'	Total/NA	Solid	300_Prep	
885-17179-19	BS24-108 0'	Total/NA	Solid	300_Prep	
885-17179-20	BS24-109 0'	Total/NA	Solid	300_Prep	
885-17179-21	BS24-110 0'	Total/NA	Solid	300_Prep	
885-17179-22	BS24-111 0'	Total/NA	Solid	300_Prep	
885-17179-23	BS24-112 0'	Total/NA	Solid	300_Prep	
885-17179-24	BS24-113 0'	Total/NA	Solid	300_Prep	
885-17179-25	BS24-114 0'	Total/NA	Solid	300_Prep	
885-17179-26	BS24-115 0'	Total/NA	Solid	300_Prep	
885-17179-27	BS24-116 0'	Total/NA	Solid	300_Prep	
885-17179-28	BS24-117 0'	Total/NA	Solid	300_Prep	
885-17179-29	BS24-118 0'	Total/NA	Solid	300_Prep	
885-17179-30	BS24-119 0'	Total/NA	Solid	300_Prep	
885-17179-31	BS24-120 0'	Total/NA	Solid	300_Prep	
885-17179-32	BS24-121 0'	Total/NA	Solid	300_Prep	
885-17179-33	BS24-122 0'	Total/NA	Solid	300_Prep	
885-17179-34	BS24-123 0'	Total/NA	Solid	300_Prep	
885-17179-35	BS24-124 0'	Total/NA	Solid	300_Prep	
MB 885-18033/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18033/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

HPLC/IC

Analysis Batch: 18045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-1	BS24-10 0'	Total/NA	Solid	300.0	18025
885-17179-2	BS24-84 0'	Total/NA	Solid	300.0	18025
885-17179-3	BS24-85 0'	Total/NA	Solid	300.0	18025
885-17179-4	BS24-86 0'	Total/NA	Solid	300.0	18025
885-17179-5	BS24-87 0'	Total/NA	Solid	300.0	18025
885-17179-6	BS24-88 0'	Total/NA	Solid	300.0	18025
885-17179-7	BS24-89 0'	Total/NA	Solid	300.0	18025
885-17179-8	BS24-90 0'	Total/NA	Solid	300.0	18025
885-17179-9	BS24-91 0'	Total/NA	Solid	300.0	18025
885-17179-10	BS24-92 0'	Total/NA	Solid	300.0	18025
885-17179-11	BS24-93 0'	Total/NA	Solid	300.0	18025
885-17179-12	BS24-101 0'	Total/NA	Solid	300.0	18025
885-17179-13	BS24-102 0'	Total/NA	Solid	300.0	18025
885-17179-14	BS24-103 0'	Total/NA	Solid	300.0	18025
885-17179-15	BS24-104 0'	Total/NA	Solid	300.0	18025
885-17179-16	BS24-105 0'	Total/NA	Solid	300.0	18033
885-17179-17	BS24-106 0'	Total/NA	Solid	300.0	18033
885-17179-18	BS24-107 0'	Total/NA	Solid	300.0	18033
885-17179-19	BS24-108 0'	Total/NA	Solid	300.0	18033
885-17179-20	BS24-109 0'	Total/NA	Solid	300.0	18033
885-17179-21	BS24-110 0'	Total/NA	Solid	300.0	18033
885-17179-22	BS24-111 0'	Total/NA	Solid	300.0	18033
885-17179-23	BS24-112 0'	Total/NA	Solid	300.0	18033
885-17179-24	BS24-113 0'	Total/NA	Solid	300.0	18033
885-17179-25	BS24-114 0'	Total/NA	Solid	300.0	18033
885-17179-26	BS24-115 0'	Total/NA	Solid	300.0	18033
885-17179-27	BS24-116 0'	Total/NA	Solid	300.0	18033
885-17179-28	BS24-117 0'	Total/NA	Solid	300.0	18033
885-17179-29	BS24-118 0'	Total/NA	Solid	300.0	18033
885-17179-30	BS24-119 0'	Total/NA	Solid	300.0	18033
885-17179-31	BS24-120 0'	Total/NA	Solid	300.0	18033
MB 885-18025/1-A	Method Blank	Total/NA	Solid	300.0	18025
MB 885-18033/1-A	Method Blank	Total/NA	Solid	300.0	18033
MB 885-18048/1-A	Method Blank	Total/NA	Solid	300.0	18048
LCS 885-18025/2-A	Lab Control Sample	Total/NA	Solid	300.0	18025
LCS 885-18033/2-A	Lab Control Sample	Total/NA	Solid	300.0	18033
LCS 885-18048/2-A	Lab Control Sample	Total/NA	Solid	300.0	18048

Prep Batch: 18048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-36	BS24-125 0'	Total/NA	Solid	300_Prep	
885-17179-37	BS24-126 0'	Total/NA	Solid	300_Prep	
885-17179-38	BS24-127 0'	Total/NA	Solid	300_Prep	
885-17179-39	BS24-128 0'	Total/NA	Solid	300_Prep	
885-17179-40	BS24-129 0'	Total/NA	Solid	300_Prep	
MB 885-18048/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18048/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 18074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-32	BS24-121 0'	Total/NA	Solid	300.0	18033

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17179-1

HPLC/IC (Continued)

Analysis Batch: 18074 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-33	BS24-122 0'	Total/NA	Solid	300.0	18033
885-17179-34	BS24-123 0'	Total/NA	Solid	300.0	18033
885-17179-35	BS24-124 0'	Total/NA	Solid	300.0	18033
885-17179-36	BS24-125 0'	Total/NA	Solid	300.0	18048
885-17179-37	BS24-126 0'	Total/NA	Solid	300.0	18048
885-17179-38	BS24-127 0'	Total/NA	Solid	300.0	18048
885-17179-39	BS24-128 0'	Total/NA	Solid	300.0	18048
885-17179-40	BS24-129 0'	Total/NA	Solid	300.0	18048
885-17179-41	BS24-130 0'	Total/NA	Solid	300.0	18097
885-17179-42	BS24-131 0'	Total/NA	Solid	300.0	18097
885-17179-43	BS24-132 0'	Total/NA	Solid	300.0	18097
885-17179-44	BS24-133 0'	Total/NA	Solid	300.0	18097
885-17179-45	BS24-134 0'	Total/NA	Solid	300.0	18097
885-17179-46	BS24-135 0'	Total/NA	Solid	300.0	18097
885-17179-47	BS24-136 0'	Total/NA	Solid	300.0	18097
885-17179-48	BS24-137 0'	Total/NA	Solid	300.0	18097
885-17179-49	BS24-138 0'	Total/NA	Solid	300.0	18097
885-17179-50	BS24-139 0'	Total/NA	Solid	300.0	18097
MB 885-18097/1-A	Method Blank	Total/NA	Solid	300.0	18097
LCS 885-18097/2-A	Lab Control Sample	Total/NA	Solid	300.0	18097

Prep Batch: 18097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17179-41	BS24-130 0'	Total/NA	Solid	300_Prep	
885-17179-42	BS24-131 0'	Total/NA	Solid	300_Prep	
885-17179-43	BS24-132 0'	Total/NA	Solid	300_Prep	
885-17179-44	BS24-133 0'	Total/NA	Solid	300_Prep	
885-17179-45	BS24-134 0'	Total/NA	Solid	300_Prep	
885-17179-46	BS24-135 0'	Total/NA	Solid	300_Prep	
885-17179-47	BS24-136 0'	Total/NA	Solid	300_Prep	
885-17179-48	BS24-137 0'	Total/NA	Solid	300_Prep	
885-17179-49	BS24-138 0'	Total/NA	Solid	300_Prep	
885-17179-50	BS24-139 0'	Total/NA	Solid	300_Prep	
MB 885-18097/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18097/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-10 0'
Lab Sample ID: 885-17179-1
Date Collected: 12/15/24 08:25
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 19:11
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 19:11
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 10:40
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 17:21

Client Sample ID: BS24-84 0'
Lab Sample ID: 885-17179-2
Date Collected: 12/15/24 08:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 20:21
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 20:21
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 10:51
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 17:31

Client Sample ID: BS24-85 0'
Lab Sample ID: 885-17179-3
Date Collected: 12/15/24 08:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 21:31
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 21:31
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:01
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 17:41

Client Sample ID: BS24-86 0'
Lab Sample ID: 885-17179-4
Date Collected: 12/15/24 08:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 21:55

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-86 0'
Lab Sample ID: 885-17179-4
Date Collected: 12/15/24 08:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 21:55
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:12
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 17:51

Client Sample ID: BS24-87 0'
Lab Sample ID: 885-17179-5
Date Collected: 12/15/24 08:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 22:18
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 22:18
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:22
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 18:00

Client Sample ID: BS24-88 0'
Lab Sample ID: 885-17179-6
Date Collected: 12/15/24 08:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 22:42
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 22:42
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:33
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 18:30

Client Sample ID: BS24-89 0'
Lab Sample ID: 885-17179-7
Date Collected: 12/15/24 08:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 23:05
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 23:05

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-89 0'
Lab Sample ID: 885-17179-7
Date Collected: 12/15/24 08:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:44
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 18:40

Client Sample ID: BS24-90 0'
Lab Sample ID: 885-17179-8
Date Collected: 12/15/24 08:50
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 23:28
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 23:28
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 11:54
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 18:50

Client Sample ID: BS24-91 0'
Lab Sample ID: 885-17179-9
Date Collected: 12/15/24 08:50
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/19/24 23:52
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/19/24 23:52
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 12:16
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:00

Client Sample ID: BS24-92 0'
Lab Sample ID: 885-17179-10
Date Collected: 12/15/24 08:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 00:15
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 00:15
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 12:26

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-92 0'
Lab Sample ID: 885-17179-10
Date Collected: 12/15/24 08:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:09

Client Sample ID: BS24-93 0'
Lab Sample ID: 885-17179-11
Date Collected: 12/15/24 08:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 01:02
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 01:02
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 12:37
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:19

Client Sample ID: BS24-101 0'
Lab Sample ID: 885-17179-12
Date Collected: 12/15/24 09:10
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 01:25
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 01:25
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 12:48
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:29

Client Sample ID: BS24-102 0'
Lab Sample ID: 885-17179-13
Date Collected: 12/15/24 09:15
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 01:48
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 01:48
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 12:58
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:39

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-103 0'
Lab Sample ID: 885-17179-14
Date Collected: 12/15/24 09:20
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 02:11
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 02:11
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18098	MI	EET ALB	12/19/24 13:09
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:49

Client Sample ID: BS24-104 0'
Lab Sample ID: 885-17179-15
Date Collected: 12/15/24 09:25
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 02:34
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 02:34
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/23/24 14:56
Total/NA	Prep	300_Prep			18025	JT	EET ALB	12/18/24 11:26
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 19:59

Client Sample ID: BS24-105 0'
Lab Sample ID: 885-17179-16
Date Collected: 12/15/24 09:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 02:57
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 02:57
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/23/24 15:06
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 20:28

Client Sample ID: BS24-106 0'
Lab Sample ID: 885-17179-17
Date Collected: 12/15/24 09:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 03:20

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-106 0'
Lab Sample ID: 885-17179-17
Date Collected: 12/15/24 09:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 03:20
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/23/24 15:17
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 20:58

Client Sample ID: BS24-107 0'
Lab Sample ID: 885-17179-18
Date Collected: 12/15/24 09:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 03:43
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 03:43
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/23/24 17:01
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 21:27

Client Sample ID: BS24-108 0'
Lab Sample ID: 885-17179-19
Date Collected: 12/15/24 09:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 04:06
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 04:06
Total/NA	Prep	SHAKE			18032	EM	EET ALB	12/18/24 11:49
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/23/24 17:12
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 21:37

Client Sample ID: BS24-109 0'
Lab Sample ID: 885-17179-20
Date Collected: 12/15/24 09:50
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8015M/D		1	18172	JP	EET ALB	12/20/24 04:29
Total/NA	Prep	5030C			18009	AT	EET ALB	12/18/24 10:19
Total/NA	Analysis	8021B		1	18173	JP	EET ALB	12/20/24 04:29

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-109 0'
Lab Sample ID: 885-17179-20
Date Collected: 12/15/24 09:50
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 02:55
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 21:47

Client Sample ID: BS24-110 0'
Lab Sample ID: 885-17179-21
Date Collected: 12/15/24 09:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 12:27
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 12:27
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 03:27
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 21:57

Client Sample ID: BS24-111 0'
Lab Sample ID: 885-17179-22
Date Collected: 12/15/24 10:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 13:33
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 13:33
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 03:37
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 22:26

Client Sample ID: BS24-112 0'
Lab Sample ID: 885-17179-23
Date Collected: 12/15/24 10:05
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 14:38
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 14:38
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 03:48

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-112 0'
Lab Sample ID: 885-17179-23
Date Collected: 12/15/24 10:05
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 22:36

Client Sample ID: BS24-113 0'
Lab Sample ID: 885-17179-24
Date Collected: 12/15/24 10:10
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 15:00
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 15:00
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 03:58
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 22:46

Client Sample ID: BS24-114 0'
Lab Sample ID: 885-17179-25
Date Collected: 12/15/24 10:15
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 15:21
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 15:21
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 04:08
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 22:56

Client Sample ID: BS24-115 0'
Lab Sample ID: 885-17179-26
Date Collected: 12/16/24 09:25
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 15:43
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 15:43
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 04:19
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:06

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-116 0'
Lab Sample ID: 885-17179-27
Date Collected: 12/16/24 09:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 16:05
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 16:05
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 04:29
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:16

Client Sample ID: BS24-117 0'
Lab Sample ID: 885-17179-28
Date Collected: 12/16/24 09:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 16:26
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 16:26
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 04:50
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:25

Client Sample ID: BS24-118 0'
Lab Sample ID: 885-17179-29
Date Collected: 12/16/24 09:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 16:48
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 16:48
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:00
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:35

Client Sample ID: BS24-119 0'
Lab Sample ID: 885-17179-30
Date Collected: 12/16/24 09:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 17:10

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-119 0'
Lab Sample ID: 885-17179-30
Date Collected: 12/16/24 09:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 17:10
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:11
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:45

Client Sample ID: BS24-120 0'
Lab Sample ID: 885-17179-31
Date Collected: 12/16/24 09:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 17:53
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 17:53
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:21
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18045	EH	EET ALB	12/18/24 23:55

Client Sample ID: BS24-121 0'
Lab Sample ID: 885-17179-32
Date Collected: 12/16/24 09:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 18:15
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 18:15
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:31
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 08:05

Client Sample ID: BS24-122 0'
Lab Sample ID: 885-17179-33
Date Collected: 12/16/24 09:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 18:37
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 18:37

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-122 0'
Lab Sample ID: 885-17179-33
Date Collected: 12/16/24 09:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:42
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 08:15

Client Sample ID: BS24-123 0'
Lab Sample ID: 885-17179-34
Date Collected: 12/16/24 09:55
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 18:58
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 18:58
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 05:52
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 08:25

Client Sample ID: BS24-124 0'
Lab Sample ID: 885-17179-35
Date Collected: 12/16/24 10:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 19:20
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 19:20
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 06:02
Total/NA	Prep	300_Prep			18033	JT	EET ALB	12/18/24 11:49
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 08:35

Client Sample ID: BS24-125 0'
Lab Sample ID: 885-17179-36
Date Collected: 12/16/24 10:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 19:42
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 19:42
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 06:13

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-125 0'
Lab Sample ID: 885-17179-36
Date Collected: 12/16/24 10:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18048	JT	EET ALB	12/18/24 14:15
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 08:44

Client Sample ID: BS24-126 0'
Lab Sample ID: 885-17179-37
Date Collected: 12/16/24 10:05
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 20:04
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 20:04
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 06:23
Total/NA	Prep	300_Prep			18048	JT	EET ALB	12/18/24 14:15
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 09:14

Client Sample ID: BS24-127 0'
Lab Sample ID: 885-17179-38
Date Collected: 12/16/24 10:10
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 20:25
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 20:25
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 06:34
Total/NA	Prep	300_Prep			18048	JT	EET ALB	12/18/24 14:15
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 09:24

Client Sample ID: BS24-128 0'
Lab Sample ID: 885-17179-39
Date Collected: 12/16/24 10:15
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 20:47
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 20:47
Total/NA	Prep	SHAKE			18101	MI	EET ALB	12/19/24 10:35
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 06:44
Total/NA	Prep	300_Prep			18048	JT	EET ALB	12/18/24 14:15
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 09:34

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-129 0'
Lab Sample ID: 885-17179-40
Date Collected: 12/16/24 10:20
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8015M/D		1	18203	AT	EET ALB	12/20/24 21:09
Total/NA	Prep	5030C			18031	JP	EET ALB	12/18/24 11:48
Total/NA	Analysis	8021B		1	18204	AT	EET ALB	12/20/24 21:09
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 07:27
Total/NA	Prep	300_Prep			18048	JT	EET ALB	12/18/24 14:15
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 10:03

Client Sample ID: BS24-130 0'
Lab Sample ID: 885-17179-41
Date Collected: 12/16/24 10:25
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/20/24 23:19
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/20/24 23:19
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 07:59
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 12:48

Client Sample ID: BS24-131 0'
Lab Sample ID: 885-17179-42
Date Collected: 12/16/24 10:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 00:24
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 00:24
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 08:09
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 13:37

Client Sample ID: BS24-132 0'
Lab Sample ID: 885-17179-43
Date Collected: 12/16/24 10:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 01:29

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-132 0'
Lab Sample ID: 885-17179-43
Date Collected: 12/16/24 10:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 01:29
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 08:20
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:07

Client Sample ID: BS24-133 0'
Lab Sample ID: 885-17179-44
Date Collected: 12/16/24 10:40
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 01:51
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 01:51
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 08:31
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:17

Client Sample ID: BS24-134 0'
Lab Sample ID: 885-17179-45
Date Collected: 12/16/24 10:45
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 02:12
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 02:12
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 08:41
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:27

Client Sample ID: BS24-135 0'
Lab Sample ID: 885-17179-46
Date Collected: 12/16/24 11:15
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 02:34
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 02:34

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-135 0'
Lab Sample ID: 885-17179-46
Date Collected: 12/16/24 11:15
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 08:52
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:37

Client Sample ID: BS24-136 0'
Lab Sample ID: 885-17179-47
Date Collected: 12/16/24 11:20
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 02:56
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 02:56
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 09:02
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:46

Client Sample ID: BS24-137 0'
Lab Sample ID: 885-17179-48
Date Collected: 12/16/24 11:25
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 03:17
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 03:17
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 09:23
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 14:56

Client Sample ID: BS24-138 0'
Lab Sample ID: 885-17179-49
Date Collected: 12/16/24 11:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 03:39
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 03:39
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 09:34

Lab Chronicle

Client: Vertex
Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-138 0'
Lab Sample ID: 885-17179-49
Date Collected: 12/16/24 11:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 15:06

Client Sample ID: BS24-139 0'
Lab Sample ID: 885-17179-50
Date Collected: 12/16/24 11:35
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 04:00
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 04:00
Total/NA	Prep	SHAKE			18102	MI	EET ALB	12/19/24 10:39
Total/NA	Analysis	8015M/D		1	18344	DH	EET ALB	12/24/24 09:44
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 15:36

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-17179-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☑ Yes ☐ No 109.
# of Coolers: 2 1.6 +0.3 = 1.9
Cooler Temp(including CF): 0.6 +0.3 = 0.9°c

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-17179 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.15.24	8:25	Soil	BS24-10 0'	1, 4oz jar		1	X	X					X									
12.15.24	8:30	Soil	BS24-84 0'	1, 4oz jar		2	X	X					X									
12.15.24	8:35	Soil	BS24-85 0'	1, 4oz jar		3	X	X					X									
12.15.24	8:40	Soil	BS24-86 0'	1, 4oz jar		4	X	X					X									
12.15.24	8:40	Soil	BS24-87 0'	1, 4oz jar		5	X	X					X									
12.15.24	8:45	Soil	BS24-88 0'	1, 4oz jar		6	X	X					X									
12.15.24	8:45	Soil	BS24-89 0'	1, 4oz jar		7	X	X					X									
12.15.24	8:50	Soil	BS24-90 0'	1, 4oz jar		8	X	X					X									
12.15.24	8:50	Soil	BS24-91 0'	1, 4oz jar		9	X	X					X									
12.15.24	8:55	Soil	BS24-92 0'	1, 4oz jar		10	X	X					X									
12.15.24	8:55	Soil	BS24-93 0'	1, 4oz jar		11	X	X					X									
12.15.24	9:10	Soil	BS24-101 0'	1, 4oz jar		12	X	X					X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-17-24	07:00				12/17/24	700
12/17/24	1900			courier	12/18/24	7:55

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

1/5

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☒ Yes ☐ No
# of Coolers: 2 1.6 +0.3 = 1.9 °C
Cooler Temp(including CF): 0.6 +0.3 = 0.9 °C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.15.24	9:15	Soil	BS24-102 0'	1, 4oz jar		13	X	X					X			
12.15.24	9:20	Soil	BS24-103 0'	1, 4oz jar		14	X	X					X			
12.15.24	9:25	Soil	BS24-104 0'	1, 4oz jar		15	X	X					X			
12.15.24	9:30	Soil	BS24-105 0'	1, 4oz jar		16	X	X					X			
12.15.24	9:35	Soil	BS24-106 0'	1, 4oz jar		17	X	X					X			
12.15.24	9:40	Soil	BS24-107 0'	1, 4oz jar		18	X	X					X			
12.15.24	9:45	Soil	BS24-108 0'	1, 4oz jar		19	X	X					X			
12.15.24	9:50	Soil	BS24-109 0'	1, 4oz jar		20	X	X					X			
12.15.24	9:55	Soil	BS24-110 0'	1, 4oz jar		21	X	X					X			
12.15.24	10:00	Soil	BS24-111 0'	1, 4oz jar		22	X	X					X			
12.15.24	10:05	Soil	BS24-112 0'	1, 4oz jar		23	X	X					X			
12.15.24	10:10	Soil	BS24-113 0'	1, 4oz jar		24	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-17-24	07:00	Lakin Pullman			12/17/24	0700
12/17/24	1900			courier	12/18/24	7:55

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

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2/5

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard X Rush_5-day-rush

Project Name:

Calgary Federal #002E

Project #:

24E-04822

Project Manager:

Sally Carttar

SCarttar@vertexresource.com

Sampler: L. Pullman

On Ice: ☑ Yes ☐ No 4 0g.

# of Coolers: 2 1.6 +0.3 = 1.9°c

Cooler Temp(including CF): 0.6 +0.3 = 0.9°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.15.24	10:15	Soil	BS24-114 0'	1, 4oz jar		25	X	X					X									
12.16.24	9:25	Soil	BS24-115 0'	1, 4oz jar		26	X	X					X									
12.16.24	9:30	Soil	BS24-116 0'	1, 4oz jar		27	X	X					X									
12.16.24	9:35	Soil	BS24-117 0'	1, 4oz jar		28	X	X					X									
12.16.24	9:40	Soil	BS24-118 0'	1, 4oz jar		29	X	X					X									
12.16.24	9:40	Soil	BS24-119 0'	1, 4oz jar		30	X	X					X									
12.16.24	9:45	Soil	BS24-120 0'	1, 4oz jar		31	X	X					X									
12.16.24	9:45	Soil	BS24-121 0'	1, 4oz jar		32	X	X					X									
12.16.24	9:55	Soil	BS24-122 0'	1, 4oz jar		33	X	X					X									
12.16.24	9:55	Soil	BS24-123 0'	1, 4oz jar		34	X	X					X									
12.16.24	10:00	Soil	BS24-124 0'	1, 4oz jar		35	X	X					X									
12.16.24	10:00	Soil	BS24-125 0'	1, 4oz jar		36	X	X					X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-17-24	07:00	Lakin Pullman			12/17/24	700
12/17/24	1900				12/18/24	7.55

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

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3/5

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other_____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☑ Yes ☐ No Yes
# of Coolers: 2 1.6 +0.3 = 1.9
Cooler Temp(including CF): 0.6 +0.3 = 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.16.24	10:05	Soil	BS24-126 0'	1, 4oz jar		37	X	X					X			
12.16.24	10:10	Soil	BS24-127 0'	1, 4oz jar		38	X	X					X			
12.16.24	10:15	Soil	BS24-128 0'	1, 4oz jar		39	X	X					X			
12.16.24	10:20	Soil	BS24-129 0'	1, 4oz jar		40	X	X					X			
12.16.24	10:25	Soil	BS24-130 0'	1, 4oz jar		41	X	X					X			
12.16.24	10:30	Soil	BS24-131 0'	1, 4oz jar		42	X	X					X			
12.16.24	10:35	Soil	BS24-132 0'	1, 4oz jar		43	X	X					X			
12.16.24	10:40	Soil	BS24-133 0'	1, 4oz jar		44	X	X					X			
12.16.24	10:45	Soil	BS24-134 0'	1, 4oz jar		45	X	X					X			
12.16.24	11:15	Soil	BS24-135 0'	1, 4oz jar		46	X	X					X			
12.16.24	11:20	Soil	BS24-136 0'	1, 4oz jar		47	X	X					X			
12.16.24	11:25	Soil	BS24-137 0'	1, 4oz jar		48	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-17-24	0700	John Pullman			12/17/24	0700
12/17/24	1900			Courier	12/18/24	7:55

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

4/5

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☑ Yes ☐ No
# of Coolers: 2
Cooler Temp(including CF): 0.3 +0.3 =0.9°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)					
12.16.24	11:30	Soil	BS24-138 0'	1, 4oz jar		49	X	X					X								
12.16.24	11:35	Soil	BS24-139 0'	1, 4oz jar		50	X	X					X								

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-17-24	07:00	Lakin Pullman			12/17/24	700
12/17/24	1900			Courier	12/18/24	7:55

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Login Sample Receipt Checklist

Client: Vertex Job Number: 885-17179-1

Login Number: 17179 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/18/2024 7:04:47 AM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-16619-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/18/2024 7:04:47 AM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-16619-1

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Definitions/Glossary

Client: Vertex Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Calgary Federal #002E

Job ID: 885-16619-1

Job ID: 885-16619-1 Eurofins Albuquerque

Job Narrative
885-16619-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/10/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.9°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-17589 recovered above the upper control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WS24-02@0-3.5' (885-16619-2), WS24-03@0-3.5' (885-16619-3), WS24-05@0-3.5' (885-16619-5), WS24-06@0-3.5' (885-16619-6), WS24-07@0-3.5' (885-16619-7), WS24-08@0-3.5' (885-16619-8), WS24-09@0-3.5' (885-16619-9), WS24-10@0-3.5' (885-16619-10), WS24-11@0-3.5' (885-16619-11), WS24-12@0-3.5' (885-16619-12), WS24-15@0-3.5' (885-16619-14), WS24-16@0-3.5' (885-16619-15), WS24-25@0-3.5' (885-16619-17), WS24-26@0-3.5' (885-16619-18), WS24-27@0-3.5' (885-16619-19), WS24-28@0-3.5' (885-16619-20), BS24-75 3.5' (885-16619-41), BS24-76 3.5' (885-16619-42), BS24-77 3.5' (885-16619-43) and BS24-78 3.5' (885-16619-44).

Method 8015D_DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-17519 and analytical batch 885-17589 recovered outside control limits for the following analytes: Diesel Range Organics [C10-C28]. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-17519 and analytical batch 885-17589 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-17589 recovered above the upper control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WS24-02@0-3.5' (885-16619-2), WS24-03@0-3.5' (885-16619-3), WS24-05@0-3.5' (885-16619-5), WS24-06@0-3.5' (885-16619-6), WS24-07@0-3.5' (885-16619-7), WS24-08@0-3.5' (885-16619-8), WS24-09@0-3.5' (885-16619-9), WS24-10@0-3.5' (885-16619-10), WS24-11@0-3.5' (885-16619-11), WS24-12@0-3.5' (885-16619-12), WS24-15@0-3.5' (885-16619-14), WS24-16@0-3.5' (885-16619-15), WS24-25@0-3.5' (885-16619-17), WS24-26@0-3.5' (885-16619-18), WS24-27@0-3.5' (885-16619-19), WS24-28@0-3.5' (885-16619-20), BS24-75 3.5' (885-16619-41), BS24-76 3.5' (885-16619-42), BS24-77 3.5' (885-16619-43) and BS24-78 3.5' (885-16619-44).

Method 8015D_DRO: The surrogate recovery for the blank associated with preparation batch 885-17519 and analytical batch 885-17589 was outside the upper control limits. Reporting samples with acceptable surrogate recoveries.

Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-17709 recovered above the upper

Case Narrative

Client: Vertex Job ID: 885-16619-1
Project: Calgary Federal #002E

Job ID: 885-16619-1 (Continued) Eurofins Albuquerque

control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WS24-04@0-3.5' (885-16619-4), WS24-13@0-3.5' (885-16619-13), BS24-70 3.5' (885-16619-36), BS24-71 3.5' (885-16619-37), BS24-72 3.5' (885-16619-38), BS24-73 3.5' (885-16619-39) and BS24-74 3.5' (885-16619-40).

Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-17519 and analytical batch 885-17709 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-17709 recovered above the upper control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WS24-01@0-3.5' (885-16619-1), WS24-04@0-3.5' (885-16619-4), WS24-13@0-3.5' (885-16619-13), BS24-70 3.5' (885-16619-36), BS24-71 3.5' (885-16619-37), BS24-72 3.5' (885-16619-38), BS24-73 3.5' (885-16619-39), BS24-74 3.5' (885-16619-40), (LCS 885-17519/2-A), (MB 885-17519/1-A), (885-16619-A-1-E MS) and (885-16619-A-1-F MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-01@0-3.5'
Date Collected: 12/06/24 15:27
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-1
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/10/24 11:41	12/13/24 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/10/24 11:41*	*12/13/24 19:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/13/24 19:08	1
Ethylbenzene	ND		0.050		mg/Kg		12/10/24 11:41	12/13/24 19:08	1
Toluene	ND		0.050		mg/Kg		12/10/24 11:41	12/13/24 19:08	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 11:41	12/13/24 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 11:41*	*12/13/24 19:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/11/24 12:08	12/12/24 19:07	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/12/24 19:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/11/24 12:08*	*12/12/24 19:07*	*1*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/11/24 12:08*	*12/13/24 19:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/10/24 23:43	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-02@0-3.5'
Lab Sample ID: 885-16619-2
Date Collected: 12/06/24 15:22
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/13/24 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/10/24 11:41*	*12/13/24 20:13*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 20:13	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 20:13	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 20:13	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 11:41	12/13/24 20:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 11:41*	*12/13/24 20:13*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/11/24 12:08	12/12/24 19:43	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:08	12/12/24 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/11/24 12:08*	*12/12/24 19:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/10/24 23:52	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-03@0-3.5'
Lab Sample ID: 885-16619-3
Date Collected: 12/06/24 15:33
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/13/24 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/10/24 11:41*	*12/13/24 21:18*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 21:18	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 21:18	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 21:18	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 11:41	12/13/24 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 11:41*	*12/13/24 21:18*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.4		mg/Kg		12/11/24 12:08	12/12/24 19:54	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/12/24 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*126*		*62 - 134*	*12/11/24 12:08*	*12/12/24 19:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 00:02	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-04@0-3.5'

Date Collected: 12/06/24 15:16
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/13/24 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 11:41*	*12/13/24 21:40*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/13/24 21:40	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 21:40	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 21:40	1
Xylenes, Total	ND		0.098		mg/Kg		12/10/24 11:41	12/13/24 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 11:41*	*12/13/24 21:40*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/11/24 12:08	12/13/24 19:58	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/13/24 19:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/11/24 12:08*	*12/13/24 19:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 00:12	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-05@0-3.5'

Date Collected: 12/06/24 15:38
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 11:41	12/13/24 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/10/24 11:41*	*12/13/24 22:02*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 22:02	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 22:02	1
Toluene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 22:02	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 11:41	12/13/24 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 11:41*	*12/13/24 22:02*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.4		mg/Kg		12/11/24 12:08	12/12/24 20:18	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/12/24 20:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*12/11/24 12:08*	*12/12/24 20:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/10/24 13:25	12/11/24 00:22	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-06@0-3.5'
Lab Sample ID: 885-16619-6
Date Collected: 12/06/24 15:10
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/13/24 22:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/10/24 11:41*	*12/13/24 22:23*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 22:23	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 22:23	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 22:23	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 11:41	12/13/24 22:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 11:41*	*12/13/24 22:23*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.5		mg/Kg		12/11/24 12:08	12/12/24 20:30	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/12/24 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*121*		*62 - 134*	*12/11/24 12:08*	*12/12/24 20:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 00:32	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-07@0-3.5'
Lab Sample ID: 885-16619-7
Date Collected: 12/06/24 15:42
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/13/24 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/10/24 11:41*	*12/13/24 22:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/13/24 22:45	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 22:45	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/13/24 22:45	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 11:41	12/13/24 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 11:41*	*12/13/24 22:45*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/11/24 12:08	12/12/24 20:53	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:08	12/12/24 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*75*		*62 - 134*	*12/11/24 12:08*	*12/12/24 20:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 00:42	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-08@0-3.5'
Lab Sample ID: 885-16619-8
Date Collected: 12/06/24 15:04
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/13/24 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/10/24 11:41*	*12/13/24 23:07*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 23:07	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 23:07	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/13/24 23:07	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 11:41	12/13/24 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 11:41*	*12/13/24 23:07*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.4		mg/Kg		12/11/24 12:08	12/12/24 21:05	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:08	12/12/24 21:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*73*		*62 - 134*	*12/11/24 12:08*	*12/12/24 21:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 00:52	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-09@0-3.5'
Lab Sample ID: 885-16619-9
Date Collected: 12/06/24 15:52
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 11:41	12/13/24 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/10/24 11:41*	*12/13/24 23:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 23:29	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 23:29	1
Toluene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 23:29	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 11:41	12/13/24 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 11:41*	*12/13/24 23:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/11/24 12:08	12/12/24 21:17	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:08	12/12/24 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*12/11/24 12:08*	*12/12/24 21:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 01:01	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-10@0-3.5'
Lab Sample ID: 885-16619-10
Date Collected: 12/06/24 15:00
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 11:41	12/13/24 23:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/10/24 11:41*	*12/13/24 23:50*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/13/24 23:50	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 23:50	1
Toluene	ND		0.047		mg/Kg		12/10/24 11:41	12/13/24 23:50	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 11:41	12/13/24 23:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 11:41*	*12/13/24 23:50*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.2		mg/Kg		12/11/24 12:08	12/12/24 21:28	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/11/24 12:08	12/12/24 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/11/24 12:08*	*12/12/24 21:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 01:31	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-11@0-3.5'

Date Collected: 12/06/24 12:16
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/14/24 00:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/10/24 11:41*	*12/14/24 00:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 00:33	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 00:33	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 00:33	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 11:41	12/14/24 00:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 11:41*	*12/14/24 00:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.8		mg/Kg		12/11/24 12:08	12/12/24 21:40	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:08	12/12/24 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*68*		*62 - 134*	*12/11/24 12:08*	*12/12/24 21:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/10/24 13:25	12/11/24 01:41	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-12@0-3.5'

Date Collected: 12/06/24 12:13
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/14/24 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 11:41*	*12/14/24 00:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 00:55	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 00:55	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 00:55	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 11:41	12/14/24 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 11:41*	*12/14/24 00:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/11/24 12:08	12/12/24 21:52	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:08	12/12/24 21:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/11/24 12:08*	*12/12/24 21:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 13:25	12/11/24 01:51	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-13@0-3.5'
Lab Sample ID: 885-16619-13
Date Collected: 12/06/24 12:07
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/14/24 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/10/24 11:41*	*12/14/24 01:16*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 01:16	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 01:16	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 01:16	1
Xylenes, Total	ND		0.098		mg/Kg		12/10/24 11:41	12/14/24 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/10/24 11:41*	*12/14/24 01:16*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:08	12/13/24 20:08	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:08	12/13/24 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*12/11/24 12:08*	*12/13/24 20:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 01:52	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-15@0-3.5'
Lab Sample ID: 885-16619-14
Date Collected: 12/06/24 11:56
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/14/24 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 11:41*	*12/14/24 01:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 01:38	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 01:38	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 01:38	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 11:41	12/14/24 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 11:41*	*12/14/24 01:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.1		mg/Kg		12/11/24 12:08	12/12/24 22:15	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/11/24 12:08	12/12/24 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*126*		*62 - 134*	*12/11/24 12:08*	*12/12/24 22:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**90**		60		mg/Kg		12/10/24 15:40	12/11/24 02:44	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-16@0-3.5'
Lab Sample ID: 885-16619-15
Date Collected: 12/06/24 11:53
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/10/24 11:41	12/14/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/10/24 11:41*	*12/14/24 01:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 11:41	12/14/24 01:59	1
Ethylbenzene	ND		0.046		mg/Kg		12/10/24 11:41	12/14/24 01:59	1
Toluene	ND		0.046		mg/Kg		12/10/24 11:41	12/14/24 01:59	1
Xylenes, Total	ND		0.092		mg/Kg		12/10/24 11:41	12/14/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 11:41*	*12/14/24 01:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.9		mg/Kg		12/11/24 12:08	12/12/24 22:27	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:08	12/12/24 22:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*118*		*62 - 134*	*12/11/24 12:08*	*12/12/24 22:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 03:15	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-17@0-3.5'
Lab Sample ID: 885-16619-16
Date Collected: 12/06/24 16:15
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 11:41	12/14/24 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/10/24 11:41*	*12/14/24 02:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 11:41	12/14/24 02:21	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 11:41	12/14/24 02:21	1
Toluene	ND		0.047		mg/Kg		12/10/24 11:41	12/14/24 02:21	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 11:41	12/14/24 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 11:41*	*12/14/24 02:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/11/24 12:08	12/13/24 20:29	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:08	12/13/24 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*76*		*62 - 134*	*12/11/24 12:08*	*12/13/24 20:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**69**		60		mg/Kg		12/10/24 15:40	12/11/24 03:25	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-25@0-3.5'
Lab Sample ID: 885-16619-17
Date Collected: 12/06/24 16:44
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/14/24 02:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 11:41*	*12/14/24 02:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/14/24 02:43	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 02:43	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 02:43	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 11:41	12/14/24 02:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 11:41*	*12/14/24 02:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.1		mg/Kg		12/11/24 12:08	12/12/24 23:02	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/11/24 12:08	12/12/24 23:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/11/24 12:08*	*12/12/24 23:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 03:36	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-26@0-3.5'
Lab Sample ID: 885-16619-18
Date Collected: 12/06/24 16:39
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 11:41	12/14/24 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 11:41*	*12/14/24 03:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 03:04	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 11:41	12/14/24 03:04	1
Toluene	ND		0.047		mg/Kg		12/10/24 11:41	12/14/24 03:04	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 11:41	12/14/24 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 11:41*	*12/14/24 03:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.5		mg/Kg		12/11/24 12:08	12/12/24 23:14	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:08	12/12/24 23:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*74*		*62 - 134*	*12/11/24 12:08*	*12/12/24 23:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**310**		60		mg/Kg		12/10/24 15:40	12/11/24 03:46	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-27@0-3.5'

Date Collected: 12/06/24 16:35
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-19

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 11:41	12/14/24 03:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/10/24 11:41*	*12/14/24 03:26*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/14/24 03:26	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 03:26	1
Toluene	ND		0.049		mg/Kg		12/10/24 11:41	12/14/24 03:26	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 11:41	12/14/24 03:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 11:41*	*12/14/24 03:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.7		mg/Kg		12/11/24 12:08	12/12/24 23:25	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:08	12/12/24 23:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*12/11/24 12:08*	*12/12/24 23:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 03:56	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: WS24-28@0-3.5'

Date Collected: 12/06/24 16:31
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-20

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 11:41	12/14/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/10/24 11:41*	*12/14/24 03:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 11:41	12/14/24 03:47	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 03:47	1
Toluene	ND		0.048		mg/Kg		12/10/24 11:41	12/14/24 03:47	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 11:41	12/14/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/10/24 11:41*	*12/14/24 03:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.1		mg/Kg		12/11/24 12:08	12/12/24 23:37	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/11/24 12:08	12/12/24 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*	*12/11/24 12:08*	*12/12/24 23:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 11:12	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-29@0-3.5'
Lab Sample ID: 885-16619-21
Date Collected: 12/06/24 16:03
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 12:56*	*12/13/24 01:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 01:29	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 01:29	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 01:29	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 12:56	12/13/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 12:56*	*12/13/24 01:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**10**		9.2		mg/Kg		12/11/24 12:12	12/11/24 23:45	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/11/24 12:12	12/11/24 23:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*12/11/24 12:12*	*12/11/24 23:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 11:22	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-30@0-3.5'
Lab Sample ID: 885-16619-22
Date Collected: 12/06/24 15:58
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/10/24 12:56*	*12/13/24 02:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 02:34	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 02:34	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 02:34	1
Xylenes, Total	ND		0.097		mg/Kg		12/10/24 12:56	12/13/24 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 12:56*	*12/13/24 02:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**14**		9.9		mg/Kg		12/11/24 12:12	12/11/24 23:57	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:12	12/11/24 23:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/11/24 12:12*	*12/11/24 23:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 11:32	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-57 3.5'

Date Collected: 12/07/24 13:20
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-23

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/10/24 12:56*	*12/13/24 03:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 03:38	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 03:38	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 03:38	1
Xylenes, Total	ND		0.093		mg/Kg		12/10/24 12:56	12/13/24 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/10/24 12:56*	*12/13/24 03:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 03:01	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*84*		*62 - 134*	*12/11/24 12:12*	*12/13/24 03:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**280**		59		mg/Kg		12/10/24 15:40	12/11/24 11:43	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-58 3.5'

Date Collected: 12/07/24 13:25
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-24

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/10/24 12:56*	*12/13/24 04:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 04:00	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 04:00	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 04:00	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 12:56	12/13/24 04:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 12:56*	*12/13/24 04:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/11/24 12:12	12/12/24 00:44	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:12	12/12/24 00:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*79*		*62 - 134*	*12/11/24 12:12*	*12/12/24 00:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		60		mg/Kg		12/10/24 15:40	12/11/24 11:53	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-59 3.5'

Date Collected: 12/07/24 13:30
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-25

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/10/24 12:56*	*12/13/24 04:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 04:21	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 04:21	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 04:21	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 12:56	12/13/24 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 12:56*	*12/13/24 04:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/11/24 12:12	12/12/24 00:55	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:12	12/12/24 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*78*		*62 - 134*	*12/11/24 12:12*	*12/12/24 00:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 12:04	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-60 3.5'
Lab Sample ID: 885-16619-26
Date Collected: 12/07/24 13:35
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/10/24 12:56	12/13/24 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/10/24 12:56*	*12/13/24 04:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 04:43	1
Ethylbenzene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 04:43	1
Toluene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 04:43	1
Xylenes, Total	ND		0.092		mg/Kg		12/10/24 12:56	12/13/24 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 12:56*	*12/13/24 04:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/12/24 01:07	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/12/24 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*78*		*62 - 134*	*12/11/24 12:12*	*12/12/24 01:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**200**		60		mg/Kg		12/10/24 15:40	12/11/24 12:14	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-61 3.5'
Lab Sample ID: 885-16619-27
Date Collected: 12/07/24 13:40
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/10/24 12:56*	*12/13/24 05:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 05:04	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 05:04	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 05:04	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 12:56	12/13/24 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/10/24 12:56*	*12/13/24 05:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.8		mg/Kg		12/11/24 12:12	12/12/24 01:19	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/12/24 01:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*69*		*62 - 134*	*12/11/24 12:12*	*12/12/24 01:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**270**		60		mg/Kg		12/10/24 15:40	12/11/24 12:24	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-62 3.5'
Lab Sample ID: 885-16619-28
Date Collected: 12/07/24 13:45
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 05:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/10/24 12:56*	*12/13/24 05:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 05:25	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 05:25	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 05:25	1
Xylenes, Total	ND		0.093		mg/Kg		12/10/24 12:56	12/13/24 05:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 12:56*	*12/13/24 05:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/11/24 12:12	12/13/24 15:13	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:12	12/13/24 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/11/24 12:12*	*12/13/24 15:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 12:35	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-63 3.5'
Lab Sample ID: 885-16619-29
Date Collected: 12/07/24 13:50
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/10/24 12:56	12/13/24 05:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 12:56*	*12/13/24 05:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 05:47	1
Ethylbenzene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 05:47	1
Toluene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 05:47	1
Xylenes, Total	ND		0.092		mg/Kg		12/10/24 12:56	12/13/24 05:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 12:56*	*12/13/24 05:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/11/24 12:12	12/13/24 15:24	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:12	12/13/24 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*12/11/24 12:12*	*12/13/24 15:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**89**		59		mg/Kg		12/10/24 15:40	12/11/24 12:45	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-64 3.5'
Lab Sample ID: 885-16619-30
Date Collected: 12/07/24 13:55
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 12:56	12/13/24 06:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 12:56*	*12/13/24 06:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 06:08	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 12:56	12/13/24 06:08	1
Toluene	ND		0.049		mg/Kg		12/10/24 12:56	12/13/24 06:08	1
Xylenes, Total	ND		0.098		mg/Kg		12/10/24 12:56	12/13/24 06:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 12:56*	*12/13/24 06:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/11/24 12:12	12/13/24 15:35	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:12	12/13/24 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*12/11/24 12:12*	*12/13/24 15:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 15:40	12/11/24 13:16	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-65 3.5'

Date Collected: 12/07/24 14:05
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-31

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 06:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/10/24 12:56*	*12/13/24 06:51*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 06:51	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 06:51	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 06:51	1
Xylenes, Total	ND		0.093		mg/Kg		12/10/24 12:56	12/13/24 06:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/10/24 12:56*	*12/13/24 06:51*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/11/24 12:12	12/13/24 15:45	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/11/24 12:12	12/13/24 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*12/11/24 12:12*	*12/13/24 15:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**280**		60		mg/Kg		12/10/24 15:40	12/11/24 13:26	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-66 3.5'
Lab Sample ID: 885-16619-32
Date Collected: 12/07/24 14:10
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 07:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/10/24 12:56*	*12/13/24 07:13*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 07:13	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 07:13	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 07:13	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 12:56	12/13/24 07:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*48 - 145*	*12/10/24 12:56*	*12/13/24 07:13*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/11/24 12:12	12/13/24 15:56	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:12	12/13/24 15:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*83*		*62 - 134*	*12/11/24 12:12*	*12/13/24 15:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		12/10/24 15:40	12/11/24 13:37	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-67 3.5'

Date Collected: 12/08/24 11:30
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-33

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 07:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/10/24 12:56*	*12/13/24 07:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 07:34	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 07:34	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 07:34	1
Xylenes, Total	ND		0.093		mg/Kg		12/10/24 12:56	12/13/24 07:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 12:56*	*12/13/24 07:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/11/24 12:12	12/13/24 16:07	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:12	12/13/24 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*12/11/24 12:12*	*12/13/24 16:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**71**		60		mg/Kg		12/10/24 16:23	12/11/24 02:20	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-68 3.5'

Date Collected: 12/08/24 11:35
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-34

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 12:56	12/13/24 07:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*35 - 166*	*12/10/24 12:56*	*12/13/24 07:56*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 12:56	12/13/24 07:56	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 12:56	12/13/24 07:56	1
Toluene	ND		0.049		mg/Kg		12/10/24 12:56	12/13/24 07:56	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 12:56	12/13/24 07:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 12:56*	*12/13/24 07:56*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/11/24 12:12	12/13/24 16:18	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/11/24 12:12	12/13/24 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*12/11/24 12:12*	*12/13/24 16:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**63**		61		mg/Kg		12/10/24 16:23	12/11/24 02:50	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-69 3.5'

Date Collected: 12/08/24 11:40
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-35

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 08:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*35 - 166*	*12/10/24 12:56*	*12/13/24 08:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 08:17	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 08:17	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 08:17	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 12:56	12/13/24 08:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 12:56*	*12/13/24 08:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 16:34	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*84*		*62 - 134*	*12/11/24 12:12*	*12/13/24 16:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		12/10/24 16:23	12/11/24 03:39	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-70 3.5'
Lab Sample ID: 885-16619-36
Date Collected: 12/08/24 11:45
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/10/24 12:56	12/13/24 08:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 12:56*	*12/13/24 08:39*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 08:39	1
Ethylbenzene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 08:39	1
Toluene	ND		0.046		mg/Kg		12/10/24 12:56	12/13/24 08:39	1
Xylenes, Total	ND		0.092		mg/Kg		12/10/24 12:56	12/13/24 08:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 12:56*	*12/13/24 08:39*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 18:01	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/11/24 12:12*	*12/13/24 18:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		59		mg/Kg		12/10/24 16:23	12/11/24 03:49	20

Client Sample Results

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-71 3.5'
Lab Sample ID: 885-16619-37
Date Collected: 12/08/24 11:50
Matrix: Solid
Date Received: 12/10/24 08:00

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 09:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/10/24 12:56*	*12/13/24 09:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 09:00	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 09:00	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 09:00	1
Xylenes, Total	ND		0.093		mg/Kg		12/10/24 12:56	12/13/24 09:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 12:56*	*12/13/24 09:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 18:12	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*12/11/24 12:12*	*12/13/24 18:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**320**		59		mg/Kg		12/10/24 16:23	12/11/24 03:59	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-72 3.5'

Date Collected: 12/08/24 11:55
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-38

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 12:56	12/13/24 09:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 12:56*	*12/13/24 09:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 12:56	12/13/24 09:22	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 09:22	1
Toluene	ND		0.048		mg/Kg		12/10/24 12:56	12/13/24 09:22	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 12:56	12/13/24 09:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 12:56*	*12/13/24 09:22*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/11/24 12:12	12/13/24 18:33	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*12/11/24 12:12*	*12/13/24 18:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**79**		60		mg/Kg		12/10/24 16:23	12/11/24 04:08	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-73 3.5'

Date Collected: 12/08/24 12:00
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-39

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 09:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 12:56*	*12/13/24 09:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 09:43	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 09:43	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 09:43	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 12:56	12/13/24 09:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/10/24 12:56*	*12/13/24 09:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 18:44	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*12/11/24 12:12*	*12/13/24 18:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		12/10/24 16:23	12/11/24 04:18	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-74 3.5'

Date Collected: 12/08/24 12:05
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-40

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 12:56	12/13/24 10:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*12/10/24 12:56*	*12/13/24 10:05*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/10/24 12:56	12/13/24 10:05	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 10:05	1
Toluene	ND		0.047		mg/Kg		12/10/24 12:56	12/13/24 10:05	1
Xylenes, Total	ND		0.094		mg/Kg		12/10/24 12:56	12/13/24 10:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 12:56*	*12/13/24 10:05*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:12	12/13/24 18:54	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:12	12/13/24 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*12/11/24 12:12*	*12/13/24 18:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		60		mg/Kg		12/10/24 16:23	12/11/24 04:28	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-75 3.5'

Date Collected: 12/08/24 12:10
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-41

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/10/24 14:53	12/12/24 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/10/24 14:53*	*12/12/24 22:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 14:53	12/12/24 22:58	1
Ethylbenzene	ND		0.048		mg/Kg		12/10/24 14:53	12/12/24 22:58	1
Toluene	ND		0.048		mg/Kg		12/10/24 14:53	12/12/24 22:58	1
Xylenes, Total	ND		0.096		mg/Kg		12/10/24 14:53	12/12/24 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 14:53*	*12/12/24 22:58*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/11/24 12:06	12/13/24 03:31	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:06	12/13/24 03:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*79*		*62 - 134*	*12/11/24 12:06*	*12/13/24 03:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**72**		60		mg/Kg		12/10/24 16:23	12/11/24 04:38	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-76 3.5'

Date Collected: 12/08/24 12:15
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-42

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/10/24 14:53	12/13/24 00:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/10/24 14:53*	*12/13/24 00:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 14:53	12/13/24 00:08	1
Ethylbenzene	ND		0.047		mg/Kg		12/10/24 14:53	12/13/24 00:08	1
Toluene	ND		0.047		mg/Kg		12/10/24 14:53	12/13/24 00:08	1
Xylenes, Total	ND		0.095		mg/Kg		12/10/24 14:53	12/13/24 00:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/10/24 14:53*	*12/13/24 00:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/11/24 12:06	12/13/24 03:42	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:06	12/13/24 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*12/11/24 12:06*	*12/13/24 03:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**230**		60		mg/Kg		12/10/24 16:23	12/11/24 04:48	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-77 3.5'

Date Collected: 12/08/24 12:20
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-43

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/10/24 14:53	12/13/24 01:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/10/24 14:53*	*12/13/24 01:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/10/24 14:53	12/13/24 01:17	1
Ethylbenzene	ND		0.049		mg/Kg		12/10/24 14:53	12/13/24 01:17	1
Toluene	ND		0.049		mg/Kg		12/10/24 14:53	12/13/24 01:17	1
Xylenes, Total	ND		0.098		mg/Kg		12/10/24 14:53	12/13/24 01:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 14:53*	*12/13/24 01:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/11/24 12:06	12/13/24 03:54	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:06	12/13/24 03:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/11/24 12:06*	*12/13/24 03:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 16:23	12/11/24 05:17	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Client Sample ID: BS24-78 3.5'

Date Collected: 12/08/24 12:25
Date Received: 12/10/24 08:00

Lab Sample ID: 885-16619-44

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/10/24 14:53	12/13/24 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*12/10/24 14:53*	*12/13/24 01:40*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 14:53	12/13/24 01:40	1
Ethylbenzene	ND		0.050		mg/Kg		12/10/24 14:53	12/13/24 01:40	1
Toluene	ND		0.050		mg/Kg		12/10/24 14:53	12/13/24 01:40	1
Xylenes, Total	ND		0.099		mg/Kg		12/10/24 14:53	12/13/24 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/10/24 14:53*	*12/13/24 01:40*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/11/24 12:06	12/13/24 04:18	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/11/24 12:06	12/13/24 04:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/11/24 12:06*	*12/13/24 04:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/10/24 16:23	12/11/24 05:27	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-17402/1-A
Matrix: Solid
Analysis Batch: 17799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17402

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/10/24 11:41	12/13/24 18:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/10/24 11:41*	*12/13/24 18:46*	*1*

Lab Sample ID: LCS 885-17402/2-A
Matrix: Solid
Analysis Batch: 17799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17402

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	17.9		mg/Kg		72	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*188*		*35 - 166*

Lab Sample ID: 885-16619-1 MS
Matrix: Solid
Analysis Batch: 17799

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		25.0	18.9		mg/Kg		75	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*193*		*35 - 166*

Lab Sample ID: 885-16619-1 MSD
Matrix: Solid
Analysis Batch: 17799

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17402

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		25.0	17.7		mg/Kg		71	70 - 130	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*192*		*35 - 166*

Lab Sample ID: MB 885-17415/1-A
Matrix: Solid
Analysis Batch: 17708

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17415

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/10/24 12:56	12/13/24 01:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/10/24 12:56*	*12/13/24 01:08*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCS 885-17415/2-A
Matrix: Solid
Analysis Batch: 17708

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17415

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	20.4		mg/Kg		82	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*192*		*35 - 166*

Lab Sample ID: 885-16619-21 MS
Matrix: Solid
Analysis Batch: 17708

Client Sample ID: WS24-29@0-3.5'
Prep Type: Total/NA
Prep Batch: 17415

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.1	18.1		mg/Kg		75	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*197*		*35 - 166*

Lab Sample ID: 885-16619-21 MSD
Matrix: Solid
Analysis Batch: 17708

Client Sample ID: WS24-29@0-3.5'
Prep Type: Total/NA
Prep Batch: 17415

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.0	20.2		mg/Kg		84	70 - 130	11	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*202*		*35 - 166*

Lab Sample ID: MB 885-17426/1-A
Matrix: Solid
Analysis Batch: 17680

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17426

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/10/24 14:53	12/12/24 22:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/10/24 14:53*	*12/12/24 22:34*	*1*

Lab Sample ID: LCS 885-17426/2-A
Matrix: Solid
Analysis Batch: 17680

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17426

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	20.1		mg/Kg		81	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*195*		*35 - 166*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: 885-16619-41 MS
Matrix: Solid
Analysis Batch: 17680

Client Sample ID: BS24-75 3.5'
Prep Type: Total/NA
Prep Batch: 17426

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics [C6 - C10]	ND		23.7	21.2		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*212*		*35 - 166*

Lab Sample ID: 885-16619-41 MSD
Matrix: Solid
Analysis Batch: 17680

Client Sample ID: BS24-75 3.5'
Prep Type: Total/NA
Prep Batch: 17426

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.0	21.7		mg/Kg		90	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*206*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-17402/1-A
Matrix: Solid
Analysis Batch: 17798

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17402

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 11:41	12/13/24 18:46	1
Ethylbenzene	ND		0.050		mg/Kg		12/10/24 11:41	12/13/24 18:46	1
Toluene	ND		0.050		mg/Kg		12/10/24 11:41	12/13/24 18:46	1
Xylenes, Total	ND		0.10		mg/Kg		12/10/24 11:41	12/13/24 18:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 11:41*	*12/13/24 18:46*	*1*

Lab Sample ID: LCS 885-17402/3-A
Matrix: Solid
Analysis Batch: 17798

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17402

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene			1.00	0.926		mg/Kg		93	70 - 130
Ethylbenzene			1.00	0.940		mg/Kg		94	70 - 130
m,p-Xylene			2.00	1.88		mg/Kg		94	70 - 130
o-Xylene			1.00	0.963		mg/Kg		96	70 - 130
Toluene			1.00	0.940		mg/Kg		94	70 - 130
Xylenes, Total			3.00	2.84		mg/Kg		95	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-16619-2 MS
Matrix: Solid
Analysis Batch: 17798

Client Sample ID: WS24-02@0-3.5'
Prep Type: Total/NA
Prep Batch: 17402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.961	0.876		mg/Kg		91	70 - 130
Ethylbenzene	ND		0.961	0.917		mg/Kg		96	70 - 130
m,p-Xylene	ND		1.92	1.82		mg/Kg		95	70 - 130
o-Xylene	ND		0.961	0.915		mg/Kg		95	70 - 130
Toluene	ND		0.961	0.903		mg/Kg		94	70 - 130
Xylenes, Total	ND		2.88	2.73		mg/Kg		95	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*

Lab Sample ID: 885-16619-2 MSD
Matrix: Solid
Analysis Batch: 17798

Client Sample ID: WS24-02@0-3.5'
Prep Type: Total/NA
Prep Batch: 17402

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.966	0.914		mg/Kg		95	70 - 130	4	20
Ethylbenzene	ND		0.966	0.970		mg/Kg		100	70 - 130	6	20
m,p-Xylene	ND		1.93	1.92		mg/Kg		100	70 - 130	6	20
o-Xylene	ND		0.966	0.969		mg/Kg		100	70 - 130	6	20
Toluene	ND		0.966	0.945		mg/Kg		98	70 - 130	5	20
Xylenes, Total	ND		2.90	2.89		mg/Kg		100	70 - 130	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*

Lab Sample ID: MB 885-17415/1-A
Matrix: Solid
Analysis Batch: 17707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17415

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 12:56	12/13/24 01:08	1
Ethylbenzene	ND		0.050		mg/Kg		12/10/24 12:56	12/13/24 01:08	1
Toluene	ND		0.050		mg/Kg		12/10/24 12:56	12/13/24 01:08	1
Xylenes, Total	ND		0.10		mg/Kg		12/10/24 12:56	12/13/24 01:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/10/24 12:56*	*12/13/24 01:08*	*1*

Lab Sample ID: LCS 885-17415/3-A
Matrix: Solid
Analysis Batch: 17707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17415

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene			1.00	0.913		mg/Kg		91	70 - 130
Ethylbenzene			1.00	0.919		mg/Kg		92	70 - 130
m,p-Xylene			2.00	1.82		mg/Kg		91	70 - 130
o-Xylene			1.00	0.913		mg/Kg		91	70 - 130
Toluene			1.00	0.923		mg/Kg		92	70 - 130

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-17415/3-A
Matrix: Solid
Analysis Batch: 17707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17415

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Xylenes, Total			3.00	2.74		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*

Lab Sample ID: 885-16619-22 MS
Matrix: Solid
Analysis Batch: 17707

Client Sample ID: WS24-30@0-3.5'
Prep Type: Total/NA
Prep Batch: 17415

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.962	0.872		mg/Kg		91	70 - 130		
Ethylbenzene	ND		0.962	0.913		mg/Kg		95	70 - 130		
m,p-Xylene	ND		1.92	1.80		mg/Kg		94	70 - 130		
o-Xylene	ND		0.962	0.894		mg/Kg		93	70 - 130		
Toluene	ND		0.962	0.886		mg/Kg		92	70 - 130		
Xylenes, Total	ND		2.89	2.69		mg/Kg		93	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-16619-22 MSD
Matrix: Solid
Analysis Batch: 17707

Client Sample ID: WS24-30@0-3.5'
Prep Type: Total/NA
Prep Batch: 17415

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.964	0.923		mg/Kg		96	70 - 130	6	20
Ethylbenzene	ND		0.964	0.960		mg/Kg		100	70 - 130	5	20
m,p-Xylene	ND		1.93	1.88		mg/Kg		98	70 - 130	4	20
o-Xylene	ND		0.964	0.944		mg/Kg		98	70 - 130	5	20
Toluene	ND		0.964	0.949		mg/Kg		98	70 - 130	7	20
Xylenes, Total	ND		2.89	2.83		mg/Kg		98	70 - 130	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*

Lab Sample ID: MB 885-17426/1-A
Matrix: Solid
Analysis Batch: 17681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17426

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/10/24 14:53	12/12/24 22:34	1
Ethylbenzene	ND		0.050		mg/Kg		12/10/24 14:53	12/12/24 22:34	1
Toluene	ND		0.050		mg/Kg		12/10/24 14:53	12/12/24 22:34	1
Xylenes, Total	ND		0.10		mg/Kg		12/10/24 14:53	12/12/24 22:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/10/24 14:53*	*12/12/24 22:34*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-17426/3-A
Matrix: Solid
Analysis Batch: 17681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17426

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.05		mg/Kg		105	70 - 130		
Ethylbenzene			1.00	1.10		mg/Kg		110	70 - 130		
m,p-Xylene			2.00	2.15		mg/Kg		107	70 - 130		
o-Xylene			1.00	1.05		mg/Kg		105	70 - 130		
Toluene			1.00	1.09		mg/Kg		109	70 - 130		
Xylenes, Total			3.00	3.20		mg/Kg		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Lab Sample ID: 885-16619-42 MS
Matrix: Solid
Analysis Batch: 17681

Client Sample ID: BS24-76 3.5'
Prep Type: Total/NA
Prep Batch: 17426

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.943	1.01		mg/Kg		107	70 - 130		
Ethylbenzene	ND		0.943	1.09		mg/Kg		116	70 - 130		
m,p-Xylene	ND		1.89	2.15		mg/Kg		114	70 - 130		
o-Xylene	ND		0.943	1.06		mg/Kg		112	70 - 130		
Toluene	ND		0.943	1.08		mg/Kg		115	70 - 130		
Xylenes, Total	ND		2.83	3.21		mg/Kg		113	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Lab Sample ID: 885-16619-42 MSD
Matrix: Solid
Analysis Batch: 17681

Client Sample ID: BS24-76 3.5'
Prep Type: Total/NA
Prep Batch: 17426

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.947	1.01		mg/Kg		106	70 - 130	0	20
Ethylbenzene	ND		0.947	1.10		mg/Kg		116	70 - 130	1	20
m,p-Xylene	ND		1.89	2.14		mg/Kg		113	70 - 130	0	20
o-Xylene	ND		0.947	1.05		mg/Kg		111	70 - 130	0	20
Toluene	ND		0.947	1.08		mg/Kg		115	70 - 130	0	20
Xylenes, Total	ND		2.84	3.20		mg/Kg		112	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-17506/1-A
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17506

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/11/24 10:38	12/13/24 00:00	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-17506/1-A
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17506

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 10:38	12/13/24 00:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*131*		*62 - 134*	*12/11/24 10:38*	*12/13/24 00:00*	*1*

Lab Sample ID: LCS 885-17506/2-A
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17506

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	57.1		mg/Kg		114	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*

Lab Sample ID: MB 885-17519/1-A
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17519

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/11/24 12:08	12/12/24 18:44	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:08	12/12/24 18:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*141*	*S1+*	*62 - 134*	*12/11/24 12:08*	*12/12/24 18:44*	*1*

Lab Sample ID: MB 885-17519/1-A
Matrix: Solid
Analysis Batch: 17709

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17519

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/11/24 12:08	12/13/24 19:05	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:08	12/13/24 19:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*123*		*62 - 134*	*12/11/24 12:08*	*12/13/24 19:05*	*1*

Lab Sample ID: LCS 885-17519/2-A
Matrix: Solid
Analysis Batch: 17709

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17519

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	64.0		mg/Kg		128	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: 885-16619-1 MS
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17519

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		49.1	75.4	F1	mg/Kg		154	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*134*		*62 - 134*

Lab Sample ID: 885-16619-1 MS
Matrix: Solid
Analysis Batch: 17709

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17519

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND	F2	49.1	65.5		mg/Kg		133	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*123*		*62 - 134*

Lab Sample ID: 885-16619-1 MSD
Matrix: Solid
Analysis Batch: 17589

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17519

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		48.7	42.2	F2	mg/Kg		87	44 - 136	56	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*71*		*62 - 134*

Lab Sample ID: 885-16619-1 MSD
Matrix: Solid
Analysis Batch: 17709

Client Sample ID: WS24-01@0-3.5'
Prep Type: Total/NA
Prep Batch: 17519

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND	F2	48.7	32.0	F2	mg/Kg		66	44 - 136	69	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*64*		*62 - 134*

Lab Sample ID: MB 885-17521/1-A
Matrix: Solid
Analysis Batch: 17477

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17521

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/11/24 12:12	12/11/24 23:21	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/11/24 12:12	12/11/24 23:21	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-17521/1-A
Matrix: Solid
Analysis Batch: 17477

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17521

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/11/24 12:12*	*12/11/24 23:21*	*1*

Lab Sample ID: LCS 885-17521/2-A
Matrix: Solid
Analysis Batch: 17477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17521

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	55.8		mg/Kg		112	60 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-17419/1-A
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17419

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		12/10/24 13:25	12/10/24 20:45	1

Lab Sample ID: LCS 885-17419/2-A
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17419

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.2		mg/Kg		97	90 - 110

Lab Sample ID: MB 885-17433/1-A
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17433

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		12/10/24 15:40	12/11/24 01:31	1

Lab Sample ID: LCS 885-17433/2-A
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.7		mg/Kg		99	90 - 110

Lab Sample ID: 885-16619-13 MS
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: WS24-13@0-3.5'
Prep Type: Total/NA
Prep Batch: 17433

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	ND		30.2	64.4		mg/Kg		NC	50 - 150

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-16619-13 MSD
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: WS24-13@0-3.5'
Prep Type: Total/NA
Prep Batch: 17433

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		29.7	62.9		mg/Kg		NC	50 - 150	2	20

Lab Sample ID: 885-16619-14 MS
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: WS24-15@0-3.5'
Prep Type: Total/NA
Prep Batch: 17433

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	90		29.9	118		mg/Kg		94	50 - 150

Lab Sample ID: 885-16619-14 MSD
Matrix: Solid
Analysis Batch: 17431

Client Sample ID: WS24-15@0-3.5'
Prep Type: Total/NA
Prep Batch: 17433

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	90		29.8	117		mg/Kg		89	50 - 150	1	20

Lab Sample ID: MB 885-17444/1-A
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 17444

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/10/24 16:23	12/11/24 02:00	1

Lab Sample ID: LCS 885-17444/2-A
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 17444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.2		mg/Kg		97	90 - 110

Lab Sample ID: 885-16619-33 MS
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: BS24-67 3.5'
Prep Type: Total/NA
Prep Batch: 17444

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	71		29.9	99.7		mg/Kg		96	50 - 150

Lab Sample ID: 885-16619-33 MSD
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: BS24-67 3.5'
Prep Type: Total/NA
Prep Batch: 17444

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	71		30.1	96.1		mg/Kg		83	50 - 150	4	20

Lab Sample ID: 885-16619-34 MS
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: BS24-68 3.5'
Prep Type: Total/NA
Prep Batch: 17444

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	63		29.9	79.1		mg/Kg		55	50 - 150

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 885-16619-34 MSD
Matrix: Solid
Analysis Batch: 17383

Client Sample ID: BS24-68 3.5'
Prep Type: Total/NA
Prep Batch: 17444

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	63		30.1	88.4		mg/Kg		86	50 - 150	11	20

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 17402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	5030C	
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	5030C	
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	5030C	
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	5030C	
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	5030C	
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	5030C	
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	5030C	
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	5030C	
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	5030C	
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	5030C	
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	5030C	
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	5030C	
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	5030C	
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	5030C	
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	5030C	
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	5030C	
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	5030C	
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	5030C	
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	5030C	
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	5030C	
MB 885-17402/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17402/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17402/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16619-1 MS	WS24-01@0-3.5'	Total/NA	Solid	5030C	
885-16619-1 MSD	WS24-01@0-3.5'	Total/NA	Solid	5030C	
885-16619-2 MS	WS24-02@0-3.5'	Total/NA	Solid	5030C	
885-16619-2 MSD	WS24-02@0-3.5'	Total/NA	Solid	5030C	

Prep Batch: 17415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	5030C	
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	5030C	
885-16619-23	BS24-57 3.5'	Total/NA	Solid	5030C	
885-16619-24	BS24-58 3.5'	Total/NA	Solid	5030C	
885-16619-25	BS24-59 3.5'	Total/NA	Solid	5030C	
885-16619-26	BS24-60 3.5'	Total/NA	Solid	5030C	
885-16619-27	BS24-61 3.5'	Total/NA	Solid	5030C	
885-16619-28	BS24-62 3.5'	Total/NA	Solid	5030C	
885-16619-29	BS24-63 3.5'	Total/NA	Solid	5030C	
885-16619-30	BS24-64 3.5'	Total/NA	Solid	5030C	
885-16619-31	BS24-65 3.5'	Total/NA	Solid	5030C	
885-16619-32	BS24-66 3.5'	Total/NA	Solid	5030C	
885-16619-33	BS24-67 3.5'	Total/NA	Solid	5030C	
885-16619-34	BS24-68 3.5'	Total/NA	Solid	5030C	
885-16619-35	BS24-69 3.5'	Total/NA	Solid	5030C	
885-16619-36	BS24-70 3.5'	Total/NA	Solid	5030C	
885-16619-37	BS24-71 3.5'	Total/NA	Solid	5030C	
885-16619-38	BS24-72 3.5'	Total/NA	Solid	5030C	
885-16619-39	BS24-73 3.5'	Total/NA	Solid	5030C	
885-16619-40	BS24-74 3.5'	Total/NA	Solid	5030C	
MB 885-17415/1-A	Method Blank	Total/NA	Solid	5030C	

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC VOA (Continued)

Prep Batch: 17415 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-17415/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17415/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16619-21 MS	WS24-29@0-3.5'	Total/NA	Solid	5030C	
885-16619-21 MSD	WS24-29@0-3.5'	Total/NA	Solid	5030C	
885-16619-22 MS	WS24-30@0-3.5'	Total/NA	Solid	5030C	
885-16619-22 MSD	WS24-30@0-3.5'	Total/NA	Solid	5030C	

Prep Batch: 17426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-41	BS24-75 3.5'	Total/NA	Solid	5030C	
885-16619-42	BS24-76 3.5'	Total/NA	Solid	5030C	
885-16619-43	BS24-77 3.5'	Total/NA	Solid	5030C	
885-16619-44	BS24-78 3.5'	Total/NA	Solid	5030C	
MB 885-17426/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-17426/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-17426/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-16619-41 MS	BS24-75 3.5'	Total/NA	Solid	5030C	
885-16619-41 MSD	BS24-75 3.5'	Total/NA	Solid	5030C	
885-16619-42 MS	BS24-76 3.5'	Total/NA	Solid	5030C	
885-16619-42 MSD	BS24-76 3.5'	Total/NA	Solid	5030C	

Analysis Batch: 17680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-41	BS24-75 3.5'	Total/NA	Solid	8015M/D	17426
885-16619-42	BS24-76 3.5'	Total/NA	Solid	8015M/D	17426
885-16619-43	BS24-77 3.5'	Total/NA	Solid	8015M/D	17426
885-16619-44	BS24-78 3.5'	Total/NA	Solid	8015M/D	17426
MB 885-17426/1-A	Method Blank	Total/NA	Solid	8015M/D	17426
LCS 885-17426/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17426
885-16619-41 MS	BS24-75 3.5'	Total/NA	Solid	8015M/D	17426
885-16619-41 MSD	BS24-75 3.5'	Total/NA	Solid	8015M/D	17426

Analysis Batch: 17681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-41	BS24-75 3.5'	Total/NA	Solid	8021B	17426
885-16619-42	BS24-76 3.5'	Total/NA	Solid	8021B	17426
885-16619-43	BS24-77 3.5'	Total/NA	Solid	8021B	17426
885-16619-44	BS24-78 3.5'	Total/NA	Solid	8021B	17426
MB 885-17426/1-A	Method Blank	Total/NA	Solid	8021B	17426
LCS 885-17426/3-A	Lab Control Sample	Total/NA	Solid	8021B	17426
885-16619-42 MS	BS24-76 3.5'	Total/NA	Solid	8021B	17426
885-16619-42 MSD	BS24-76 3.5'	Total/NA	Solid	8021B	17426

Analysis Batch: 17707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	8021B	17415
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	8021B	17415
885-16619-23	BS24-57 3.5'	Total/NA	Solid	8021B	17415
885-16619-24	BS24-58 3.5'	Total/NA	Solid	8021B	17415
885-16619-25	BS24-59 3.5'	Total/NA	Solid	8021B	17415
885-16619-26	BS24-60 3.5'	Total/NA	Solid	8021B	17415

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC VOA (Continued)

Analysis Batch: 17707 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-27	BS24-61 3.5'	Total/NA	Solid	8021B	17415
885-16619-28	BS24-62 3.5'	Total/NA	Solid	8021B	17415
885-16619-29	BS24-63 3.5'	Total/NA	Solid	8021B	17415
885-16619-30	BS24-64 3.5'	Total/NA	Solid	8021B	17415
885-16619-31	BS24-65 3.5'	Total/NA	Solid	8021B	17415
885-16619-32	BS24-66 3.5'	Total/NA	Solid	8021B	17415
885-16619-33	BS24-67 3.5'	Total/NA	Solid	8021B	17415
885-16619-34	BS24-68 3.5'	Total/NA	Solid	8021B	17415
885-16619-35	BS24-69 3.5'	Total/NA	Solid	8021B	17415
885-16619-36	BS24-70 3.5'	Total/NA	Solid	8021B	17415
885-16619-37	BS24-71 3.5'	Total/NA	Solid	8021B	17415
885-16619-38	BS24-72 3.5'	Total/NA	Solid	8021B	17415
885-16619-39	BS24-73 3.5'	Total/NA	Solid	8021B	17415
885-16619-40	BS24-74 3.5'	Total/NA	Solid	8021B	17415
MB 885-17415/1-A	Method Blank	Total/NA	Solid	8021B	17415
LCS 885-17415/3-A	Lab Control Sample	Total/NA	Solid	8021B	17415
885-16619-22 MS	WS24-30@0-3.5'	Total/NA	Solid	8021B	17415
885-16619-22 MSD	WS24-30@0-3.5'	Total/NA	Solid	8021B	17415

Analysis Batch: 17708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	8015M/D	17415
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	8015M/D	17415
885-16619-23	BS24-57 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-24	BS24-58 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-25	BS24-59 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-26	BS24-60 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-27	BS24-61 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-28	BS24-62 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-29	BS24-63 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-30	BS24-64 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-31	BS24-65 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-32	BS24-66 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-33	BS24-67 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-34	BS24-68 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-35	BS24-69 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-36	BS24-70 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-37	BS24-71 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-38	BS24-72 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-39	BS24-73 3.5'	Total/NA	Solid	8015M/D	17415
885-16619-40	BS24-74 3.5'	Total/NA	Solid	8015M/D	17415
MB 885-17415/1-A	Method Blank	Total/NA	Solid	8015M/D	17415
LCS 885-17415/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17415
885-16619-21 MS	WS24-29@0-3.5'	Total/NA	Solid	8015M/D	17415
885-16619-21 MSD	WS24-29@0-3.5'	Total/NA	Solid	8015M/D	17415

Analysis Batch: 17798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	8021B	17402

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

GC VOA (Continued)

Analysis Batch: 17798 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	8021B	17402
MB 885-17402/1-A	Method Blank	Total/NA	Solid	8021B	17402
LCS 885-17402/3-A	Lab Control Sample	Total/NA	Solid	8021B	17402
885-16619-2 MS	WS24-02@0-3.5'	Total/NA	Solid	8021B	17402
885-16619-2 MSD	WS24-02@0-3.5'	Total/NA	Solid	8021B	17402

Analysis Batch: 17799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	8015M/D	17402
MB 885-17402/1-A	Method Blank	Total/NA	Solid	8015M/D	17402
LCS 885-17402/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17402
885-16619-1 MS	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17402
885-16619-1 MSD	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17402

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC Semi VOA

Analysis Batch: 17477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	8015M/D	17521
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	8015M/D	17521
885-16619-24	BS24-58 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-25	BS24-59 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-26	BS24-60 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-27	BS24-61 3.5'	Total/NA	Solid	8015M/D	17521
MB 885-17521/1-A	Method Blank	Total/NA	Solid	8015M/D	17521
LCS 885-17521/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17521

Prep Batch: 17506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-41	BS24-75 3.5'	Total/NA	Solid	SHAKE	
885-16619-42	BS24-76 3.5'	Total/NA	Solid	SHAKE	
885-16619-43	BS24-77 3.5'	Total/NA	Solid	SHAKE	
885-16619-44	BS24-78 3.5'	Total/NA	Solid	SHAKE	
MB 885-17506/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17506/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 17519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	SHAKE	
MB 885-17519/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17519/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-16619-1 MS	WS24-01@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-1 MSD	WS24-01@0-3.5'	Total/NA	Solid	SHAKE	

Prep Batch: 17521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	SHAKE	
885-16619-23	BS24-57 3.5'	Total/NA	Solid	SHAKE	
885-16619-24	BS24-58 3.5'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Prep Batch: 17521 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-25	BS24-59 3.5'	Total/NA	Solid	SHAKE	
885-16619-26	BS24-60 3.5'	Total/NA	Solid	SHAKE	
885-16619-27	BS24-61 3.5'	Total/NA	Solid	SHAKE	
885-16619-28	BS24-62 3.5'	Total/NA	Solid	SHAKE	
885-16619-29	BS24-63 3.5'	Total/NA	Solid	SHAKE	
885-16619-30	BS24-64 3.5'	Total/NA	Solid	SHAKE	
885-16619-31	BS24-65 3.5'	Total/NA	Solid	SHAKE	
885-16619-32	BS24-66 3.5'	Total/NA	Solid	SHAKE	
885-16619-33	BS24-67 3.5'	Total/NA	Solid	SHAKE	
885-16619-34	BS24-68 3.5'	Total/NA	Solid	SHAKE	
885-16619-35	BS24-69 3.5'	Total/NA	Solid	SHAKE	
885-16619-36	BS24-70 3.5'	Total/NA	Solid	SHAKE	
885-16619-37	BS24-71 3.5'	Total/NA	Solid	SHAKE	
885-16619-38	BS24-72 3.5'	Total/NA	Solid	SHAKE	
885-16619-39	BS24-73 3.5'	Total/NA	Solid	SHAKE	
885-16619-40	BS24-74 3.5'	Total/NA	Solid	SHAKE	
MB 885-17521/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-17521/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 17588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-23	BS24-57 3.5'	Total/NA	Solid	8015M/D	17521

Analysis Batch: 17589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-41	BS24-75 3.5'	Total/NA	Solid	8015M/D	17506
885-16619-42	BS24-76 3.5'	Total/NA	Solid	8015M/D	17506
885-16619-43	BS24-77 3.5'	Total/NA	Solid	8015M/D	17506
885-16619-44	BS24-78 3.5'	Total/NA	Solid	8015M/D	17506
MB 885-17506/1-A	Method Blank	Total/NA	Solid	8015M/D	17506
MB 885-17519/1-A	Method Blank	Total/NA	Solid	8015M/D	17519
LCS 885-17506/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17506
885-16619-1 MS	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-1 MSD	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

GC Semi VOA

Analysis Batch: 17709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-28	BS24-62 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-29	BS24-63 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-30	BS24-64 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-31	BS24-65 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-32	BS24-66 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-33	BS24-67 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-34	BS24-68 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-35	BS24-69 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-36	BS24-70 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-37	BS24-71 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-38	BS24-72 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-39	BS24-73 3.5'	Total/NA	Solid	8015M/D	17521
885-16619-40	BS24-74 3.5'	Total/NA	Solid	8015M/D	17521
MB 885-17519/1-A	Method Blank	Total/NA	Solid	8015M/D	17519
LCS 885-17519/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	17519
885-16619-1 MS	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519
885-16619-1 MSD	WS24-01@0-3.5'	Total/NA	Solid	8015M/D	17519

HPLC/IC

Analysis Batch: 17383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	300.0	17419
885-16619-33	BS24-67 3.5'	Total/NA	Solid	300.0	17444
885-16619-34	BS24-68 3.5'	Total/NA	Solid	300.0	17444
885-16619-35	BS24-69 3.5'	Total/NA	Solid	300.0	17444
885-16619-36	BS24-70 3.5'	Total/NA	Solid	300.0	17444
885-16619-37	BS24-71 3.5'	Total/NA	Solid	300.0	17444
885-16619-38	BS24-72 3.5'	Total/NA	Solid	300.0	17444
885-16619-39	BS24-73 3.5'	Total/NA	Solid	300.0	17444
885-16619-40	BS24-74 3.5'	Total/NA	Solid	300.0	17444
885-16619-41	BS24-75 3.5'	Total/NA	Solid	300.0	17444
885-16619-42	BS24-76 3.5'	Total/NA	Solid	300.0	17444
885-16619-43	BS24-77 3.5'	Total/NA	Solid	300.0	17444
885-16619-44	BS24-78 3.5'	Total/NA	Solid	300.0	17444
MB 885-17419/1-A	Method Blank	Total/NA	Solid	300.0	17419

QC Association Summary

Client: Vertex Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

HPLC/IC (Continued)

Analysis Batch: 17383 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-17444/1-A	Method Blank	Total/NA	Solid	300.0	17444
LCS 885-17419/2-A	Lab Control Sample	Total/NA	Solid	300.0	17419
LCS 885-17444/2-A	Lab Control Sample	Total/NA	Solid	300.0	17444
885-16619-33 MS	BS24-67 3.5'	Total/NA	Solid	300.0	17444
885-16619-33 MSD	BS24-67 3.5'	Total/NA	Solid	300.0	17444
885-16619-34 MS	BS24-68 3.5'	Total/NA	Solid	300.0	17444
885-16619-34 MSD	BS24-68 3.5'	Total/NA	Solid	300.0	17444

Prep Batch: 17419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-1	WS24-01@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-2	WS24-02@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-3	WS24-03@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-4	WS24-04@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-5	WS24-05@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-6	WS24-06@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-7	WS24-07@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-8	WS24-08@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-9	WS24-09@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-10	WS24-10@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-11	WS24-11@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-12	WS24-12@0-3.5'	Total/NA	Solid	300_Prep	
MB 885-17419/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17419/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 17431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	300.0	17433
MB 885-17433/1-A	Method Blank	Total/NA	Solid	300.0	17433
LCS 885-17433/2-A	Lab Control Sample	Total/NA	Solid	300.0	17433
885-16619-13 MS	WS24-13@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-13 MSD	WS24-13@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-14 MS	WS24-15@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-14 MSD	WS24-15@0-3.5'	Total/NA	Solid	300.0	17433

Prep Batch: 17433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-13	WS24-13@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-14	WS24-15@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-15	WS24-16@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-16	WS24-17@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-17	WS24-25@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-18	WS24-26@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-19	WS24-27@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-16619-1

HPLC/IC (Continued)

Prep Batch: 17433 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-23	BS24-57 3.5'	Total/NA	Solid	300_Prep	
885-16619-24	BS24-58 3.5'	Total/NA	Solid	300_Prep	
885-16619-25	BS24-59 3.5'	Total/NA	Solid	300_Prep	
885-16619-26	BS24-60 3.5'	Total/NA	Solid	300_Prep	
885-16619-27	BS24-61 3.5'	Total/NA	Solid	300_Prep	
885-16619-28	BS24-62 3.5'	Total/NA	Solid	300_Prep	
885-16619-29	BS24-63 3.5'	Total/NA	Solid	300_Prep	
885-16619-30	BS24-64 3.5'	Total/NA	Solid	300_Prep	
885-16619-31	BS24-65 3.5'	Total/NA	Solid	300_Prep	
885-16619-32	BS24-66 3.5'	Total/NA	Solid	300_Prep	
MB 885-17433/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17433/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-16619-13 MS	WS24-13@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-13 MSD	WS24-13@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-14 MS	WS24-15@0-3.5'	Total/NA	Solid	300_Prep	
885-16619-14 MSD	WS24-15@0-3.5'	Total/NA	Solid	300_Prep	

Prep Batch: 17444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-33	BS24-67 3.5'	Total/NA	Solid	300_Prep	
885-16619-34	BS24-68 3.5'	Total/NA	Solid	300_Prep	
885-16619-35	BS24-69 3.5'	Total/NA	Solid	300_Prep	
885-16619-36	BS24-70 3.5'	Total/NA	Solid	300_Prep	
885-16619-37	BS24-71 3.5'	Total/NA	Solid	300_Prep	
885-16619-38	BS24-72 3.5'	Total/NA	Solid	300_Prep	
885-16619-39	BS24-73 3.5'	Total/NA	Solid	300_Prep	
885-16619-40	BS24-74 3.5'	Total/NA	Solid	300_Prep	
885-16619-41	BS24-75 3.5'	Total/NA	Solid	300_Prep	
885-16619-42	BS24-76 3.5'	Total/NA	Solid	300_Prep	
885-16619-43	BS24-77 3.5'	Total/NA	Solid	300_Prep	
885-16619-44	BS24-78 3.5'	Total/NA	Solid	300_Prep	
MB 885-17444/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-17444/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-16619-33 MS	BS24-67 3.5'	Total/NA	Solid	300_Prep	
885-16619-33 MSD	BS24-67 3.5'	Total/NA	Solid	300_Prep	
885-16619-34 MS	BS24-68 3.5'	Total/NA	Solid	300_Prep	
885-16619-34 MSD	BS24-68 3.5'	Total/NA	Solid	300_Prep	

Analysis Batch: 17479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-20	WS24-28@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-21	WS24-29@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-22	WS24-30@0-3.5'	Total/NA	Solid	300.0	17433
885-16619-23	BS24-57 3.5'	Total/NA	Solid	300.0	17433
885-16619-24	BS24-58 3.5'	Total/NA	Solid	300.0	17433
885-16619-25	BS24-59 3.5'	Total/NA	Solid	300.0	17433
885-16619-26	BS24-60 3.5'	Total/NA	Solid	300.0	17433
885-16619-27	BS24-61 3.5'	Total/NA	Solid	300.0	17433
885-16619-28	BS24-62 3.5'	Total/NA	Solid	300.0	17433

QC Association Summary

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

HPLC/IC (Continued)

Analysis Batch: 17479 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-16619-29	BS24-63 3.5'	Total/NA	Solid	300.0	17433
885-16619-30	BS24-64 3.5'	Total/NA	Solid	300.0	17433
885-16619-31	BS24-65 3.5'	Total/NA	Solid	300.0	17433
885-16619-32	BS24-66 3.5'	Total/NA	Solid	300.0	17433

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-01@0-3.5'
Lab Sample ID: 885-16619-1
Date Collected: 12/06/24 15:27
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 19:08
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 19:08
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 19:26
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 19:07
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/10/24 23:43

Client Sample ID: WS24-02@0-3.5'
Lab Sample ID: 885-16619-2
Date Collected: 12/06/24 15:22
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 20:13
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 20:13
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 19:43
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/10/24 23:52

Client Sample ID: WS24-03@0-3.5'
Lab Sample ID: 885-16619-3
Date Collected: 12/06/24 15:33
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 21:18
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 21:18
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 19:54
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:02

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-04@0-3.5'
Lab Sample ID: 885-16619-4
Date Collected: 12/06/24 15:16
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 21:40
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 21:40
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 19:58
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:12

Client Sample ID: WS24-05@0-3.5'
Lab Sample ID: 885-16619-5
Date Collected: 12/06/24 15:38
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 22:02
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 22:02
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 20:18
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:22

Client Sample ID: WS24-06@0-3.5'
Lab Sample ID: 885-16619-6
Date Collected: 12/06/24 15:10
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 22:23
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 22:23
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 20:30
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:32

Client Sample ID: WS24-07@0-3.5'
Lab Sample ID: 885-16619-7
Date Collected: 12/06/24 15:42
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 22:45

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-07@0-3.5'
Lab Sample ID: 885-16619-7
Date Collected: 12/06/24 15:42
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 22:45
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 20:53
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:42

Client Sample ID: WS24-08@0-3.5'
Lab Sample ID: 885-16619-8
Date Collected: 12/06/24 15:04
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 23:07
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 23:07
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 21:05
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 00:52

Client Sample ID: WS24-09@0-3.5'
Lab Sample ID: 885-16619-9
Date Collected: 12/06/24 15:52
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 23:29
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 23:29
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 21:17
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 01:01

Client Sample ID: WS24-10@0-3.5'
Lab Sample ID: 885-16619-10
Date Collected: 12/06/24 15:00
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/13/24 23:50
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/13/24 23:50

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-10@0-3.5'
Lab Sample ID: 885-16619-10
Date Collected: 12/06/24 15:00
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 21:28
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 01:31

Client Sample ID: WS24-11@0-3.5'
Lab Sample ID: 885-16619-11
Date Collected: 12/06/24 12:16
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 00:33
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 00:33
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 21:40
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 01:41

Client Sample ID: WS24-12@0-3.5'
Lab Sample ID: 885-16619-12
Date Collected: 12/06/24 12:13
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 00:55
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 00:55
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 21:52
Total/NA	Prep	300_Prep			17419	JT	EET ALB	12/10/24 13:25
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 01:51

Client Sample ID: WS24-13@0-3.5'
Lab Sample ID: 885-16619-13
Date Collected: 12/06/24 12:07
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 01:16
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 01:16
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 20:08

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-13@0-3.5'
Lab Sample ID: 885-16619-13
Date Collected: 12/06/24 12:07
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 01:52

Client Sample ID: WS24-15@0-3.5'
Lab Sample ID: 885-16619-14
Date Collected: 12/06/24 11:56
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 01:38
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 01:38
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 22:15
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 02:44

Client Sample ID: WS24-16@0-3.5'
Lab Sample ID: 885-16619-15
Date Collected: 12/06/24 11:53
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 01:59
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 01:59
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 22:27
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 03:15

Client Sample ID: WS24-17@0-3.5'
Lab Sample ID: 885-16619-16
Date Collected: 12/06/24 16:15
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 02:21
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 02:21
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 20:29
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 03:25

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-25@0-3.5'
Lab Sample ID: 885-16619-17
Date Collected: 12/06/24 16:44
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 02:43
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 02:43
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 23:02
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 03:36

Client Sample ID: WS24-26@0-3.5'
Lab Sample ID: 885-16619-18
Date Collected: 12/06/24 16:39
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 03:04
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 03:04
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 23:14
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 03:46

Client Sample ID: WS24-27@0-3.5'
Lab Sample ID: 885-16619-19
Date Collected: 12/06/24 16:35
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 03:26
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 03:26
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 23:25
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17431	EH	EET ALB	12/11/24 03:56

Client Sample ID: WS24-28@0-3.5'
Lab Sample ID: 885-16619-20
Date Collected: 12/06/24 16:31
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8015M/D		1	17799	AT	EET ALB	12/14/24 03:47

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-28@0-3.5'
Lab Sample ID: 885-16619-20
Date Collected: 12/06/24 16:31
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17402	JP	EET ALB	12/10/24 11:41
Total/NA	Analysis	8021B		1	17798	AT	EET ALB	12/14/24 03:47
Total/NA	Prep	SHAKE			17519	MI	EET ALB	12/11/24 12:08
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/12/24 23:37
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 11:12

Client Sample ID: WS24-29@0-3.5'
Lab Sample ID: 885-16619-21
Date Collected: 12/06/24 16:03
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 01:29
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 01:29
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/11/24 23:45
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 11:22

Client Sample ID: WS24-30@0-3.5'
Lab Sample ID: 885-16619-22
Date Collected: 12/06/24 15:58
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 02:34
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 02:34
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/11/24 23:57
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 11:32

Client Sample ID: BS24-57 3.5'
Lab Sample ID: 885-16619-23
Date Collected: 12/07/24 13:20
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 03:38
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 03:38

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-57 3.5'
Lab Sample ID: 885-16619-23
Date Collected: 12/07/24 13:20
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17588	MI	EET ALB	12/13/24 03:01
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 11:43

Client Sample ID: BS24-58 3.5'
Lab Sample ID: 885-16619-24
Date Collected: 12/07/24 13:25
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 04:00
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 04:00
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/12/24 00:44
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 11:53

Client Sample ID: BS24-59 3.5'
Lab Sample ID: 885-16619-25
Date Collected: 12/07/24 13:30
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 04:21
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 04:21
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/12/24 00:55
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 12:04

Client Sample ID: BS24-60 3.5'
Lab Sample ID: 885-16619-26
Date Collected: 12/07/24 13:35
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 04:43
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 04:43
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/12/24 01:07

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-60 3.5'
Lab Sample ID: 885-16619-26
Date Collected: 12/07/24 13:35
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 12:14

Client Sample ID: BS24-61 3.5'
Lab Sample ID: 885-16619-27
Date Collected: 12/07/24 13:40
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 05:04
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 05:04
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17477	MI	EET ALB	12/12/24 01:19
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 12:24

Client Sample ID: BS24-62 3.5'
Lab Sample ID: 885-16619-28
Date Collected: 12/07/24 13:45
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 05:25
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 05:25
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 15:13
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 12:35

Client Sample ID: BS24-63 3.5'
Lab Sample ID: 885-16619-29
Date Collected: 12/07/24 13:50
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 05:47
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 05:47
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 15:24
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 12:45

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-64 3.5'
Lab Sample ID: 885-16619-30
Date Collected: 12/07/24 13:55
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 06:08
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 06:08
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 15:35
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 13:16

Client Sample ID: BS24-65 3.5'
Lab Sample ID: 885-16619-31
Date Collected: 12/07/24 14:05
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 06:51
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 06:51
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 15:45
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 13:26

Client Sample ID: BS24-66 3.5'
Lab Sample ID: 885-16619-32
Date Collected: 12/07/24 14:10
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 07:13
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 07:13
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 15:56
Total/NA	Prep	300_Prep			17433	JT	EET ALB	12/10/24 15:40
Total/NA	Analysis	300.0		20	17479	ES	EET ALB	12/11/24 13:37

Client Sample ID: BS24-67 3.5'
Lab Sample ID: 885-16619-33
Date Collected: 12/08/24 11:30
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 07:34

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-67 3.5'
Lab Sample ID: 885-16619-33
Date Collected: 12/08/24 11:30
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 07:34
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 16:07
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 02:20

Client Sample ID: BS24-68 3.5'
Lab Sample ID: 885-16619-34
Date Collected: 12/08/24 11:35
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 07:56
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 07:56
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 16:18
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 02:50

Client Sample ID: BS24-69 3.5'
Lab Sample ID: 885-16619-35
Date Collected: 12/08/24 11:40
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 08:17
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 08:17
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 16:34
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 03:39

Client Sample ID: BS24-70 3.5'
Lab Sample ID: 885-16619-36
Date Collected: 12/08/24 11:45
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 08:39
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 08:39

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-70 3.5'
Lab Sample ID: 885-16619-36
Date Collected: 12/08/24 11:45
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 18:01
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 03:49

Client Sample ID: BS24-71 3.5'
Lab Sample ID: 885-16619-37
Date Collected: 12/08/24 11:50
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 09:00
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 09:00
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 18:12
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 03:59

Client Sample ID: BS24-72 3.5'
Lab Sample ID: 885-16619-38
Date Collected: 12/08/24 11:55
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 09:22
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 09:22
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 18:33
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 04:08

Client Sample ID: BS24-73 3.5'
Lab Sample ID: 885-16619-39
Date Collected: 12/08/24 12:00
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 09:43
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 09:43
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 18:44

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-73 3.5'
Lab Sample ID: 885-16619-39
Date Collected: 12/08/24 12:00
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 04:18

Client Sample ID: BS24-74 3.5'
Lab Sample ID: 885-16619-40
Date Collected: 12/08/24 12:05
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8015M/D		1	17708	AT	EET ALB	12/13/24 10:05
Total/NA	Prep	5030C			17415	JR	EET ALB	12/10/24 12:56
Total/NA	Analysis	8021B		1	17707	AT	EET ALB	12/13/24 10:05
Total/NA	Prep	SHAKE			17521	MI	EET ALB	12/11/24 12:12
Total/NA	Analysis	8015M/D		1	17709	MI	EET ALB	12/13/24 18:54
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 04:28

Client Sample ID: BS24-75 3.5'
Lab Sample ID: 885-16619-41
Date Collected: 12/08/24 12:10
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8015M/D		1	17680	JP	EET ALB	12/12/24 22:58
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8021B		1	17681	JP	EET ALB	12/12/24 22:58
Total/NA	Prep	SHAKE			17506	MI	EET ALB	12/11/24 12:06
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/13/24 03:31
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 04:38

Client Sample ID: BS24-76 3.5'
Lab Sample ID: 885-16619-42
Date Collected: 12/08/24 12:15
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8015M/D		1	17680	JP	EET ALB	12/13/24 00:08
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8021B		1	17681	JP	EET ALB	12/13/24 00:08
Total/NA	Prep	SHAKE			17506	MI	EET ALB	12/11/24 12:06
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/13/24 03:42
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 04:48

Lab Chronicle

Client: Vertex
Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-77 3.5'
Lab Sample ID: 885-16619-43

Date Collected: 12/08/24 12:20
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8015M/D		1	17680	JP	EET ALB	12/13/24 01:17
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8021B		1	17681	JP	EET ALB	12/13/24 01:17
Total/NA	Prep	SHAKE			17506	MI	EET ALB	12/11/24 12:06
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/13/24 03:54
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 05:17

Client Sample ID: BS24-78 3.5'
Lab Sample ID: 885-16619-44

Date Collected: 12/08/24 12:25
Matrix: Solid
Date Received: 12/10/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8015M/D		1	17680	JP	EET ALB	12/13/24 01:40
Total/NA	Prep	5030C			17426	JP	EET ALB	12/10/24 14:53
Total/NA	Analysis	8021B		1	17681	JP	EET ALB	12/13/24 01:40
Total/NA	Prep	SHAKE			17506	MI	EET ALB	12/11/24 12:06
Total/NA	Analysis	8015M/D		1	17589	EM	EET ALB	12/13/24 04:18
Total/NA	Prep	300_Prep			17444	JT	EET ALB	12/10/24 16:23
Total/NA	Analysis	300.0		20	17383	RC	EET ALB	12/11/24 05:27

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-16619-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (Bill to Mack Energy)

Mailing Address: Vertex Resource Group Inc 3101 Boyd Dr. Carlsbad NM 88220

Phone #: On File

email or Fax#:

QA/QC Package.
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: Sally Carttar 24E-04822

Project Manager: Sally Carttar

Sampler: MV

On Ice: ☒ Yes ☐ No maja

# of Coolers: 1

Cooler Temp (including CF): 5.9 +0 = 5.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-16619 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.6.24	1527	Soil	WS24-01@0-3.5'	4oz	Ice	1										
	1522		WS24-02@0-3.5'			2										
	1533		WS24-03@0-3.5'			3										
	1516		WS24-04@0-3.5'			4										
	1538		WS24-05@0-3.5'			5										
	1510		WS24-06@0-3.5'			6										
	1542		WS24-07@0-3.5'			7										
	1504		WS24-08@0-3.5'			8										
	1552		WS24-09@0-3.5'			9										
	1500		WS24-10@0-3.5'			10										
	1216		WS24-11@0-3.5'			11										
	1213		WS24-12@0-3.5'			12										

Date	Time	Relinquished by	Received by	Via	Date	Time
12.9.24	1330				12/9/24	1300
12/9/24	1900			courier	12/10/24	8:00

Remarks: Direct Bill to Mack Energy
CC: SCarttar@VertexResource.com
mveliz@VertexResource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (Bill to Mack Energy)

Mailing Address: Vertex Resource Group Inc
3101 Boyd Dr. Carlsbad NM 88220

Phone #: On File

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: MV

On Ice: ☑ Yes ☐ No mojo

# of Coolers: 1

Cooler Temp (including CF): 5.9 ± 0 = 5.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.6.24	1207	Soil	WS24-13@0-3.5'	4oz	Ice	13										
	1156		WS24-15@0-3.5'			14										
	1153		WS24-16@0-3.5'			15										
	1615		WS24-17@0-3.5'			16										
	1644		WS24-25@0-3.5'			17										
	1639		WS24-26@0-3.5'			18										
	1635		WS24-27@0-3.5'			19										
	1631		WS24-28@0-3.5'			20										
	1603		WS24-29@0-3.5'			21										
	1558		WS24-30@0-3.5'			22										

Date	Time	Relinquished by	Received by	Via	Date	Time
12.9.24	1300	Melissa Veliz			12/9/24	1300
12/9/24	1900			Via courier	12/10/24	8:00

Remarks: Direct bill to Mack Energy
CC: scarttar@vertexresource.com
mveliz@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (bill to Mack Energy)

Mailing Address: Vertex Resource Group, Inc
3101 Boyd Dr. Carlsbad, NM 88220

Phone #: On File

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No mgo

# of Coolers: 1

Cooler Temp(including CF): 5.9 -0 = 5.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.07.24	1320	soil	BS24-57 3.5'	4oz	ICE	23										
	1325		BS24-58 3.5'			24										
	1330		BS24-59 3.5'			25										
	1335		BS24-60 3.5'			26										
	1340		BS24-61 3.5'			27										
	1345		BS24-62 3.5'			28										
	1350		BS24-63 3.5'			29										
	1355		BS24-64 3.5'			30										
	1405		BS24-65 3.5'			31										
	1410		BS24-66 3.5'			32										

Date	Time	Relinquished by	Received by	Via.	Date	Time
12.09.24	1300				12/9/24	1300
12/9/24	1900			courier	12/10/24	8:00

Remarks: Direct bill to Mack Energy
CC: SCarttar@vertexresource.com
ALudvik@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: Vertex (Mack Energy)

Mailing Address: Vertex Resource Group, Inc 3101 Boyd Dr, Carlsbad, NM 88220

Phone #: On File

email or Fax#: ↓

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 5 Day

Project Name: Calgary Federal #002E

Project #: 24E-04822

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No mgo

# of Coolers: 1

Cooler Temp(Including CF): 5.9 ±0 = 5.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	(TPH) 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.08.24	1130	Soil	BS24-67 3.5'	4oz	ICE	33										
	1135		BS24-68 3.5'			34										
	1140		BS24-69 3.5'			35										
	1145		BS24-70 3.5'			36										
	1150		BS24-71 3.5'			37										
	1155		BS24-72 3.5'			38										
	1200		BS24-73 3.5'			39										
	1205		BS24-74 3.5'			40										
	1210		BS24-75 3.5'			41										
	1215		BS24-76 3.5'			42										
	1220		BS24-77 3.5'			43										
↓	1225	↓	BS24-78 3.5'	↓	↓	44	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
12.09.24	1300			—	12/9/24	1300
12/9/24	1400			courier	12/10/24	8:30

Remarks: Direct Bill to Mack Energy ATTN: Mutt Buckles
CC: SCarttar@vertexresource.com
ALudvik@vertexresource.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-16619-1

Login Number: 16619 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 1/3/2025 11:33:52 AM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-17193-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

my EOL

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
1/3/2025 11:33:52 AM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-17193-1

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Definitions/Glossary

Client: Vertex Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-17193-1
Project: Calgary Federal #002E

Job ID: 885-17193-1 Eurofins Albuquerque

Job Narrative
885-17193-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/18/2024 7:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.9°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-18391 and analytical batch 885-18540 recovered outside control limits for the following analytes: Diesel Range Organics [C10-C28]. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. Re-extracting any samples with hits.

Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-18391 and analytical batch 885-18540 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: Surrogate recovery for the following sample is outside the lower control limit: BS24-100 0' (885-17193-6). Low surrogate in parent sample confirmed by MS low surrogate recovery. Reporting sample as is with narration.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Client Sample ID: BS24-94 0'
Date Collected: 12/12/24 09:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17193-1
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 13:42	12/21/24 04:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 13:42*	*12/21/24 04:44*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 13:42	12/21/24 04:44	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 04:44	1
Toluene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 04:44	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 13:42	12/21/24 04:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/18/24 13:42*	*12/21/24 04:44*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.2		mg/Kg		12/23/24 17:40	12/30/24 17:20	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/23/24 17:40	12/30/24 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*62*		*62 - 134*	*12/23/24 17:40*	*12/30/24 17:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 15:45	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Client Sample ID: BS24-95 0'
Date Collected: 12/12/24 09:30
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17193-2
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 13:42	12/21/24 05:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/18/24 13:42*	*12/21/24 05:05*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 13:42	12/21/24 05:05	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 13:42	12/21/24 05:05	1
Toluene	ND		0.050		mg/Kg		12/18/24 13:42	12/21/24 05:05	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 13:42	12/21/24 05:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 13:42*	*12/21/24 05:05*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	9.8		mg/Kg		12/23/24 17:40	12/30/24 17:31	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/23/24 17:40	12/30/24 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*12/23/24 17:40*	*12/30/24 17:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 15:55	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Client Sample ID: BS24-96 0'
Date Collected: 12/12/24 10:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17193-3
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/18/24 13:42	12/21/24 05:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*35 - 166*	*12/18/24 13:42*	*12/21/24 05:27*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/18/24 13:42	12/21/24 05:27	1
Ethylbenzene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 05:27	1
Toluene	ND		0.046		mg/Kg		12/18/24 13:42	12/21/24 05:27	1
Xylenes, Total	ND		0.093		mg/Kg		12/18/24 13:42	12/21/24 05:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*12/18/24 13:42*	*12/21/24 05:27*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	8.7		mg/Kg		12/23/24 17:40	12/31/24 13:52	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		12/23/24 17:40	12/31/24 13:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/23/24 17:40*	*12/31/24 13:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 16:05	20

Client Sample Results

Client: Vertex
Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-97 0'
Lab Sample ID: 885-17193-4
Date Collected: 12/12/24 10:30
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/18/24 13:42	12/21/24 05:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*12/18/24 13:42*	*12/21/24 05:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 05:48	1
Ethylbenzene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 05:48	1
Toluene	ND		0.048		mg/Kg		12/18/24 13:42	12/21/24 05:48	1
Xylenes, Total	ND		0.096		mg/Kg		12/18/24 13:42	12/21/24 05:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 13:42*	*12/21/24 05:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/23/24 17:40	12/30/24 17:53	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/23/24 17:40	12/30/24 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*63*		*62 - 134*	*12/23/24 17:40*	*12/30/24 17:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 16:15	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Client Sample ID: BS24-99 0'
Date Collected: 12/12/24 11:00
Date Received: 12/18/24 07:55

Lab Sample ID: 885-17193-5
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/18/24 13:42	12/21/24 06:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*35 - 166*	*12/18/24 13:42*	*12/21/24 06:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 06:10	1
Ethylbenzene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 06:10	1
Toluene	ND		0.049		mg/Kg		12/18/24 13:42	12/21/24 06:10	1
Xylenes, Total	ND		0.097		mg/Kg		12/18/24 13:42	12/21/24 06:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 13:42*	*12/21/24 06:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	*+	8.5		mg/Kg		12/23/24 17:40	12/30/24 18:14	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		12/23/24 17:40	12/30/24 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*118*		*62 - 134*	*12/23/24 17:40*	*12/30/24 18:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 16:25	20

Client Sample Results

Client: Vertex
Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-100 0'
Lab Sample ID: 885-17193-6
Date Collected: 12/12/24 11:30
Matrix: Solid
Date Received: 12/18/24 07:55

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/18/24 13:42	12/21/24 06:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/18/24 13:42*	*12/21/24 06:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/18/24 13:42	12/21/24 06:31	1
Ethylbenzene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 06:31	1
Toluene	ND		0.047		mg/Kg		12/18/24 13:42	12/21/24 06:31	1
Xylenes, Total	ND		0.094		mg/Kg		12/18/24 13:42	12/21/24 06:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*12/18/24 13:42*	*12/21/24 06:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.4		mg/Kg		12/23/24 17:40	12/30/24 18:25	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		12/23/24 17:40	12/30/24 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*39*	*S1-*	*62 - 134*	*12/23/24 17:40*	*12/30/24 18:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 09:58	12/19/24 16:35	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-18044/1-A
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18044

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/18/24 13:42	12/20/24 22:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*12/18/24 13:42*	*12/20/24 22:57*	*1*

Lab Sample ID: LCS 885-18044/2-A
Matrix: Solid
Analysis Batch: 18279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.3		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*189*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-18044/1-A
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18044

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Ethylbenzene	ND		0.050		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Toluene	ND		0.050		mg/Kg		12/18/24 13:42	12/20/24 22:57	1
Xylenes, Total	ND		0.10		mg/Kg		12/18/24 13:42	12/20/24 22:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/18/24 13:42*	*12/20/24 22:57*	*1*

Lab Sample ID: LCS 885-18044/3-A
Matrix: Solid
Analysis Batch: 18280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18044

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.00		mg/Kg		100	70 - 130		
Ethylbenzene			1.00	1.01		mg/Kg		101	70 - 130		
m,p-Xylene			2.00	1.97		mg/Kg		99	70 - 130		
o-Xylene			1.00	0.986		mg/Kg		99	70 - 130		
Toluene			1.00	1.01		mg/Kg		101	70 - 130		
Xylenes, Total			3.00	2.96		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17193-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-18391/1-A
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18391

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/23/24 17:40	12/30/24 15:55	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/23/24 17:40	12/30/24 15:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*152*	*S1+*	*62 - 134*	*12/23/24 17:40*	*12/30/24 15:55*	*1*

Lab Sample ID: LCS 885-18391/2-A
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18391

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	100	*+	mg/Kg		200	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*189*	*S1+*	*62 - 134*

Lab Sample ID: LCS 885-18391/2-A
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18391

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	106	*+	mg/Kg		212	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*180*	*S1+*	*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-18097/1-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18097

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/19/24 09:58	12/19/24 11:42	1

Lab Sample ID: LCS 885-18097/2-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18097

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.0		mg/Kg		97	90 - 110		

QC Association Summary

Client: Vertex
Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 18044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	5030C	
885-17193-2	BS24-95 0'	Total/NA	Solid	5030C	
885-17193-3	BS24-96 0'	Total/NA	Solid	5030C	
885-17193-4	BS24-97 0'	Total/NA	Solid	5030C	
885-17193-5	BS24-99 0'	Total/NA	Solid	5030C	
885-17193-6	BS24-100 0'	Total/NA	Solid	5030C	
MB 885-18044/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18044/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18044/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 18279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	8015M/D	18044
885-17193-2	BS24-95 0'	Total/NA	Solid	8015M/D	18044
885-17193-3	BS24-96 0'	Total/NA	Solid	8015M/D	18044
885-17193-4	BS24-97 0'	Total/NA	Solid	8015M/D	18044
885-17193-5	BS24-99 0'	Total/NA	Solid	8015M/D	18044
885-17193-6	BS24-100 0'	Total/NA	Solid	8015M/D	18044
MB 885-18044/1-A	Method Blank	Total/NA	Solid	8015M/D	18044
LCS 885-18044/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18044

Analysis Batch: 18280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	8021B	18044
885-17193-2	BS24-95 0'	Total/NA	Solid	8021B	18044
885-17193-3	BS24-96 0'	Total/NA	Solid	8021B	18044
885-17193-4	BS24-97 0'	Total/NA	Solid	8021B	18044
885-17193-5	BS24-99 0'	Total/NA	Solid	8021B	18044
885-17193-6	BS24-100 0'	Total/NA	Solid	8021B	18044
MB 885-18044/1-A	Method Blank	Total/NA	Solid	8021B	18044
LCS 885-18044/3-A	Lab Control Sample	Total/NA	Solid	8021B	18044

GC Semi VOA

Prep Batch: 18391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	SHAKE	
885-17193-2	BS24-95 0'	Total/NA	Solid	SHAKE	
885-17193-3	BS24-96 0'	Total/NA	Solid	SHAKE	
885-17193-4	BS24-97 0'	Total/NA	Solid	SHAKE	
885-17193-5	BS24-99 0'	Total/NA	Solid	SHAKE	
885-17193-6	BS24-100 0'	Total/NA	Solid	SHAKE	
MB 885-18391/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18391/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 18540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	8015M/D	18391
885-17193-2	BS24-95 0'	Total/NA	Solid	8015M/D	18391
885-17193-3	BS24-96 0'	Total/NA	Solid	8015M/D	18391
885-17193-4	BS24-97 0'	Total/NA	Solid	8015M/D	18391

QC Association Summary

Client: Vertex Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Analysis Batch: 18540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-5	BS24-99 0'	Total/NA	Solid	8015M/D	18391
885-17193-6	BS24-100 0'	Total/NA	Solid	8015M/D	18391
MB 885-18391/1-A	Method Blank	Total/NA	Solid	8015M/D	18391
LCS 885-18391/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18391
LCS 885-18391/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18391

HPLC/IC

Analysis Batch: 18074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	300.0	18097
885-17193-2	BS24-95 0'	Total/NA	Solid	300.0	18097
885-17193-3	BS24-96 0'	Total/NA	Solid	300.0	18097
885-17193-4	BS24-97 0'	Total/NA	Solid	300.0	18097
885-17193-5	BS24-99 0'	Total/NA	Solid	300.0	18097
885-17193-6	BS24-100 0'	Total/NA	Solid	300.0	18097
MB 885-18097/1-A	Method Blank	Total/NA	Solid	300.0	18097
LCS 885-18097/2-A	Lab Control Sample	Total/NA	Solid	300.0	18097

Prep Batch: 18097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17193-1	BS24-94 0'	Total/NA	Solid	300_Prep	
885-17193-2	BS24-95 0'	Total/NA	Solid	300_Prep	
885-17193-3	BS24-96 0'	Total/NA	Solid	300_Prep	
885-17193-4	BS24-97 0'	Total/NA	Solid	300_Prep	
885-17193-5	BS24-99 0'	Total/NA	Solid	300_Prep	
885-17193-6	BS24-100 0'	Total/NA	Solid	300_Prep	
MB 885-18097/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18097/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-94 0'
Lab Sample ID: 885-17193-1
Date Collected: 12/12/24 09:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 04:44
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 04:44
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 17:20
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 15:45

Client Sample ID: BS24-95 0'
Lab Sample ID: 885-17193-2
Date Collected: 12/12/24 09:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 05:05
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 05:05
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 17:31
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 15:55

Client Sample ID: BS24-96 0'
Lab Sample ID: 885-17193-3
Date Collected: 12/12/24 10:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 05:27
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 05:27
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/31/24 13:52
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 16:05

Client Sample ID: BS24-97 0'
Lab Sample ID: 885-17193-4
Date Collected: 12/12/24 10:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 05:48

Lab Chronicle

Client: Vertex
Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-97 0'
Lab Sample ID: 885-17193-4
Date Collected: 12/12/24 10:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 05:48
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 17:53
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 16:15

Client Sample ID: BS24-99 0'
Lab Sample ID: 885-17193-5
Date Collected: 12/12/24 11:00
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 06:10
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 06:10
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 18:14
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 16:25

Client Sample ID: BS24-100 0'
Lab Sample ID: 885-17193-6
Date Collected: 12/12/24 11:30
Matrix: Solid
Date Received: 12/18/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8015M/D		1	18279	AT	EET ALB	12/21/24 06:31
Total/NA	Prep	5030C			18044	JP	EET ALB	12/18/24 13:42
Total/NA	Analysis	8021B		1	18280	AT	EET ALB	12/21/24 06:31
Total/NA	Prep	SHAKE			18391	DH	EET ALB	12/23/24 17:40
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 18:25
Total/NA	Prep	300_Prep			18097	JT	EET ALB	12/19/24 09:58
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 16:35

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-17193-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack)**

Mailing Address: 3101 Boyd Dr, Carlsbad, NM, 88220

Phone #: 575 725-5001

email or Fax#:

QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: ☐ Standard ☒ Rush 5 Day

Project Name: **Calgary Federal #002E**

Project #: **24E-04822**

Project Manager: **Sally Carttar**

Scarttar@vertexresource.com

Sampler: K. Taylor

On Ice: ☑ Yes ☐ No 4gj

# of Coolers: 1

Cooler Temp(including CF): 1.6+0.3=1.9°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-17193 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12.12.24	9:00	Soil	BS24-94 0'	4oz Jar	ICE	1	x	x					x			
12.12.24	9:30	Soil	BS24-95 0'	4oz Jar	ICE	2	x	x					x			
12.12.24	10:00	Soil	BS24-96 0'	4oz Jar	ICE	3	x	x					x			
12.12.24	10:30	Soil	BS24-97 0'	4oz Jar	ICE	4	x	x					x			
12.12.24	11:00	Soil	BS24-99 0'	4oz Jar	ICE	5	x	x					x			
12.12.24	11:30	Soil	BS24-100 0'	4oz Jar	ICE	6	x	x					x			

Date	Time	Relinquished by	Received by	Via	Date	Time
12/17	8	Katrina Taylor			12/17/24	800
12/17/24	1910			Courier	12/18/24	7:55

Remarks:
Direct Bill to Mack Energy,
ATTN: Matt Buckles (mattbuckles@mec.com)
CC: Sally Carttar (Scarttar@vertexresource.com) and
Katrina.taylor@vertex.ca for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-17193-1

Login Number: 17193 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/31/2024 7:58:26 AM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-17309-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

my EOL

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
12/31/2024 7:58:26 AM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-17309-1

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Definitions/Glossary

Client: Vertex Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Calgary Federal #002E

Job ID: 885-17309-1

Job ID: 885-17309-1 Eurofins Albuquerque

Job Narrative
885-17309-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/19/2024 9:34 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-18502 recovered above the upper control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: BS24-140 0' (885-17309-1), BS24-141 0' (885-17309-2), BS24-142 0' (885-17309-3), BS24-143 0' (885-17309-4), BS24-144 0' (885-17309-5), BS24-145 0' (885-17309-6), BS24-146 0' (885-17309-7) and BS24-147 0' (885-17309-8).

Method 8015D_DRO: Surrogate recovery for the following sample was outside the upper control limit: BS24-142 0' (885-17309-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8015D_DRO: Surrogate Di-n-octyl phthalate (Surr) recovery for the following samples were outside control limits: (885-17309-A-18-C MS) and (885-17309-A-18-B MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015D_DRO: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 885-18426 and analytical batch 885-18540 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-140 0'
Lab Sample ID: 885-17309-1

Date Collected: 12/17/24 08:10
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*12/19/24 10:57*	*12/20/24 12:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 12:10	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 12:10	1
Toluene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 12:10	1
Xylenes, Total	ND		0.098		mg/Kg		12/19/24 10:57	12/20/24 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/19/24 10:57*	*12/20/24 12:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/24/24 11:16	12/27/24 20:25	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/27/24 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*12/24/24 11:16*	*12/27/24 20:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 20:01	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Client Sample ID: BS24-141 0'

Date Collected: 12/17/24 08:15
Date Received: 12/19/24 09:34

Lab Sample ID: 885-17309-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*12/19/24 10:57*	*12/20/24 13:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 13:21	1
Ethylbenzene	ND	F1	0.049		mg/Kg		12/19/24 10:57	12/20/24 13:21	1
Toluene	ND	F1	0.049		mg/Kg		12/19/24 10:57	12/20/24 13:21	1
Xylenes, Total	ND		0.098		mg/Kg		12/19/24 10:57	12/20/24 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*	*12/19/24 10:57*	*12/20/24 13:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/24/24 11:16	12/27/24 20:36	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/27/24 20:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/24/24 11:16*	*12/27/24 20:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/19/24 11:10	12/19/24 20:11	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-142 0'
Lab Sample ID: 885-17309-3
Date Collected: 12/17/24 08:20
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*12/19/24 10:57*	*12/20/24 14:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 14:31	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 14:31	1
Toluene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 14:31	1
Xylenes, Total	ND		0.098		mg/Kg		12/19/24 10:57	12/20/24 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/19/24 10:57*	*12/20/24 14:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/24/24 11:16	12/27/24 20:47	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/24/24 11:16	12/27/24 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*139*	*S1+*	*62 - 134*	*12/24/24 11:16*	*12/27/24 20:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 20:21	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-143 0'
Lab Sample ID: 885-17309-4
Date Collected: 12/17/24 08:25
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/19/24 10:57*	*12/20/24 14:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 14:55	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 14:55	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 14:55	1
Xylenes, Total	ND		0.093		mg/Kg		12/19/24 10:57	12/20/24 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/19/24 10:57*	*12/20/24 14:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		12/24/24 11:16	12/27/24 20:57	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/24/24 11:16	12/27/24 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/24/24 11:16*	*12/27/24 20:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 20:31	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-144 0'
Lab Sample ID: 885-17309-5
Date Collected: 12/17/24 08:30
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 10:57	12/20/24 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/19/24 10:57*	*12/20/24 15:19*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 15:19	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 15:19	1
Toluene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 15:19	1
Xylenes, Total	ND		0.095		mg/Kg		12/19/24 10:57	12/20/24 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/19/24 10:57*	*12/20/24 15:19*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.7		mg/Kg		12/24/24 11:16	12/27/24 21:08	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		12/24/24 11:16	12/27/24 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/24/24 11:16*	*12/27/24 21:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 20:41	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-145 0'
Lab Sample ID: 885-17309-6
Date Collected: 12/17/24 08:35
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/19/24 10:57	12/20/24 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/19/24 10:57*	*12/20/24 15:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 15:42	1
Ethylbenzene	ND		0.046		mg/Kg		12/19/24 10:57	12/20/24 15:42	1
Toluene	ND		0.046		mg/Kg		12/19/24 10:57	12/20/24 15:42	1
Xylenes, Total	ND		0.092		mg/Kg		12/19/24 10:57	12/20/24 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 15:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/24/24 11:16	12/27/24 21:19	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/24/24 11:16	12/27/24 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/24/24 11:16*	*12/27/24 21:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 20:50	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-146 0'
Lab Sample ID: 885-17309-7
Date Collected: 12/17/24 08:40
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 10:57	12/20/24 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/19/24 10:57*	*12/20/24 16:06*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 16:06	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 16:06	1
Toluene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 16:06	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 10:57	12/20/24 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 16:06*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/24/24 11:16	12/27/24 21:29	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/24/24 11:16	12/27/24 21:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*12/24/24 11:16*	*12/27/24 21:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 21:00	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-147 0'
Lab Sample ID: 885-17309-8
Date Collected: 12/17/24 08:45
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/19/24 10:57*	*12/20/24 16:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 16:29	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 16:29	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 16:29	1
Xylenes, Total	ND		0.094		mg/Kg		12/19/24 10:57	12/20/24 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 16:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		12/24/24 11:16	12/27/24 21:40	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/24/24 11:16	12/27/24 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/24/24 11:16*	*12/27/24 21:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 21:30	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-148 0'
Lab Sample ID: 885-17309-9
Date Collected: 12/17/24 08:50
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/19/24 10:57	12/20/24 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/19/24 10:57*	*12/20/24 16:53*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 16:53	1
Ethylbenzene	ND		0.046		mg/Kg		12/19/24 10:57	12/20/24 16:53	1
Toluene	ND		0.046		mg/Kg		12/19/24 10:57	12/20/24 16:53	1
Xylenes, Total	ND		0.093		mg/Kg		12/19/24 10:57	12/20/24 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*12/19/24 10:57*	*12/20/24 16:53*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/24/24 11:16	12/30/24 10:46	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/30/24 10:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/24/24 11:16*	*12/30/24 10:46*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 21:40	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-149 0'
Lab Sample ID: 885-17309-10
Date Collected: 12/17/24 09:15
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*12/19/24 10:57*	*12/20/24 17:16*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 17:16	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 17:16	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 17:16	1
Xylenes, Total	ND		0.094		mg/Kg		12/19/24 10:57	12/20/24 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*12/19/24 10:57*	*12/20/24 17:16*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/24/24 11:16	12/30/24 10:57	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/30/24 10:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/24/24 11:16*	*12/30/24 10:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/19/24 11:10	12/19/24 21:50	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-150 0'
Lab Sample ID: 885-17309-11
Date Collected: 12/17/24 09:20
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/19/24 10:57*	*12/20/24 18:02*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 18:02	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 18:02	1
Toluene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 18:02	1
Xylenes, Total	ND		0.099		mg/Kg		12/19/24 10:57	12/20/24 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*12/19/24 10:57*	*12/20/24 18:02*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/24/24 11:16	12/30/24 11:08	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/30/24 11:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/24/24 11:16*	*12/30/24 11:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 21:59	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-151 0'
Lab Sample ID: 885-17309-12
Date Collected: 12/17/24 09:25
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/19/24 10:57*	*12/20/24 18:26*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 18:26	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 18:26	1
Toluene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 18:26	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 10:57	12/20/24 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 18:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/24/24 11:16	12/30/24 11:27	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/24/24 11:16	12/30/24 11:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/24/24 11:16*	*12/30/24 11:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 11:10	12/19/24 22:09	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-152 0'
Lab Sample ID: 885-17309-13
Date Collected: 12/17/24 09:30
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/19/24 10:57*	*12/20/24 18:49*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 18:49	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 18:49	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 18:49	1
Xylenes, Total	ND		0.093		mg/Kg		12/19/24 10:57	12/20/24 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 18:49*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/24/24 11:16	12/30/24 11:37	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/24/24 11:16	12/30/24 11:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*115*		*62 - 134*	*12/24/24 11:16*	*12/30/24 11:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 20:57	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-153 0'
Lab Sample ID: 885-17309-14
Date Collected: 12/17/24 09:35
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/19/24 10:57*	*12/20/24 19:13*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 19:13	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 19:13	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 19:13	1
Xylenes, Total	ND		0.095		mg/Kg		12/19/24 10:57	12/20/24 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/19/24 10:57*	*12/20/24 19:13*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/24/24 11:16	12/30/24 11:52	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/24/24 11:16	12/30/24 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/24/24 11:16*	*12/30/24 11:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 16:38	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-154 0'
Lab Sample ID: 885-17309-15
Date Collected: 12/17/24 09:40
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 10:57	12/20/24 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*12/19/24 10:57*	*12/20/24 19:36*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 19:36	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 19:36	1
Toluene	ND		0.049		mg/Kg		12/19/24 10:57	12/20/24 19:36	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 10:57	12/20/24 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/19/24 10:57*	*12/20/24 19:36*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/24/24 11:16	12/30/24 12:03	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/24/24 11:16	12/30/24 12:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*	*12/24/24 11:16*	*12/30/24 12:03*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 17:09	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-155 0'
Lab Sample ID: 885-17309-16
Date Collected: 12/17/24 09:45
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 10:57	12/20/24 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/19/24 10:57*	*12/20/24 20:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 20:00	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 20:00	1
Toluene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 20:00	1
Xylenes, Total	ND		0.095		mg/Kg		12/19/24 10:57	12/20/24 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 20:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/24/24 11:16	12/30/24 12:19	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/24/24 11:16	12/30/24 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/24/24 11:16*	*12/30/24 12:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 17:20	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-156 0'
Lab Sample ID: 885-17309-17
Date Collected: 12/17/24 09:50
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 20:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/19/24 10:57*	*12/20/24 20:23*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/19/24 10:57	12/20/24 20:23	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 20:23	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 20:23	1
Xylenes, Total	ND		0.093		mg/Kg		12/19/24 10:57	12/20/24 20:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/19/24 10:57*	*12/20/24 20:23*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/24/24 11:16	12/30/24 12:30	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/24/24 11:16	12/30/24 12:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*122*		*62 - 134*	*12/24/24 11:16*	*12/30/24 12:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 17:51	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Client Sample ID: BS24-157 0'

Date Collected: 12/17/24 09:55
Date Received: 12/19/24 09:34

Lab Sample ID: 885-17309-18

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/19/24 10:57	12/20/24 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/19/24 10:57*	*12/20/24 20:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 20:47	1
Ethylbenzene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 20:47	1
Toluene	ND		0.047		mg/Kg		12/19/24 10:57	12/20/24 20:47	1
Xylenes, Total	ND		0.094		mg/Kg		12/19/24 10:57	12/20/24 20:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/19/24 10:57*	*12/20/24 20:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/24/24 11:16	12/30/24 12:40	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/24/24 11:16	12/30/24 12:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*12/24/24 11:16*	*12/30/24 12:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:01	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-158 0'
Lab Sample ID: 885-17309-19
Date Collected: 12/17/24 10:00
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 10:57	12/20/24 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*12/19/24 10:57*	*12/20/24 21:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 21:10	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 10:57	12/20/24 21:10	1
Toluene	ND		0.050		mg/Kg		12/19/24 10:57	12/20/24 21:10	1
Xylenes, Total	ND		0.099		mg/Kg		12/19/24 10:57	12/20/24 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*48 - 145*	*12/19/24 10:57*	*12/20/24 21:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/26/24 17:06	12/30/24 13:23	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/26/24 17:06	12/30/24 13:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*12/26/24 17:06*	*12/30/24 13:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:12	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-159 0'
Lab Sample ID: 885-17309-20
Date Collected: 12/17/24 10:05
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 10:57	12/20/24 21:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/19/24 10:57*	*12/20/24 21:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 10:57	12/20/24 21:34	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 21:34	1
Toluene	ND		0.048		mg/Kg		12/19/24 10:57	12/20/24 21:34	1
Xylenes, Total	ND		0.095		mg/Kg		12/19/24 10:57	12/20/24 21:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/19/24 10:57*	*12/20/24 21:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/26/24 17:06	12/30/24 13:34	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/26/24 17:06	12/30/24 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*12/26/24 17:06*	*12/30/24 13:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:22	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-160 0'
Lab Sample ID: 885-17309-21
Date Collected: 12/17/24 10:10
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 12:01	12/20/24 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/19/24 12:01*	*12/20/24 23:54*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 12:01	12/20/24 23:54	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 12:01	12/20/24 23:54	1
Toluene	ND		0.050		mg/Kg		12/19/24 12:01	12/20/24 23:54	1
Xylenes, Total	ND		0.10		mg/Kg		12/19/24 12:01	12/20/24 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/19/24 12:01*	*12/20/24 23:54*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/26/24 17:06	12/30/24 13:45	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/26/24 17:06	12/30/24 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*12/26/24 17:06*	*12/30/24 13:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:32	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-161 0'
Lab Sample ID: 885-17309-22
Date Collected: 12/17/24 10:15
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 01:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/19/24 12:01*	*12/21/24 01:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 01:04	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 01:04	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 01:04	1
Xylenes, Total	ND		0.095		mg/Kg		12/19/24 12:01	12/21/24 01:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/19/24 12:01*	*12/21/24 01:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/26/24 17:06	12/30/24 13:55	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/26/24 17:06	12/30/24 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*12/26/24 17:06*	*12/30/24 13:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:43	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-162 0'
Lab Sample ID: 885-17309-23
Date Collected: 12/17/24 10:20
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 02:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/19/24 12:01*	*12/21/24 02:14*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 02:14	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 02:14	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 02:14	1
Xylenes, Total	ND		0.096		mg/Kg		12/19/24 12:01	12/21/24 02:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/19/24 12:01*	*12/21/24 02:14*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/26/24 17:06	12/30/24 14:06	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/26/24 17:06	12/30/24 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*12/26/24 17:06*	*12/30/24 14:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 18:53	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-163 0'
Lab Sample ID: 885-17309-24
Date Collected: 12/17/24 10:25
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/19/24 12:01	12/21/24 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/19/24 12:01*	*12/21/24 02:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 12:01	12/21/24 02:37	1
Ethylbenzene	ND		0.049		mg/Kg		12/19/24 12:01	12/21/24 02:37	1
Toluene	ND		0.049		mg/Kg		12/19/24 12:01	12/21/24 02:37	1
Xylenes, Total	ND		0.098		mg/Kg		12/19/24 12:01	12/21/24 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/19/24 12:01*	*12/21/24 02:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/26/24 17:06	12/30/24 14:17	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/26/24 17:06	12/30/24 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/26/24 17:06*	*12/30/24 14:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 19:03	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Client Sample ID: BS24-164 0'
Date Collected: 12/17/24 10:30
Date Received: 12/19/24 09:34

Lab Sample ID: 885-17309-25
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/19/24 12:01*	*12/21/24 03:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 03:01	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 03:01	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 03:01	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 12:01	12/21/24 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/19/24 12:01*	*12/21/24 03:01*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/26/24 17:06	12/30/24 14:28	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/26/24 17:06	12/30/24 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*12/26/24 17:06*	*12/30/24 14:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 19:14	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-165 0'
Lab Sample ID: 885-17309-26
Date Collected: 12/17/24 10:35
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 03:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/19/24 12:01*	*12/21/24 03:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 03:24	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 03:24	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 03:24	1
Xylenes, Total	ND		0.096		mg/Kg		12/19/24 12:01	12/21/24 03:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/19/24 12:01*	*12/21/24 03:24*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/26/24 17:06	12/30/24 14:39	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/26/24 17:06	12/30/24 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*12/26/24 17:06*	*12/30/24 14:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 19:24	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-166 0'
Lab Sample ID: 885-17309-27
Date Collected: 12/17/24 10:40
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 12:01	12/21/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/19/24 12:01*	*12/21/24 03:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 12:01	12/21/24 03:47	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 12:01	12/21/24 03:47	1
Toluene	ND		0.050		mg/Kg		12/19/24 12:01	12/21/24 03:47	1
Xylenes, Total	ND		0.10		mg/Kg		12/19/24 12:01	12/21/24 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/19/24 12:01*	*12/21/24 03:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/26/24 17:06	12/30/24 15:00	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/26/24 17:06	12/30/24 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/26/24 17:06*	*12/30/24 15:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/19/24 13:40	12/19/24 19:55	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-167 0'
Lab Sample ID: 885-17309-28
Date Collected: 12/17/24 10:45
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/19/24 12:01*	*12/21/24 04:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 04:10	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 04:10	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 04:10	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 12:01	12/21/24 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/19/24 12:01*	*12/21/24 04:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/26/24 17:06	12/30/24 15:11	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/26/24 17:06	12/30/24 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/26/24 17:06*	*12/30/24 15:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 20:05	20

Client Sample Results

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-168 0'
Lab Sample ID: 885-17309-29
Date Collected: 12/17/24 10:50
Matrix: Solid
Date Received: 12/19/24 09:34

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/19/24 12:01	12/21/24 04:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/19/24 12:01*	*12/21/24 04:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/19/24 12:01	12/21/24 04:33	1
Ethylbenzene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 04:33	1
Toluene	ND		0.048		mg/Kg		12/19/24 12:01	12/21/24 04:33	1
Xylenes, Total	ND		0.097		mg/Kg		12/19/24 12:01	12/21/24 04:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/19/24 12:01*	*12/21/24 04:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		12/26/24 17:06	12/30/24 15:22	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/26/24 17:06	12/30/24 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*12/26/24 17:06*	*12/30/24 15:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 20:16	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Client Sample ID: BS24-169 0'

Date Collected: 12/17/24 10:55
Date Received: 12/19/24 09:34

Lab Sample ID: 885-17309-30

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 12:01	12/21/24 04:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/19/24 12:01*	*12/21/24 04:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 12:01	12/21/24 04:57	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 12:01	12/21/24 04:57	1
Toluene	ND		0.050		mg/Kg		12/19/24 12:01	12/21/24 04:57	1
Xylenes, Total	ND		0.099		mg/Kg		12/19/24 12:01	12/21/24 04:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/19/24 12:01*	*12/21/24 04:57*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/26/24 17:06	12/30/24 15:33	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/26/24 17:06	12/30/24 15:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*12/26/24 17:06*	*12/30/24 15:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/19/24 13:40	12/19/24 20:26	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-18104/1-A
Matrix: Solid
Analysis Batch: 18200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18104

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 10:57	12/20/24 11:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/19/24 10:57*	*12/20/24 11:47*	*1*

Lab Sample ID: LCS 885-18104/2-A
Matrix: Solid
Analysis Batch: 18200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18104

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	23.3		mg/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*195*		*35 - 166*

Lab Sample ID: 885-17309-1 MS
Matrix: Solid
Analysis Batch: 18200

Client Sample ID: BS24-140 0'
Prep Type: Total/NA
Prep Batch: 18104

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.7	28.8		mg/Kg		117	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*223*		*35 - 166*

Lab Sample ID: 885-17309-1 MSD
Matrix: Solid
Analysis Batch: 18200

Client Sample ID: BS24-140 0'
Prep Type: Total/NA
Prep Batch: 18104

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.6	30.8		mg/Kg		126	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*231*		*35 - 166*

Lab Sample ID: MB 885-18121/1-A
Matrix: Solid
Analysis Batch: 18271

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18121

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/19/24 12:01	12/20/24 23:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/19/24 12:01*	*12/20/24 23:31*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCS 885-18121/2-A
Matrix: Solid
Analysis Batch: 18271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18121

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.1		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*202*		*35 - 166*

Lab Sample ID: 885-17309-21 MS
Matrix: Solid
Analysis Batch: 18271

Client Sample ID: BS24-160 0'
Prep Type: Total/NA
Prep Batch: 18121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		25.0	25.9		mg/Kg		104	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*210*		*35 - 166*

Lab Sample ID: 885-17309-21 MSD
Matrix: Solid
Analysis Batch: 18271

Client Sample ID: BS24-160 0'
Prep Type: Total/NA
Prep Batch: 18121

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.9	24.3		mg/Kg		98	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*206*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-18104/1-A
Matrix: Solid
Analysis Batch: 18201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18104

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 10:57	12/20/24 11:47	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 10:57	12/20/24 11:47	1
Toluene	ND		0.050		mg/Kg		12/19/24 10:57	12/20/24 11:47	1
Xylenes, Total	ND		0.10		mg/Kg		12/19/24 10:57	12/20/24 11:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/19/24 10:57*	*12/20/24 11:47*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-18104/3-A
Matrix: Solid
Analysis Batch: 18201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18104

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.08		mg/Kg		108	70 - 130		
Ethylbenzene			1.00	1.12		mg/Kg		112	70 - 130		
m,p-Xylene			2.00	2.20		mg/Kg		110	70 - 130		
o-Xylene			1.00	1.08		mg/Kg		108	70 - 130		
Toluene			1.00	1.12		mg/Kg		112	70 - 130		
Xylenes, Total			3.00	3.28		mg/Kg		109	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*

Lab Sample ID: 885-17309-2 MS
Matrix: Solid
Analysis Batch: 18201

Client Sample ID: BS24-141 0'
Prep Type: Total/NA
Prep Batch: 18104

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.978	1.23		mg/Kg		126	70 - 130		
Ethylbenzene	ND	F1	0.978	1.29	F1	mg/Kg		132	70 - 130		
m,p-Xylene	ND		1.96	2.54		mg/Kg		130	70 - 130		
o-Xylene	ND		0.978	1.26		mg/Kg		129	70 - 130		
Toluene	ND	F1	0.978	1.28	F1	mg/Kg		131	70 - 130		
Xylenes, Total	ND		2.93	3.80		mg/Kg		129	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*48 - 145*

Lab Sample ID: 885-17309-2 MSD
Matrix: Solid
Analysis Batch: 18201

Client Sample ID: BS24-141 0'
Prep Type: Total/NA
Prep Batch: 18104

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.979	1.17		mg/Kg		120	70 - 130	5	20
Ethylbenzene	ND	F1	0.979	1.26		mg/Kg		129	70 - 130	2	20
m,p-Xylene	ND		1.96	2.48		mg/Kg		126	70 - 130	2	20
o-Xylene	ND		0.979	1.22		mg/Kg		125	70 - 130	3	20
Toluene	ND	F1	0.979	1.23		mg/Kg		126	70 - 130	4	20
Xylenes, Total	ND		2.94	3.70		mg/Kg		126	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*

Lab Sample ID: MB 885-18121/1-A
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18121

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/19/24 12:01	12/20/24 23:31	1
Ethylbenzene	ND		0.050		mg/Kg		12/19/24 12:01	12/20/24 23:31	1
Toluene	ND		0.050		mg/Kg		12/19/24 12:01	12/20/24 23:31	1

QC Sample Results

Client: Vertex

Job ID: 885-17309-1

Project/Site: Calgary Federal #002E

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-18121/1-A
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18121

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		12/19/24 12:01	12/20/24 23:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/19/24 12:01*	*12/20/24 23:31*	*1*

Lab Sample ID: LCS 885-18121/3-A
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18121

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.10		mg/Kg		110	70 - 130		
Ethylbenzene			1.00	1.13		mg/Kg		113	70 - 130		
m,p-Xylene			2.00	2.22		mg/Kg		111	70 - 130		
o-Xylene			1.00	1.09		mg/Kg		109	70 - 130		
Toluene			1.00	1.13		mg/Kg		113	70 - 130		
Xylenes, Total			3.00	3.32		mg/Kg		111	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*

Lab Sample ID: 885-17309-22 MS
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: BS24-161 0'
Prep Type: Total/NA
Prep Batch: 18121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.959	1.09		mg/Kg		114	70 - 130		
Ethylbenzene	ND		0.959	1.17		mg/Kg		122	70 - 130		
m,p-Xylene	ND		1.92	2.27		mg/Kg		118	70 - 130		
o-Xylene	ND		0.959	1.13		mg/Kg		118	70 - 130		
Toluene	ND		0.959	1.16		mg/Kg		121	70 - 130		
Xylenes, Total	ND		2.88	3.40		mg/Kg		118	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

Lab Sample ID: 885-17309-22 MSD
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: BS24-161 0'
Prep Type: Total/NA
Prep Batch: 18121

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.949	1.11		mg/Kg		117	70 - 130	1	20
Ethylbenzene	ND		0.949	1.15		mg/Kg		121	70 - 130	1	20
m,p-Xylene	ND		1.90	2.25		mg/Kg		119	70 - 130	1	20
o-Xylene	ND		0.949	1.11		mg/Kg		117	70 - 130	2	20
Toluene	ND		0.949	1.14		mg/Kg		120	70 - 130	2	20
Xylenes, Total	ND		2.85	3.36		mg/Kg		118	70 - 130	1	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-17309-22 MSD
Matrix: Solid
Analysis Batch: 18270

Client Sample ID: BS24-161 0'
Prep Type: Total/NA
Prep Batch: 18121

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-18426/1-A
Matrix: Solid
Analysis Batch: 18502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18426

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/24/24 11:16	12/27/24 20:04	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/24/24 11:16	12/27/24 20:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/24/24 11:16*	*12/27/24 20:04*	*1*

Lab Sample ID: LCS 885-18426/2-A
Matrix: Solid
Analysis Batch: 18502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18426

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.0		mg/Kg		90	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

Lab Sample ID: 885-17309-18 MS
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: BS24-157 0'
Prep Type: Total/NA
Prep Batch: 18426

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		47.0	64.1		mg/Kg		136	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*136*	*S1+*	*62 - 134*

Lab Sample ID: 885-17309-18 MSD
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: BS24-157 0'
Prep Type: Total/NA
Prep Batch: 18426

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*49*	*S1-*	*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-18108/1-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18108

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/19/24 11:10	12/19/24 12:02	1

Lab Sample ID: LCS 885-18108/2-A
Matrix: Solid
Analysis Batch: 18074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18108

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.6		mg/Kg		99	90 - 110		

Lab Sample ID: MB 885-18141/1-A
Matrix: Solid
Analysis Batch: 18159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18141

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/19/24 13:40	12/19/24 15:47	1

Lab Sample ID: LCS 885-18141/2-A
Matrix: Solid
Analysis Batch: 18159

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18141

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.5		mg/Kg		98	90 - 110		

QC Association Summary

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 18104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	5030C	
885-17309-2	BS24-141 0'	Total/NA	Solid	5030C	
885-17309-3	BS24-142 0'	Total/NA	Solid	5030C	
885-17309-4	BS24-143 0'	Total/NA	Solid	5030C	
885-17309-5	BS24-144 0'	Total/NA	Solid	5030C	
885-17309-6	BS24-145 0'	Total/NA	Solid	5030C	
885-17309-7	BS24-146 0'	Total/NA	Solid	5030C	
885-17309-8	BS24-147 0'	Total/NA	Solid	5030C	
885-17309-9	BS24-148 0'	Total/NA	Solid	5030C	
885-17309-10	BS24-149 0'	Total/NA	Solid	5030C	
885-17309-11	BS24-150 0'	Total/NA	Solid	5030C	
885-17309-12	BS24-151 0'	Total/NA	Solid	5030C	
885-17309-13	BS24-152 0'	Total/NA	Solid	5030C	
885-17309-14	BS24-153 0'	Total/NA	Solid	5030C	
885-17309-15	BS24-154 0'	Total/NA	Solid	5030C	
885-17309-16	BS24-155 0'	Total/NA	Solid	5030C	
885-17309-17	BS24-156 0'	Total/NA	Solid	5030C	
885-17309-18	BS24-157 0'	Total/NA	Solid	5030C	
885-17309-19	BS24-158 0'	Total/NA	Solid	5030C	
885-17309-20	BS24-159 0'	Total/NA	Solid	5030C	
MB 885-18104/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18104/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18104/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17309-1 MS	BS24-140 0'	Total/NA	Solid	5030C	
885-17309-1 MSD	BS24-140 0'	Total/NA	Solid	5030C	
885-17309-2 MS	BS24-141 0'	Total/NA	Solid	5030C	
885-17309-2 MSD	BS24-141 0'	Total/NA	Solid	5030C	

Prep Batch: 18121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-21	BS24-160 0'	Total/NA	Solid	5030C	
885-17309-22	BS24-161 0'	Total/NA	Solid	5030C	
885-17309-23	BS24-162 0'	Total/NA	Solid	5030C	
885-17309-24	BS24-163 0'	Total/NA	Solid	5030C	
885-17309-25	BS24-164 0'	Total/NA	Solid	5030C	
885-17309-26	BS24-165 0'	Total/NA	Solid	5030C	
885-17309-27	BS24-166 0'	Total/NA	Solid	5030C	
885-17309-28	BS24-167 0'	Total/NA	Solid	5030C	
885-17309-29	BS24-168 0'	Total/NA	Solid	5030C	
885-17309-30	BS24-169 0'	Total/NA	Solid	5030C	
MB 885-18121/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18121/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18121/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17309-21 MS	BS24-160 0'	Total/NA	Solid	5030C	
885-17309-21 MSD	BS24-160 0'	Total/NA	Solid	5030C	
885-17309-22 MS	BS24-161 0'	Total/NA	Solid	5030C	
885-17309-22 MSD	BS24-161 0'	Total/NA	Solid	5030C	

Analysis Batch: 18200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	8015M/D	18104

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

GC VOA (Continued)

Analysis Batch: 18200 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-2	BS24-141 0'	Total/NA	Solid	8015M/D	18104
885-17309-3	BS24-142 0'	Total/NA	Solid	8015M/D	18104
885-17309-4	BS24-143 0'	Total/NA	Solid	8015M/D	18104
885-17309-5	BS24-144 0'	Total/NA	Solid	8015M/D	18104
885-17309-6	BS24-145 0'	Total/NA	Solid	8015M/D	18104
885-17309-7	BS24-146 0'	Total/NA	Solid	8015M/D	18104
885-17309-8	BS24-147 0'	Total/NA	Solid	8015M/D	18104
885-17309-9	BS24-148 0'	Total/NA	Solid	8015M/D	18104
885-17309-10	BS24-149 0'	Total/NA	Solid	8015M/D	18104
885-17309-11	BS24-150 0'	Total/NA	Solid	8015M/D	18104
885-17309-12	BS24-151 0'	Total/NA	Solid	8015M/D	18104
885-17309-13	BS24-152 0'	Total/NA	Solid	8015M/D	18104
885-17309-14	BS24-153 0'	Total/NA	Solid	8015M/D	18104
885-17309-15	BS24-154 0'	Total/NA	Solid	8015M/D	18104
885-17309-16	BS24-155 0'	Total/NA	Solid	8015M/D	18104
885-17309-17	BS24-156 0'	Total/NA	Solid	8015M/D	18104
885-17309-18	BS24-157 0'	Total/NA	Solid	8015M/D	18104
885-17309-19	BS24-158 0'	Total/NA	Solid	8015M/D	18104
885-17309-20	BS24-159 0'	Total/NA	Solid	8015M/D	18104
MB 885-18104/1-A	Method Blank	Total/NA	Solid	8015M/D	18104
LCS 885-18104/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18104
885-17309-1 MS	BS24-140 0'	Total/NA	Solid	8015M/D	18104
885-17309-1 MSD	BS24-140 0'	Total/NA	Solid	8015M/D	18104

Analysis Batch: 18201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	8021B	18104
885-17309-2	BS24-141 0'	Total/NA	Solid	8021B	18104
885-17309-3	BS24-142 0'	Total/NA	Solid	8021B	18104
885-17309-4	BS24-143 0'	Total/NA	Solid	8021B	18104
885-17309-5	BS24-144 0'	Total/NA	Solid	8021B	18104
885-17309-6	BS24-145 0'	Total/NA	Solid	8021B	18104
885-17309-7	BS24-146 0'	Total/NA	Solid	8021B	18104
885-17309-8	BS24-147 0'	Total/NA	Solid	8021B	18104
885-17309-9	BS24-148 0'	Total/NA	Solid	8021B	18104
885-17309-10	BS24-149 0'	Total/NA	Solid	8021B	18104
885-17309-11	BS24-150 0'	Total/NA	Solid	8021B	18104
885-17309-12	BS24-151 0'	Total/NA	Solid	8021B	18104
885-17309-13	BS24-152 0'	Total/NA	Solid	8021B	18104
885-17309-14	BS24-153 0'	Total/NA	Solid	8021B	18104
885-17309-15	BS24-154 0'	Total/NA	Solid	8021B	18104
885-17309-16	BS24-155 0'	Total/NA	Solid	8021B	18104
885-17309-17	BS24-156 0'	Total/NA	Solid	8021B	18104
885-17309-18	BS24-157 0'	Total/NA	Solid	8021B	18104
885-17309-19	BS24-158 0'	Total/NA	Solid	8021B	18104
885-17309-20	BS24-159 0'	Total/NA	Solid	8021B	18104
MB 885-18104/1-A	Method Blank	Total/NA	Solid	8021B	18104
LCS 885-18104/3-A	Lab Control Sample	Total/NA	Solid	8021B	18104
885-17309-2 MS	BS24-141 0'	Total/NA	Solid	8021B	18104
885-17309-2 MSD	BS24-141 0'	Total/NA	Solid	8021B	18104

QC Association Summary

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

GC VOA

Analysis Batch: 18270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-21	BS24-160 0'	Total/NA	Solid	8021B	18121
885-17309-22	BS24-161 0'	Total/NA	Solid	8021B	18121
885-17309-23	BS24-162 0'	Total/NA	Solid	8021B	18121
885-17309-24	BS24-163 0'	Total/NA	Solid	8021B	18121
885-17309-25	BS24-164 0'	Total/NA	Solid	8021B	18121
885-17309-26	BS24-165 0'	Total/NA	Solid	8021B	18121
885-17309-27	BS24-166 0'	Total/NA	Solid	8021B	18121
885-17309-28	BS24-167 0'	Total/NA	Solid	8021B	18121
885-17309-29	BS24-168 0'	Total/NA	Solid	8021B	18121
885-17309-30	BS24-169 0'	Total/NA	Solid	8021B	18121
MB 885-18121/1-A	Method Blank	Total/NA	Solid	8021B	18121
LCS 885-18121/3-A	Lab Control Sample	Total/NA	Solid	8021B	18121
885-17309-22 MS	BS24-161 0'	Total/NA	Solid	8021B	18121
885-17309-22 MSD	BS24-161 0'	Total/NA	Solid	8021B	18121

Analysis Batch: 18271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-21	BS24-160 0'	Total/NA	Solid	8015M/D	18121
885-17309-22	BS24-161 0'	Total/NA	Solid	8015M/D	18121
885-17309-23	BS24-162 0'	Total/NA	Solid	8015M/D	18121
885-17309-24	BS24-163 0'	Total/NA	Solid	8015M/D	18121
885-17309-25	BS24-164 0'	Total/NA	Solid	8015M/D	18121
885-17309-26	BS24-165 0'	Total/NA	Solid	8015M/D	18121
885-17309-27	BS24-166 0'	Total/NA	Solid	8015M/D	18121
885-17309-28	BS24-167 0'	Total/NA	Solid	8015M/D	18121
885-17309-29	BS24-168 0'	Total/NA	Solid	8015M/D	18121
885-17309-30	BS24-169 0'	Total/NA	Solid	8015M/D	18121
MB 885-18121/1-A	Method Blank	Total/NA	Solid	8015M/D	18121
LCS 885-18121/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18121
885-17309-21 MS	BS24-160 0'	Total/NA	Solid	8015M/D	18121
885-17309-21 MSD	BS24-160 0'	Total/NA	Solid	8015M/D	18121

GC Semi VOA

Prep Batch: 18426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	SHAKE	
885-17309-2	BS24-141 0'	Total/NA	Solid	SHAKE	
885-17309-3	BS24-142 0'	Total/NA	Solid	SHAKE	
885-17309-4	BS24-143 0'	Total/NA	Solid	SHAKE	
885-17309-5	BS24-144 0'	Total/NA	Solid	SHAKE	
885-17309-6	BS24-145 0'	Total/NA	Solid	SHAKE	
885-17309-7	BS24-146 0'	Total/NA	Solid	SHAKE	
885-17309-8	BS24-147 0'	Total/NA	Solid	SHAKE	
885-17309-9	BS24-148 0'	Total/NA	Solid	SHAKE	
885-17309-10	BS24-149 0'	Total/NA	Solid	SHAKE	
885-17309-11	BS24-150 0'	Total/NA	Solid	SHAKE	
885-17309-12	BS24-151 0'	Total/NA	Solid	SHAKE	
885-17309-13	BS24-152 0'	Total/NA	Solid	SHAKE	
885-17309-14	BS24-153 0'	Total/NA	Solid	SHAKE	
885-17309-15	BS24-154 0'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Prep Batch: 18426 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-16	BS24-155 0'	Total/NA	Solid	SHAKE	
885-17309-17	BS24-156 0'	Total/NA	Solid	SHAKE	
885-17309-18	BS24-157 0'	Total/NA	Solid	SHAKE	
MB 885-18426/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18426/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17309-18 MS	BS24-157 0'	Total/NA	Solid	SHAKE	
885-17309-18 MSD	BS24-157 0'	Total/NA	Solid	SHAKE	

Prep Batch: 18484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-19	BS24-158 0'	Total/NA	Solid	SHAKE	
885-17309-20	BS24-159 0'	Total/NA	Solid	SHAKE	
885-17309-21	BS24-160 0'	Total/NA	Solid	SHAKE	
885-17309-22	BS24-161 0'	Total/NA	Solid	SHAKE	
885-17309-23	BS24-162 0'	Total/NA	Solid	SHAKE	
885-17309-24	BS24-163 0'	Total/NA	Solid	SHAKE	
885-17309-25	BS24-164 0'	Total/NA	Solid	SHAKE	
885-17309-26	BS24-165 0'	Total/NA	Solid	SHAKE	
885-17309-27	BS24-166 0'	Total/NA	Solid	SHAKE	
885-17309-28	BS24-167 0'	Total/NA	Solid	SHAKE	
885-17309-29	BS24-168 0'	Total/NA	Solid	SHAKE	
885-17309-30	BS24-169 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	8015M/D	18426
885-17309-2	BS24-141 0'	Total/NA	Solid	8015M/D	18426
885-17309-3	BS24-142 0'	Total/NA	Solid	8015M/D	18426
885-17309-4	BS24-143 0'	Total/NA	Solid	8015M/D	18426
885-17309-5	BS24-144 0'	Total/NA	Solid	8015M/D	18426
885-17309-6	BS24-145 0'	Total/NA	Solid	8015M/D	18426
885-17309-7	BS24-146 0'	Total/NA	Solid	8015M/D	18426
885-17309-8	BS24-147 0'	Total/NA	Solid	8015M/D	18426
MB 885-18426/1-A	Method Blank	Total/NA	Solid	8015M/D	18426
LCS 885-18426/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18426

Analysis Batch: 18540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-9	BS24-148 0'	Total/NA	Solid	8015M/D	18426
885-17309-10	BS24-149 0'	Total/NA	Solid	8015M/D	18426
885-17309-11	BS24-150 0'	Total/NA	Solid	8015M/D	18426
885-17309-12	BS24-151 0'	Total/NA	Solid	8015M/D	18426
885-17309-13	BS24-152 0'	Total/NA	Solid	8015M/D	18426
885-17309-14	BS24-153 0'	Total/NA	Solid	8015M/D	18426
885-17309-15	BS24-154 0'	Total/NA	Solid	8015M/D	18426
885-17309-16	BS24-155 0'	Total/NA	Solid	8015M/D	18426
885-17309-17	BS24-156 0'	Total/NA	Solid	8015M/D	18426
885-17309-18	BS24-157 0'	Total/NA	Solid	8015M/D	18426
885-17309-19	BS24-158 0'	Total/NA	Solid	8015M/D	18484
885-17309-20	BS24-159 0'	Total/NA	Solid	8015M/D	18484
885-17309-21	BS24-160 0'	Total/NA	Solid	8015M/D	18484

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

GC Semi VOA (Continued)

Analysis Batch: 18540 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-22	BS24-161 0'	Total/NA	Solid	8015M/D	18484
885-17309-23	BS24-162 0'	Total/NA	Solid	8015M/D	18484
885-17309-24	BS24-163 0'	Total/NA	Solid	8015M/D	18484
885-17309-25	BS24-164 0'	Total/NA	Solid	8015M/D	18484
885-17309-26	BS24-165 0'	Total/NA	Solid	8015M/D	18484
885-17309-27	BS24-166 0'	Total/NA	Solid	8015M/D	18484
885-17309-28	BS24-167 0'	Total/NA	Solid	8015M/D	18484
885-17309-29	BS24-168 0'	Total/NA	Solid	8015M/D	18484
885-17309-30	BS24-169 0'	Total/NA	Solid	8015M/D	18484
885-17309-18 MS	BS24-157 0'	Total/NA	Solid	8015M/D	18426
885-17309-18 MSD	BS24-157 0'	Total/NA	Solid	8015M/D	18426

HPLC/IC

Analysis Batch: 18074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	300.0	18108
885-17309-2	BS24-141 0'	Total/NA	Solid	300.0	18108
885-17309-3	BS24-142 0'	Total/NA	Solid	300.0	18108
885-17309-4	BS24-143 0'	Total/NA	Solid	300.0	18108
885-17309-5	BS24-144 0'	Total/NA	Solid	300.0	18108
885-17309-6	BS24-145 0'	Total/NA	Solid	300.0	18108
885-17309-7	BS24-146 0'	Total/NA	Solid	300.0	18108
885-17309-8	BS24-147 0'	Total/NA	Solid	300.0	18108
885-17309-9	BS24-148 0'	Total/NA	Solid	300.0	18108
885-17309-10	BS24-149 0'	Total/NA	Solid	300.0	18108
885-17309-11	BS24-150 0'	Total/NA	Solid	300.0	18108
885-17309-12	BS24-151 0'	Total/NA	Solid	300.0	18108
MB 885-18108/1-A	Method Blank	Total/NA	Solid	300.0	18108
LCS 885-18108/2-A	Lab Control Sample	Total/NA	Solid	300.0	18108

Prep Batch: 18108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-1	BS24-140 0'	Total/NA	Solid	300_Prep	
885-17309-2	BS24-141 0'	Total/NA	Solid	300_Prep	
885-17309-3	BS24-142 0'	Total/NA	Solid	300_Prep	
885-17309-4	BS24-143 0'	Total/NA	Solid	300_Prep	
885-17309-5	BS24-144 0'	Total/NA	Solid	300_Prep	
885-17309-6	BS24-145 0'	Total/NA	Solid	300_Prep	
885-17309-7	BS24-146 0'	Total/NA	Solid	300_Prep	
885-17309-8	BS24-147 0'	Total/NA	Solid	300_Prep	
885-17309-9	BS24-148 0'	Total/NA	Solid	300_Prep	
885-17309-10	BS24-149 0'	Total/NA	Solid	300_Prep	
885-17309-11	BS24-150 0'	Total/NA	Solid	300_Prep	
885-17309-12	BS24-151 0'	Total/NA	Solid	300_Prep	
MB 885-18108/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18108/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 18141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-13	BS24-152 0'	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17309-1

HPLC/IC (Continued)

Prep Batch: 18141 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-14	BS24-153 0'	Total/NA	Solid	300_Prep	
885-17309-15	BS24-154 0'	Total/NA	Solid	300_Prep	
885-17309-16	BS24-155 0'	Total/NA	Solid	300_Prep	
885-17309-17	BS24-156 0'	Total/NA	Solid	300_Prep	
885-17309-18	BS24-157 0'	Total/NA	Solid	300_Prep	
885-17309-19	BS24-158 0'	Total/NA	Solid	300_Prep	
885-17309-20	BS24-159 0'	Total/NA	Solid	300_Prep	
885-17309-21	BS24-160 0'	Total/NA	Solid	300_Prep	
885-17309-22	BS24-161 0'	Total/NA	Solid	300_Prep	
885-17309-23	BS24-162 0'	Total/NA	Solid	300_Prep	
885-17309-24	BS24-163 0'	Total/NA	Solid	300_Prep	
885-17309-25	BS24-164 0'	Total/NA	Solid	300_Prep	
885-17309-26	BS24-165 0'	Total/NA	Solid	300_Prep	
885-17309-27	BS24-166 0'	Total/NA	Solid	300_Prep	
885-17309-28	BS24-167 0'	Total/NA	Solid	300_Prep	
885-17309-29	BS24-168 0'	Total/NA	Solid	300_Prep	
885-17309-30	BS24-169 0'	Total/NA	Solid	300_Prep	
MB 885-18141/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18141/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 18159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17309-13	BS24-152 0'	Total/NA	Solid	300.0	18141
885-17309-14	BS24-153 0'	Total/NA	Solid	300.0	18141
885-17309-15	BS24-154 0'	Total/NA	Solid	300.0	18141
885-17309-16	BS24-155 0'	Total/NA	Solid	300.0	18141
885-17309-17	BS24-156 0'	Total/NA	Solid	300.0	18141
885-17309-18	BS24-157 0'	Total/NA	Solid	300.0	18141
885-17309-19	BS24-158 0'	Total/NA	Solid	300.0	18141
885-17309-20	BS24-159 0'	Total/NA	Solid	300.0	18141
885-17309-21	BS24-160 0'	Total/NA	Solid	300.0	18141
885-17309-22	BS24-161 0'	Total/NA	Solid	300.0	18141
885-17309-23	BS24-162 0'	Total/NA	Solid	300.0	18141
885-17309-24	BS24-163 0'	Total/NA	Solid	300.0	18141
885-17309-25	BS24-164 0'	Total/NA	Solid	300.0	18141
885-17309-26	BS24-165 0'	Total/NA	Solid	300.0	18141
885-17309-27	BS24-166 0'	Total/NA	Solid	300.0	18141
885-17309-28	BS24-167 0'	Total/NA	Solid	300.0	18141
885-17309-29	BS24-168 0'	Total/NA	Solid	300.0	18141
885-17309-30	BS24-169 0'	Total/NA	Solid	300.0	18141
MB 885-18141/1-A	Method Blank	Total/NA	Solid	300.0	18141
LCS 885-18141/2-A	Lab Control Sample	Total/NA	Solid	300.0	18141

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-140 0'
Lab Sample ID: 885-17309-1
Date Collected: 12/17/24 08:10
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 12:10
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 12:10
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 20:25
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:01

Client Sample ID: BS24-141 0'
Lab Sample ID: 885-17309-2
Date Collected: 12/17/24 08:15
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 13:21
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 13:21
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 20:36
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:11

Client Sample ID: BS24-142 0'
Lab Sample ID: 885-17309-3
Date Collected: 12/17/24 08:20
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 14:31
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 14:31
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 20:47
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:21

Client Sample ID: BS24-143 0'
Lab Sample ID: 885-17309-4
Date Collected: 12/17/24 08:25
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 14:55

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-143 0'
Lab Sample ID: 885-17309-4
Date Collected: 12/17/24 08:25
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 14:55
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 20:57
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:31

Client Sample ID: BS24-144 0'
Lab Sample ID: 885-17309-5
Date Collected: 12/17/24 08:30
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 15:19
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 15:19
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 21:08
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:41

Client Sample ID: BS24-145 0'
Lab Sample ID: 885-17309-6
Date Collected: 12/17/24 08:35
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 15:42
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 15:42
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 21:19
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 20:50

Client Sample ID: BS24-146 0'
Lab Sample ID: 885-17309-7
Date Collected: 12/17/24 08:40
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 16:06
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 16:06

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-146 0'
Lab Sample ID: 885-17309-7
Date Collected: 12/17/24 08:40
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 21:29
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 21:00

Client Sample ID: BS24-147 0'
Lab Sample ID: 885-17309-8
Date Collected: 12/17/24 08:45
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 16:29
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 16:29
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18502	EM	EET ALB	12/27/24 21:40
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 21:30

Client Sample ID: BS24-148 0'
Lab Sample ID: 885-17309-9
Date Collected: 12/17/24 08:50
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 16:53
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 16:53
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 10:46
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 21:40

Client Sample ID: BS24-149 0'
Lab Sample ID: 885-17309-10
Date Collected: 12/17/24 09:15
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 17:16
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 17:16
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 10:57

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-149 0'
Lab Sample ID: 885-17309-10
Date Collected: 12/17/24 09:15
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 21:50

Client Sample ID: BS24-150 0'
Lab Sample ID: 885-17309-11
Date Collected: 12/17/24 09:20
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 18:02
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 18:02
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 11:08
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 21:59

Client Sample ID: BS24-151 0'
Lab Sample ID: 885-17309-12
Date Collected: 12/17/24 09:25
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 18:26
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 18:26
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 11:27
Total/NA	Prep	300_Prep			18108	JT	EET ALB	12/19/24 11:10
Total/NA	Analysis	300.0		20	18074	JT	EET ALB	12/19/24 22:09

Client Sample ID: BS24-152 0'
Lab Sample ID: 885-17309-13
Date Collected: 12/17/24 09:30
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 18:49
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 18:49
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 11:37
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 20:57

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-153 0'
Lab Sample ID: 885-17309-14
Date Collected: 12/17/24 09:35
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 19:13
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 19:13
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 11:52
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 16:38

Client Sample ID: BS24-154 0'
Lab Sample ID: 885-17309-15
Date Collected: 12/17/24 09:40
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 19:36
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 19:36
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 12:03
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 17:09

Client Sample ID: BS24-155 0'
Lab Sample ID: 885-17309-16
Date Collected: 12/17/24 09:45
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 20:00
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 20:00
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 12:19
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 17:20

Client Sample ID: BS24-156 0'
Lab Sample ID: 885-17309-17
Date Collected: 12/17/24 09:50
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 20:23

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-156 0'
Lab Sample ID: 885-17309-17
Date Collected: 12/17/24 09:50
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 20:23
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 12:30
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 17:51

Client Sample ID: BS24-157 0'
Lab Sample ID: 885-17309-18
Date Collected: 12/17/24 09:55
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 20:47
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 20:47
Total/NA	Prep	SHAKE			18426	KR	EET ALB	12/24/24 11:16
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 12:40
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:01

Client Sample ID: BS24-158 0'
Lab Sample ID: 885-17309-19
Date Collected: 12/17/24 10:00
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 21:10
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 21:10
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 13:23
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:12

Client Sample ID: BS24-159 0'
Lab Sample ID: 885-17309-20
Date Collected: 12/17/24 10:05
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8015M/D		1	18200	JP	EET ALB	12/20/24 21:34
Total/NA	Prep	5030C			18104	JP	EET ALB	12/19/24 10:57
Total/NA	Analysis	8021B		1	18201	JP	EET ALB	12/20/24 21:34

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-159 0'
Lab Sample ID: 885-17309-20
Date Collected: 12/17/24 10:05
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 13:34
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:22

Client Sample ID: BS24-160 0'
Lab Sample ID: 885-17309-21
Date Collected: 12/17/24 10:10
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/20/24 23:54
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/20/24 23:54
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 13:45
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:32

Client Sample ID: BS24-161 0'
Lab Sample ID: 885-17309-22
Date Collected: 12/17/24 10:15
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 01:04
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 01:04
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 13:55
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:43

Client Sample ID: BS24-162 0'
Lab Sample ID: 885-17309-23
Date Collected: 12/17/24 10:20
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 02:14
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 02:14
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 14:06

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-162 0'
Lab Sample ID: 885-17309-23
Date Collected: 12/17/24 10:20
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 18:53

Client Sample ID: BS24-163 0'
Lab Sample ID: 885-17309-24
Date Collected: 12/17/24 10:25
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 02:37
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 02:37
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 14:17
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 19:03

Client Sample ID: BS24-164 0'
Lab Sample ID: 885-17309-25
Date Collected: 12/17/24 10:30
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 03:01
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 03:01
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 14:28
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 19:14

Client Sample ID: BS24-165 0'
Lab Sample ID: 885-17309-26
Date Collected: 12/17/24 10:35
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 03:24
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 03:24
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 14:39
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 19:24

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-166 0'
Lab Sample ID: 885-17309-27
Date Collected: 12/17/24 10:40
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 03:47
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 03:47
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 15:00
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 19:55

Client Sample ID: BS24-167 0'
Lab Sample ID: 885-17309-28
Date Collected: 12/17/24 10:45
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 04:10
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 04:10
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 15:11
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 20:05

Client Sample ID: BS24-168 0'
Lab Sample ID: 885-17309-29
Date Collected: 12/17/24 10:50
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 04:33
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 04:33
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 15:22
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 20:16

Client Sample ID: BS24-169 0'
Lab Sample ID: 885-17309-30
Date Collected: 12/17/24 10:55
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8015M/D		1	18271	JP	EET ALB	12/21/24 04:57

Lab Chronicle

Client: Vertex
Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-169 0'
Lab Sample ID: 885-17309-30

Date Collected: 12/17/24 10:55
Matrix: Solid
Date Received: 12/19/24 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18121	JP	EET ALB	12/19/24 12:01
Total/NA	Analysis	8021B		1	18270	JP	EET ALB	12/21/24 04:57
Total/NA	Prep	SHAKE			18484	EM	EET ALB	12/26/24 17:06
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	12/30/24 15:33
Total/NA	Prep	300_Prep			18141	DL	EET ALB	12/19/24 13:40
Total/NA	Analysis	300.0		20	18159	MA	EET ALB	12/19/24 20:26

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-17309-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☐ Yes ☐ No
# of Coolers: 1 (Mojo)
Cooler Temp(including CF): 1.8-0=1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107
885-17309 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.17.24	8:10	Soil	BS24-140 0'	1, 4oz jar			X	X					X									
12.17.24	8:15	Soil	BS24-141 0'	1, 4oz jar			X	X					X									
12.17.24	8:20	Soil	BS24-142 0'	1, 4oz jar			X	X					X									
12.17.24	8:25	Soil	BS24-143 0'	1, 4oz jar			X	X					X									
12.17.24	8:30	Soil	BS24-144 0'	1, 4oz jar			X	X					X									
12.17.24	8:35	Soil	BS24-145 0'	1, 4oz jar			X	X					X									
12.17.24	8:40	Soil	BS24-146 0'	1, 4oz jar			X	X					X									
12.17.24	8:45	Soil	BS24-147 0'	1, 4oz jar			X	X					X									
12.17.24	8:50	Soil	BS24-148 0'	1, 4oz jar			X	X					X									
12.17.24	9:15	Soil	BS24-149 0'	1, 4oz jar			X	X					X									
12.17.24	9:20	Soil	BS24-150 0'	1, 4oz jar			X	X					X									
12.17.24	9:25	Soil	BS24-151 0'	1, 4oz jar			X	X					X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-18-24	07:00	Lakin Pullman			12/18/24	0700
12/18/24	1900			courier	12/19/24	7:34

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ~~☐ Yes~~ ☐ No
# of Coolers: 1 MeOH
Cooler Temp(including CF): 1.8-0=1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.17.24	9:30	Soil	BS24-152 0'	1, 4oz jar			X	X					X									
12.17.24	9:35	Soil	BS24-153 0'	1, 4oz jar			X	X					X									
12.17.24	9:40	Soil	BS24-154 0'	1, 4oz jar			X	X					X									
12.17.24	9:45	Soil	BS24-155 0'	1, 4oz jar			X	X					X									
12.17.24	9:50	Soil	BS24-156 0'	1, 4oz jar			X	X					X									
12.17.24	9:55	Soil	BS24-157 0'	1, 4oz jar			X	X					X									
12.17.24	10:00	Soil	BS24-158 0'	1, 4oz jar			X	X					X									
12.17.24	10:05	Soil	BS24-159 0'	1, 4oz jar			X	X					X									
12.17.24	10:10	Soil	BS24-160 0'	1, 4oz jar			X	X					X									
12.17.24	10:15	Soil	BS24-161 0'	1, 4oz jar			X	X					X									
12.17.24	10:20	Soil	BS24-162 0'	1, 4oz jar			X	X					X									
12.17.24	10:25	Soil	BS24-163 0'	1, 4oz jar			X	X					X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12-18-24	07:00	Sabat Pullman			12/18/24	0700
12/18/24	1910			courier	12/19/24	7:34

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

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2/3

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard X Rush_5-day-rush

Project Name:

Calgary Federal #002E

Project #:

24E-04822

Project Manager:

Sally Carttar

SCarttar@vertexresource.com

Sampler: L. Pullman

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Micro

Cooler Temp(including CF): 1.8-0=1.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.17.24	10:30	Soil	BS24-164 0'	1, 4oz jar			X	X					X									
12.17.24	10:35	Soil	BS24-165 0'	1, 4oz jar			X	X					X									
12.17.24	10:40	Soil	BS24-166 0'	1, 4oz jar			X	X					X									
12.17.24	10:45	Soil	BS24-167 0'	1, 4oz jar			X	X					X									
12.17.24	10:50	Soil	BS24-168 0'	1, 4oz jar			X	X					X									
12.17.24	10:55	Soil	BS24-169 0'	1, 4oz jar			X	X					X									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12-18-24	0700	Lakin Pullman			12/18/24	700
12/18/24	1910			Courier	12/19/24	7:34

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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Login Sample Receipt Checklist

Client: Vertex Job Number: 885-17309-1

Login Number: 17309 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 1/3/2025 11:03:34 AM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-17491-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-17491-1

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Definitions/Glossary

Client: Vertex Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Calgary Federal #002E

Job ID: 885-17491-1

Job ID: 885-17491-1 Eurofins Albuquerque

Job Narrative
885-17491-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/21/2024 11:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-18538 and analytical batch 885-18540 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-18540 recovered above the upper control limit for Diesel Range Organics [C10-C28]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: BS24-191 0' (885-17491-22), BS24-192 0' (885-17491-23) and BS24-193 0' (885-17491-24).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-170 0'
Lab Sample ID: 885-17491-1
Date Collected: 12/18/24 09:45
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 11:30	12/24/24 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*12/23/24 11:30*	*12/24/24 12:50*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 11:30	12/24/24 12:50	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 12:50	1
Toluene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 12:50	1
Xylenes, Total	ND		0.099		mg/Kg		12/23/24 11:30	12/24/24 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/23/24 11:30*	*12/24/24 12:50*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/31/24 09:00	01/02/25 12:07	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 12:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*12/31/24 09:00*	*01/02/25 12:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 14:39	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-171 0'
Lab Sample ID: 885-17491-2

Date Collected: 12/18/24 09:45
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 11:30	12/24/24 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*35 - 166*	*12/23/24 11:30*	*12/24/24 14:02*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 11:30	12/24/24 14:02	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 14:02	1
Toluene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 14:02	1
Xylenes, Total	ND		0.10		mg/Kg		12/23/24 11:30	12/24/24 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*48 - 145*	*12/23/24 11:30*	*12/24/24 14:02*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/31/24 09:00	01/02/25 13:33	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*12/31/24 09:00*	*01/02/25 13:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 15:09	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-172 0'
Lab Sample ID: 885-17491-3

Date Collected: 12/18/24 09:55
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/23/24 11:30*	*12/24/24 15:14*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/23/24 11:30	12/24/24 15:14	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 15:14	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 15:14	1
Xylenes, Total	ND		0.093		mg/Kg		12/23/24 11:30	12/24/24 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/23/24 11:30*	*12/24/24 15:14*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/31/24 09:00	01/02/25 13:43	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/31/24 09:00	01/02/25 13:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*12/31/24 09:00*	*01/02/25 13:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 15:38	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-173 0'
Date Collected: 12/18/24 10:00
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-4
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 11:30*	*12/24/24 15:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 15:37	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 15:37	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 15:37	1
Xylenes, Total	ND		0.097		mg/Kg		12/23/24 11:30	12/24/24 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/23/24 11:30*	*12/24/24 15:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 13:54	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/31/24 09:00*	*01/02/25 13:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/23/24 13:07	12/23/24 15:48	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-174 0'
Lab Sample ID: 885-17491-5
Date Collected: 12/18/24 10:00
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*12/23/24 11:30*	*12/24/24 16:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 16:01	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 16:01	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 16:01	1
Xylenes, Total	ND		0.096		mg/Kg		12/23/24 11:30	12/24/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*12/23/24 11:30*	*12/24/24 16:01*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/31/24 09:00	01/02/25 14:05	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/31/24 09:00	01/02/25 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*78*		*62 - 134*	*12/31/24 09:00*	*01/02/25 14:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 16:18	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-175 0'
Lab Sample ID: 885-17491-6
Date Collected: 12/18/24 10:05
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/23/24 11:30	12/24/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/23/24 11:30*	*12/24/24 16:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 16:25	1
Ethylbenzene	ND		0.049		mg/Kg		12/23/24 11:30	12/24/24 16:25	1
Toluene	ND		0.049		mg/Kg		12/23/24 11:30	12/24/24 16:25	1
Xylenes, Total	ND		0.098		mg/Kg		12/23/24 11:30	12/24/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 16:25*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 14:16	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 14:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*12/31/24 09:00*	*01/02/25 14:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 16:27	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-176 0'
Lab Sample ID: 885-17491-7

Date Collected: 12/18/24 10:10
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/23/24 11:30*	*12/24/24 16:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 16:48	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 16:48	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 16:48	1
Xylenes, Total	ND		0.095		mg/Kg		12/23/24 11:30	12/24/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 16:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 14:48	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/31/24 09:00*	*01/02/25 14:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 16:37	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-177 0'
Lab Sample ID: 885-17491-8
Date Collected: 12/18/24 10:15
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/23/24 11:30*	*12/24/24 17:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 17:12	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 17:12	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 17:12	1
Xylenes, Total	ND		0.094		mg/Kg		12/23/24 11:30	12/24/24 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/23/24 11:30*	*12/24/24 17:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/31/24 09:00	01/02/25 14:59	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*	*12/31/24 09:00*	*01/02/25 14:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 16:47	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-178 0'
Lab Sample ID: 885-17491-9
Date Collected: 12/18/24 10:20
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/23/24 11:30*	*12/24/24 17:35*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 17:35	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 17:35	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 17:35	1
Xylenes, Total	ND		0.096		mg/Kg		12/23/24 11:30	12/24/24 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 17:35*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/31/24 09:00	01/02/25 15:09	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*124*		*62 - 134*	*12/31/24 09:00*	*01/02/25 15:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 16:57	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-179 0'
Lab Sample ID: 885-17491-10
Date Collected: 12/18/24 10:25
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/23/24 11:30*	*12/24/24 17:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 17:59	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 17:59	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 17:59	1
Xylenes, Total	ND		0.096		mg/Kg		12/23/24 11:30	12/24/24 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 17:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		12/31/24 09:00	01/02/25 15:20	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		12/31/24 09:00	01/02/25 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*12/31/24 09:00*	*01/02/25 15:20*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 17:07	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-180 0'
Lab Sample ID: 885-17491-11
Date Collected: 12/18/24 10:30
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 11:30	12/24/24 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/23/24 11:30*	*12/24/24 18:46*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 11:30	12/24/24 18:46	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 18:46	1
Toluene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 18:46	1
Xylenes, Total	ND		0.099		mg/Kg		12/23/24 11:30	12/24/24 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/23/24 11:30*	*12/24/24 18:46*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/31/24 09:00	01/02/25 15:31	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/31/24 09:00	01/02/25 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/31/24 09:00*	*01/02/25 15:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 17:17	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-181 0'

Date Collected: 12/18/24 10:30
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/23/24 11:30*	*12/24/24 19:09*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 19:09	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 19:09	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 19:09	1
Xylenes, Total	ND		0.095		mg/Kg		12/23/24 11:30	12/24/24 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/23/24 11:30*	*12/24/24 19:09*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/31/24 09:00	01/02/25 15:42	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/31/24 09:00	01/02/25 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*12/31/24 09:00*	*01/02/25 15:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/23/24 13:07	12/23/24 17:27	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-182 0'

Date Collected: 12/18/24 10:35
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-13

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/23/24 11:30*	*12/24/24 19:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/23/24 11:30	12/24/24 19:33	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 19:33	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 19:33	1
Xylenes, Total	ND		0.093		mg/Kg		12/23/24 11:30	12/24/24 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/23/24 11:30*	*12/24/24 19:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/31/24 09:00	01/02/25 15:53	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*12/31/24 09:00*	*01/02/25 15:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 17:36	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-183 0'
Lab Sample ID: 885-17491-14
Date Collected: 12/18/24 10:40
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/23/24 11:30	12/24/24 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/23/24 11:30*	*12/24/24 19:56*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/23/24 11:30	12/24/24 19:56	1
Ethylbenzene	ND		0.046		mg/Kg		12/23/24 11:30	12/24/24 19:56	1
Toluene	ND		0.046		mg/Kg		12/23/24 11:30	12/24/24 19:56	1
Xylenes, Total	ND		0.093		mg/Kg		12/23/24 11:30	12/24/24 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/23/24 11:30*	*12/24/24 19:56*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/31/24 09:00	01/02/25 16:04	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*12/31/24 09:00*	*01/02/25 16:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 17:46	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-184 0'
Lab Sample ID: 885-17491-15
Date Collected: 12/18/24 10:45
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/23/24 11:30	12/24/24 20:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/23/24 11:30*	*12/24/24 20:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 11:30	12/24/24 20:20	1
Ethylbenzene	ND		0.049		mg/Kg		12/23/24 11:30	12/24/24 20:20	1
Toluene	ND		0.049		mg/Kg		12/23/24 11:30	12/24/24 20:20	1
Xylenes, Total	ND		0.098		mg/Kg		12/23/24 11:30	12/24/24 20:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/23/24 11:30*	*12/24/24 20:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		12/31/24 09:00	01/02/25 16:15	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*12/31/24 09:00*	*01/02/25 16:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 18:16	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-185 0'
Lab Sample ID: 885-17491-16
Date Collected: 12/18/24 10:50
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 11:30*	*12/24/24 20:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 20:43	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 20:43	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 20:43	1
Xylenes, Total	ND		0.095		mg/Kg		12/23/24 11:30	12/24/24 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 20:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/31/24 09:00	01/02/25 16:26	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/31/24 09:00*	*01/02/25 16:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 18:26	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-186 0'

Date Collected: 12/18/24 10:55
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-17

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 21:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/23/24 11:30*	*12/24/24 21:07*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/23/24 11:30	12/24/24 21:07	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 21:07	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 21:07	1
Xylenes, Total	ND		0.093		mg/Kg		12/23/24 11:30	12/24/24 21:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 21:07*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/31/24 09:00	01/02/25 16:48	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*12/31/24 09:00*	*01/02/25 16:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 18:35	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-187 0'
Lab Sample ID: 885-17491-18
Date Collected: 12/18/24 11:00
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*12/23/24 11:30*	*12/24/24 21:30*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 21:30	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 21:30	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 21:30	1
Xylenes, Total	ND		0.097		mg/Kg		12/23/24 11:30	12/24/24 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/23/24 11:30*	*12/24/24 21:30*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 17:06	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*12/31/24 09:00*	*01/02/25 17:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 18:45	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-188 0'
Lab Sample ID: 885-17491-19
Date Collected: 12/18/24 11:00
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/23/24 11:30	12/24/24 21:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 11:30*	*12/24/24 21:54*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/23/24 11:30	12/24/24 21:54	1
Ethylbenzene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 21:54	1
Toluene	ND		0.047		mg/Kg		12/23/24 11:30	12/24/24 21:54	1
Xylenes, Total	ND		0.093		mg/Kg		12/23/24 11:30	12/24/24 21:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/23/24 11:30*	*12/24/24 21:54*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 17:16	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*112*		*62 - 134*	*12/31/24 09:00*	*01/02/25 17:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 18:55	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-189 0'
Lab Sample ID: 885-17491-20
Date Collected: 12/18/24 11:05
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/23/24 11:30	12/24/24 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 11:30*	*12/24/24 22:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 11:30	12/24/24 22:17	1
Ethylbenzene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 22:17	1
Toluene	ND		0.048		mg/Kg		12/23/24 11:30	12/24/24 22:17	1
Xylenes, Total	ND		0.096		mg/Kg		12/23/24 11:30	12/24/24 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 11:30*	*12/24/24 22:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/31/24 09:00	01/02/25 17:27	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 09:00	01/02/25 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*12/31/24 09:00*	*01/02/25 17:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:07	12/23/24 19:05	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-190 0'

Date Collected: 12/18/24 11:10
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-21

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/23/24 12:26	12/25/24 00:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*12/23/24 12:26*	*12/25/24 00:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/23/24 12:26	12/25/24 00:37	1
Ethylbenzene	ND		0.049		mg/Kg		12/23/24 12:26	12/25/24 00:37	1
Toluene	ND		0.049		mg/Kg		12/23/24 12:26	12/25/24 00:37	1
Xylenes, Total	ND		0.098		mg/Kg		12/23/24 12:26	12/25/24 00:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/23/24 12:26*	*12/25/24 00:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	F2	9.8		mg/Kg		12/30/24 08:39	01/01/25 08:29	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/30/24 08:39	01/01/25 08:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*12/30/24 08:39*	*01/01/25 08:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		61		mg/Kg		12/23/24 13:59	12/23/24 21:33	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-191 0'
Lab Sample ID: 885-17491-22
Date Collected: 12/18/24 11:15
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		12/23/24 12:26	12/25/24 01:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*12/23/24 12:26*	*12/25/24 01:46*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 12:26	12/25/24 01:46	1
Ethylbenzene	ND		0.049		mg/Kg		12/23/24 12:26	12/25/24 01:46	1
Toluene	ND		0.049		mg/Kg		12/23/24 12:26	12/25/24 01:46	1
Xylenes, Total	ND		0.098		mg/Kg		12/23/24 12:26	12/25/24 01:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*12/23/24 12:26*	*12/25/24 01:46*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/30/24 08:39	01/01/25 09:12	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/30/24 08:39	01/01/25 09:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*73*		*62 - 134*	*12/30/24 08:39*	*01/01/25 09:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:59	12/23/24 21:43	20

Client Sample Results

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-192 0'
Lab Sample ID: 885-17491-23
Date Collected: 12/18/24 11:20
Matrix: Solid
Date Received: 12/21/24 11:20

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 12:26	12/25/24 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 12:26*	*12/25/24 02:56*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 12:26	12/25/24 02:56	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 02:56	1
Toluene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 02:56	1
Xylenes, Total	ND		0.10		mg/Kg		12/23/24 12:26	12/25/24 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/23/24 12:26*	*12/25/24 02:56*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/30/24 08:39	01/01/25 09:22	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/30/24 08:39	01/01/25 09:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*12/30/24 08:39*	*01/01/25 09:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:59	12/23/24 22:12	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Client Sample ID: BS24-193 0'

Date Collected: 12/18/24 11:25
Date Received: 12/21/24 11:20

Lab Sample ID: 885-17491-24

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 12:26	12/25/24 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*12/23/24 12:26*	*12/25/24 03:19*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 12:26	12/25/24 03:19	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 03:19	1
Toluene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 03:19	1
Xylenes, Total	ND		0.099		mg/Kg		12/23/24 12:26	12/25/24 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*12/23/24 12:26*	*12/25/24 03:19*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/30/24 08:39	01/01/25 09:33	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/30/24 08:39	01/01/25 09:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*72*		*62 - 134*	*12/30/24 08:39*	*01/01/25 09:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/23/24 13:59	12/23/24 22:22	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-18324/1-A
Matrix: Solid
Analysis Batch: 18410

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18324

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 11:30	12/24/24 12:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*12/23/24 11:30*	*12/24/24 12:27*	*1*

Lab Sample ID: LCS 885-18324/2-A
Matrix: Solid
Analysis Batch: 18410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18324

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.5		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*200*		*35 - 166*

Lab Sample ID: 885-17491-1 MS
Matrix: Solid
Analysis Batch: 18410

Client Sample ID: BS24-170 0'
Prep Type: Total/NA
Prep Batch: 18324

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		25.0	28.1		mg/Kg		113	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*221*		*35 - 166*

Lab Sample ID: 885-17491-1 MSD
Matrix: Solid
Analysis Batch: 18410

Client Sample ID: BS24-170 0'
Prep Type: Total/NA
Prep Batch: 18324

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.7	26.0		mg/Kg		105	70 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*220*		*35 - 166*

Lab Sample ID: MB 885-18339/1-A
Matrix: Solid
Analysis Batch: 18444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18339

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/23/24 12:26	12/25/24 00:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*12/23/24 12:26*	*12/25/24 00:13*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCS 885-18339/2-A
Matrix: Solid
Analysis Batch: 18444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18339

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	23.8		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*201*		*35 - 166*

Lab Sample ID: 885-17491-21 MS
Matrix: Solid
Analysis Batch: 18444

Client Sample ID: BS24-190 0'
Prep Type: Total/NA
Prep Batch: 18339

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.5	24.1		mg/Kg		98	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*		*35 - 166*

Lab Sample ID: 885-17491-21 MSD
Matrix: Solid
Analysis Batch: 18444

Client Sample ID: BS24-190 0'
Prep Type: Total/NA
Prep Batch: 18339

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.4	24.5		mg/Kg		100	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*209*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-18324/1-A
Matrix: Solid
Analysis Batch: 18415

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18324

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 11:30	12/24/24 12:27	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 12:27	1
Toluene	ND		0.050		mg/Kg		12/23/24 11:30	12/24/24 12:27	1
Xylenes, Total	ND		0.10		mg/Kg		12/23/24 11:30	12/24/24 12:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*	*12/23/24 11:30*	*12/24/24 12:27*	*1*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-18324/3-A
Matrix: Solid
Analysis Batch: 18415

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18324

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.07		mg/Kg		107	70 - 130		
Ethylbenzene			1.00	1.08		mg/Kg		108	70 - 130		
m,p-Xylene			2.00	2.14		mg/Kg		107	70 - 130		
o-Xylene			1.00	1.06		mg/Kg		106	70 - 130		
Toluene			1.00	1.09		mg/Kg		109	70 - 130		
Xylenes, Total			3.00	3.20		mg/Kg		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*

Lab Sample ID: 885-17491-2 MS
Matrix: Solid
Analysis Batch: 18415

Client Sample ID: BS24-171 0'
Prep Type: Total/NA
Prep Batch: 18324

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.999	1.14		mg/Kg		115	70 - 130		
Ethylbenzene	ND		0.999	1.21		mg/Kg		121	70 - 130		
m,p-Xylene	ND		2.00	2.39		mg/Kg		120	70 - 130		
o-Xylene	ND		0.999	1.18		mg/Kg		118	70 - 130		
Toluene	ND		0.999	1.20		mg/Kg		120	70 - 130		
Xylenes, Total	ND		3.00	3.57		mg/Kg		119	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*48 - 145*

Lab Sample ID: 885-17491-2 MSD
Matrix: Solid
Analysis Batch: 18415

Client Sample ID: BS24-171 0'
Prep Type: Total/NA
Prep Batch: 18324

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.992	1.16		mg/Kg		117	70 - 130	2	20
Ethylbenzene	ND		0.992	1.22		mg/Kg		123	70 - 130	1	20
m,p-Xylene	ND		1.98	2.41		mg/Kg		122	70 - 130	1	20
o-Xylene	ND		0.992	1.19		mg/Kg		119	70 - 130	1	20
Toluene	ND		0.992	1.21		mg/Kg		122	70 - 130	1	20
Xylenes, Total	ND		2.98	3.60		mg/Kg		121	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*48 - 145*

Lab Sample ID: MB 885-18339/1-A
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18339

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/23/24 12:26	12/25/24 00:13	1
Ethylbenzene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 00:13	1
Toluene	ND		0.050		mg/Kg		12/23/24 12:26	12/25/24 00:13	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-18339/1-A
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18339

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		12/23/24 12:26	12/25/24 00:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/23/24 12:26*	*12/25/24 00:13*	*1*

Lab Sample ID: LCS 885-18339/3-A
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18339

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.09		mg/Kg		109	70 - 130		
Ethylbenzene			1.00	1.10		mg/Kg		110	70 - 130		
m,p-Xylene			2.00	2.17		mg/Kg		108	70 - 130		
o-Xylene			1.00	1.06		mg/Kg		106	70 - 130		
Toluene			1.00	1.12		mg/Kg		112	70 - 130		
Xylenes, Total			3.00	3.23		mg/Kg		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*48 - 145*

Lab Sample ID: 885-17491-22 MS
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: BS24-191 0'
Prep Type: Total/NA
Prep Batch: 18339

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.986	1.17		mg/Kg		118	70 - 130		
Ethylbenzene	ND		0.986	1.20		mg/Kg		122	70 - 130		
m,p-Xylene	ND		1.97	2.34		mg/Kg		119	70 - 130		
o-Xylene	ND		0.986	1.13		mg/Kg		115	70 - 130		
Toluene	ND		0.986	1.20		mg/Kg		122	70 - 130		
Xylenes, Total	ND		2.96	3.47		mg/Kg		117	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Lab Sample ID: 885-17491-22 MSD
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: BS24-191 0'
Prep Type: Total/NA
Prep Batch: 18339

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.980	1.14		mg/Kg		116	70 - 130	2	20
Ethylbenzene	ND		0.980	1.16		mg/Kg		119	70 - 130	3	20
m,p-Xylene	ND		1.96	2.28		mg/Kg		116	70 - 130	2	20
o-Xylene	ND		0.980	1.11		mg/Kg		113	70 - 130	2	20
Toluene	ND		0.980	1.17		mg/Kg		119	70 - 130	3	20
Xylenes, Total	ND		2.94	3.39		mg/Kg		115	70 - 130	2	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-17491-22 MSD
Matrix: Solid
Analysis Batch: 18443

Client Sample ID: BS24-191 0'
Prep Type: Total/NA
Prep Batch: 18339

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-18538/1-A
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18538

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/30/24 08:39	01/01/25 08:07	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/30/24 08:39	01/01/25 08:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*130*		*62 - 134*	*12/30/24 08:39*	*01/01/25 08:07*	*1*

Lab Sample ID: LCS 885-18538/2-A
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18538

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	55.7		mg/Kg		111	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*112*		*62 - 134*

Lab Sample ID: 885-17491-21 MS
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: BS24-190 0'
Prep Type: Total/NA
Prep Batch: 18538

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND	F2	48.0	48.5		mg/Kg		101	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*

Lab Sample ID: 885-17491-21 MSD
Matrix: Solid
Analysis Batch: 18540

Client Sample ID: BS24-190 0'
Prep Type: Total/NA
Prep Batch: 18538

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND	F2	45.8	25.2	F2	mg/Kg		55	44 - 136	63	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*58*	*S1-*	*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-18620/1-A
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18620

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 09:00	01/02/25 14:26	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 09:00	01/02/25 14:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*134*		*62 - 134*	*12/31/24 09:00*	*01/02/25 14:26*	*1*

Lab Sample ID: LCS 885-18620/2-A
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18620

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	49.6		mg/Kg		99	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*

Lab Sample ID: 885-17491-1 MS
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: BS24-170 0'
Prep Type: Total/NA
Prep Batch: 18620

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		48.8	44.5		mg/Kg		91	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*83*		*62 - 134*

Lab Sample ID: 885-17491-1 MSD
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: BS24-170 0'
Prep Type: Total/NA
Prep Batch: 18620

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		48.8	51.6		mg/Kg		106	44 - 136	15	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-18346/1-A
Matrix: Solid
Analysis Batch: 18348

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18346

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/23/24 13:07	12/23/24 14:19	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-18346/2-A
Matrix: Solid
Analysis Batch: 18348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18346

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.7		mg/Kg		96	90 - 110		

Lab Sample ID: MB 885-18349/1-A
Matrix: Solid
Analysis Batch: 18348

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18349

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/23/24 13:59	12/23/24 19:15	1

Lab Sample ID: LCS 885-18349/2-A
Matrix: Solid
Analysis Batch: 18348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18349

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.2		mg/Kg		94	90 - 110		

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

GC VOA

Prep Batch: 18324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	5030C	
885-17491-2	BS24-171 0'	Total/NA	Solid	5030C	
885-17491-3	BS24-172 0'	Total/NA	Solid	5030C	
885-17491-4	BS24-173 0'	Total/NA	Solid	5030C	
885-17491-5	BS24-174 0'	Total/NA	Solid	5030C	
885-17491-6	BS24-175 0'	Total/NA	Solid	5030C	
885-17491-7	BS24-176 0'	Total/NA	Solid	5030C	
885-17491-8	BS24-177 0'	Total/NA	Solid	5030C	
885-17491-9	BS24-178 0'	Total/NA	Solid	5030C	
885-17491-10	BS24-179 0'	Total/NA	Solid	5030C	
885-17491-11	BS24-180 0'	Total/NA	Solid	5030C	
885-17491-12	BS24-181 0'	Total/NA	Solid	5030C	
885-17491-13	BS24-182 0'	Total/NA	Solid	5030C	
885-17491-14	BS24-183 0'	Total/NA	Solid	5030C	
885-17491-15	BS24-184 0'	Total/NA	Solid	5030C	
885-17491-16	BS24-185 0'	Total/NA	Solid	5030C	
885-17491-17	BS24-186 0'	Total/NA	Solid	5030C	
885-17491-18	BS24-187 0'	Total/NA	Solid	5030C	
885-17491-19	BS24-188 0'	Total/NA	Solid	5030C	
885-17491-20	BS24-189 0'	Total/NA	Solid	5030C	
MB 885-18324/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18324/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18324/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17491-1 MS	BS24-170 0'	Total/NA	Solid	5030C	
885-17491-1 MSD	BS24-170 0'	Total/NA	Solid	5030C	
885-17491-2 MS	BS24-171 0'	Total/NA	Solid	5030C	
885-17491-2 MSD	BS24-171 0'	Total/NA	Solid	5030C	

Prep Batch: 18339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	5030C	
885-17491-22	BS24-191 0'	Total/NA	Solid	5030C	
885-17491-23	BS24-192 0'	Total/NA	Solid	5030C	
885-17491-24	BS24-193 0'	Total/NA	Solid	5030C	
MB 885-18339/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18339/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18339/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17491-21 MS	BS24-190 0'	Total/NA	Solid	5030C	
885-17491-21 MSD	BS24-190 0'	Total/NA	Solid	5030C	
885-17491-22 MS	BS24-191 0'	Total/NA	Solid	5030C	
885-17491-22 MSD	BS24-191 0'	Total/NA	Solid	5030C	

Analysis Batch: 18410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	8015M/D	18324
885-17491-2	BS24-171 0'	Total/NA	Solid	8015M/D	18324
885-17491-3	BS24-172 0'	Total/NA	Solid	8015M/D	18324
885-17491-4	BS24-173 0'	Total/NA	Solid	8015M/D	18324
885-17491-5	BS24-174 0'	Total/NA	Solid	8015M/D	18324
885-17491-6	BS24-175 0'	Total/NA	Solid	8015M/D	18324
885-17491-7	BS24-176 0'	Total/NA	Solid	8015M/D	18324

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

GC VOA (Continued)

Analysis Batch: 18410 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-8	BS24-177 0'	Total/NA	Solid	8015M/D	18324
885-17491-9	BS24-178 0'	Total/NA	Solid	8015M/D	18324
885-17491-10	BS24-179 0'	Total/NA	Solid	8015M/D	18324
885-17491-11	BS24-180 0'	Total/NA	Solid	8015M/D	18324
885-17491-12	BS24-181 0'	Total/NA	Solid	8015M/D	18324
885-17491-13	BS24-182 0'	Total/NA	Solid	8015M/D	18324
885-17491-14	BS24-183 0'	Total/NA	Solid	8015M/D	18324
885-17491-15	BS24-184 0'	Total/NA	Solid	8015M/D	18324
885-17491-16	BS24-185 0'	Total/NA	Solid	8015M/D	18324
885-17491-17	BS24-186 0'	Total/NA	Solid	8015M/D	18324
885-17491-18	BS24-187 0'	Total/NA	Solid	8015M/D	18324
885-17491-19	BS24-188 0'	Total/NA	Solid	8015M/D	18324
885-17491-20	BS24-189 0'	Total/NA	Solid	8015M/D	18324
MB 885-18324/1-A	Method Blank	Total/NA	Solid	8015M/D	18324
LCS 885-18324/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18324
885-17491-1 MS	BS24-170 0'	Total/NA	Solid	8015M/D	18324
885-17491-1 MSD	BS24-170 0'	Total/NA	Solid	8015M/D	18324

Analysis Batch: 18415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	8021B	18324
885-17491-2	BS24-171 0'	Total/NA	Solid	8021B	18324
885-17491-3	BS24-172 0'	Total/NA	Solid	8021B	18324
885-17491-4	BS24-173 0'	Total/NA	Solid	8021B	18324
885-17491-5	BS24-174 0'	Total/NA	Solid	8021B	18324
885-17491-6	BS24-175 0'	Total/NA	Solid	8021B	18324
885-17491-7	BS24-176 0'	Total/NA	Solid	8021B	18324
885-17491-8	BS24-177 0'	Total/NA	Solid	8021B	18324
885-17491-9	BS24-178 0'	Total/NA	Solid	8021B	18324
885-17491-10	BS24-179 0'	Total/NA	Solid	8021B	18324
885-17491-11	BS24-180 0'	Total/NA	Solid	8021B	18324
885-17491-12	BS24-181 0'	Total/NA	Solid	8021B	18324
885-17491-13	BS24-182 0'	Total/NA	Solid	8021B	18324
885-17491-14	BS24-183 0'	Total/NA	Solid	8021B	18324
885-17491-15	BS24-184 0'	Total/NA	Solid	8021B	18324
885-17491-16	BS24-185 0'	Total/NA	Solid	8021B	18324
885-17491-17	BS24-186 0'	Total/NA	Solid	8021B	18324
885-17491-18	BS24-187 0'	Total/NA	Solid	8021B	18324
885-17491-19	BS24-188 0'	Total/NA	Solid	8021B	18324
885-17491-20	BS24-189 0'	Total/NA	Solid	8021B	18324
MB 885-18324/1-A	Method Blank	Total/NA	Solid	8021B	18324
LCS 885-18324/3-A	Lab Control Sample	Total/NA	Solid	8021B	18324
885-17491-2 MS	BS24-171 0'	Total/NA	Solid	8021B	18324
885-17491-2 MSD	BS24-171 0'	Total/NA	Solid	8021B	18324

Analysis Batch: 18443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	8021B	18339
885-17491-22	BS24-191 0'	Total/NA	Solid	8021B	18339
885-17491-23	BS24-192 0'	Total/NA	Solid	8021B	18339
885-17491-24	BS24-193 0'	Total/NA	Solid	8021B	18339

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

GC VOA (Continued)

Analysis Batch: 18443 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-18339/1-A	Method Blank	Total/NA	Solid	8021B	18339
LCS 885-18339/3-A	Lab Control Sample	Total/NA	Solid	8021B	18339
885-17491-22 MS	BS24-191 0'	Total/NA	Solid	8021B	18339
885-17491-22 MSD	BS24-191 0'	Total/NA	Solid	8021B	18339

Analysis Batch: 18444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	8015M/D	18339
885-17491-22	BS24-191 0'	Total/NA	Solid	8015M/D	18339
885-17491-23	BS24-192 0'	Total/NA	Solid	8015M/D	18339
885-17491-24	BS24-193 0'	Total/NA	Solid	8015M/D	18339
MB 885-18339/1-A	Method Blank	Total/NA	Solid	8015M/D	18339
LCS 885-18339/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18339
885-17491-21 MS	BS24-190 0'	Total/NA	Solid	8015M/D	18339
885-17491-21 MSD	BS24-190 0'	Total/NA	Solid	8015M/D	18339

GC Semi VOA

Prep Batch: 18538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	SHAKE	
885-17491-22	BS24-191 0'	Total/NA	Solid	SHAKE	
885-17491-23	BS24-192 0'	Total/NA	Solid	SHAKE	
885-17491-24	BS24-193 0'	Total/NA	Solid	SHAKE	
MB 885-18538/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18538/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17491-21 MS	BS24-190 0'	Total/NA	Solid	SHAKE	
885-17491-21 MSD	BS24-190 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	8015M/D	18538
885-17491-22	BS24-191 0'	Total/NA	Solid	8015M/D	18538
885-17491-23	BS24-192 0'	Total/NA	Solid	8015M/D	18538
885-17491-24	BS24-193 0'	Total/NA	Solid	8015M/D	18538
MB 885-18538/1-A	Method Blank	Total/NA	Solid	8015M/D	18538
LCS 885-18538/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18538
885-17491-21 MS	BS24-190 0'	Total/NA	Solid	8015M/D	18538
885-17491-21 MSD	BS24-190 0'	Total/NA	Solid	8015M/D	18538

Prep Batch: 18620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	SHAKE	
885-17491-2	BS24-171 0'	Total/NA	Solid	SHAKE	
885-17491-3	BS24-172 0'	Total/NA	Solid	SHAKE	
885-17491-4	BS24-173 0'	Total/NA	Solid	SHAKE	
885-17491-5	BS24-174 0'	Total/NA	Solid	SHAKE	
885-17491-6	BS24-175 0'	Total/NA	Solid	SHAKE	
885-17491-7	BS24-176 0'	Total/NA	Solid	SHAKE	
885-17491-8	BS24-177 0'	Total/NA	Solid	SHAKE	
885-17491-9	BS24-178 0'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

GC Semi VOA (Continued)

Prep Batch: 18620 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-10	BS24-179 0'	Total/NA	Solid	SHAKE	
885-17491-11	BS24-180 0'	Total/NA	Solid	SHAKE	
885-17491-12	BS24-181 0'	Total/NA	Solid	SHAKE	
885-17491-13	BS24-182 0'	Total/NA	Solid	SHAKE	
885-17491-14	BS24-183 0'	Total/NA	Solid	SHAKE	
885-17491-15	BS24-184 0'	Total/NA	Solid	SHAKE	
885-17491-16	BS24-185 0'	Total/NA	Solid	SHAKE	
885-17491-17	BS24-186 0'	Total/NA	Solid	SHAKE	
885-17491-18	BS24-187 0'	Total/NA	Solid	SHAKE	
885-17491-19	BS24-188 0'	Total/NA	Solid	SHAKE	
885-17491-20	BS24-189 0'	Total/NA	Solid	SHAKE	
MB 885-18620/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18620/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17491-1 MS	BS24-170 0'	Total/NA	Solid	SHAKE	
885-17491-1 MSD	BS24-170 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	8015M/D	18620
885-17491-2	BS24-171 0'	Total/NA	Solid	8015M/D	18620
885-17491-3	BS24-172 0'	Total/NA	Solid	8015M/D	18620
885-17491-4	BS24-173 0'	Total/NA	Solid	8015M/D	18620
885-17491-5	BS24-174 0'	Total/NA	Solid	8015M/D	18620
885-17491-6	BS24-175 0'	Total/NA	Solid	8015M/D	18620
885-17491-7	BS24-176 0'	Total/NA	Solid	8015M/D	18620
885-17491-8	BS24-177 0'	Total/NA	Solid	8015M/D	18620
885-17491-9	BS24-178 0'	Total/NA	Solid	8015M/D	18620
885-17491-10	BS24-179 0'	Total/NA	Solid	8015M/D	18620
885-17491-11	BS24-180 0'	Total/NA	Solid	8015M/D	18620
885-17491-12	BS24-181 0'	Total/NA	Solid	8015M/D	18620
885-17491-13	BS24-182 0'	Total/NA	Solid	8015M/D	18620
885-17491-14	BS24-183 0'	Total/NA	Solid	8015M/D	18620
885-17491-15	BS24-184 0'	Total/NA	Solid	8015M/D	18620
885-17491-16	BS24-185 0'	Total/NA	Solid	8015M/D	18620
885-17491-17	BS24-186 0'	Total/NA	Solid	8015M/D	18620
885-17491-18	BS24-187 0'	Total/NA	Solid	8015M/D	18620
885-17491-19	BS24-188 0'	Total/NA	Solid	8015M/D	18620
885-17491-20	BS24-189 0'	Total/NA	Solid	8015M/D	18620
MB 885-18620/1-A	Method Blank	Total/NA	Solid	8015M/D	18620
LCS 885-18620/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18620
885-17491-1 MS	BS24-170 0'	Total/NA	Solid	8015M/D	18620
885-17491-1 MSD	BS24-170 0'	Total/NA	Solid	8015M/D	18620

HPLC/IC

Prep Batch: 18346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	300_Prep	
885-17491-2	BS24-171 0'	Total/NA	Solid	300_Prep	
885-17491-3	BS24-172 0'	Total/NA	Solid	300_Prep	
885-17491-4	BS24-173 0'	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17491-1

HPLC/IC (Continued)

Prep Batch: 18346 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-5	BS24-174 0'	Total/NA	Solid	300_Prep	
885-17491-6	BS24-175 0'	Total/NA	Solid	300_Prep	
885-17491-7	BS24-176 0'	Total/NA	Solid	300_Prep	
885-17491-8	BS24-177 0'	Total/NA	Solid	300_Prep	
885-17491-9	BS24-178 0'	Total/NA	Solid	300_Prep	
885-17491-10	BS24-179 0'	Total/NA	Solid	300_Prep	
885-17491-11	BS24-180 0'	Total/NA	Solid	300_Prep	
885-17491-12	BS24-181 0'	Total/NA	Solid	300_Prep	
885-17491-13	BS24-182 0'	Total/NA	Solid	300_Prep	
885-17491-14	BS24-183 0'	Total/NA	Solid	300_Prep	
885-17491-15	BS24-184 0'	Total/NA	Solid	300_Prep	
885-17491-16	BS24-185 0'	Total/NA	Solid	300_Prep	
885-17491-17	BS24-186 0'	Total/NA	Solid	300_Prep	
885-17491-18	BS24-187 0'	Total/NA	Solid	300_Prep	
885-17491-19	BS24-188 0'	Total/NA	Solid	300_Prep	
885-17491-20	BS24-189 0'	Total/NA	Solid	300_Prep	
MB 885-18346/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18346/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 18348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-1	BS24-170 0'	Total/NA	Solid	300.0	18346
885-17491-2	BS24-171 0'	Total/NA	Solid	300.0	18346
885-17491-3	BS24-172 0'	Total/NA	Solid	300.0	18346
885-17491-4	BS24-173 0'	Total/NA	Solid	300.0	18346
885-17491-5	BS24-174 0'	Total/NA	Solid	300.0	18346
885-17491-6	BS24-175 0'	Total/NA	Solid	300.0	18346
885-17491-7	BS24-176 0'	Total/NA	Solid	300.0	18346
885-17491-8	BS24-177 0'	Total/NA	Solid	300.0	18346
885-17491-9	BS24-178 0'	Total/NA	Solid	300.0	18346
885-17491-10	BS24-179 0'	Total/NA	Solid	300.0	18346
885-17491-11	BS24-180 0'	Total/NA	Solid	300.0	18346
885-17491-12	BS24-181 0'	Total/NA	Solid	300.0	18346
885-17491-13	BS24-182 0'	Total/NA	Solid	300.0	18346
885-17491-14	BS24-183 0'	Total/NA	Solid	300.0	18346
885-17491-15	BS24-184 0'	Total/NA	Solid	300.0	18346
885-17491-16	BS24-185 0'	Total/NA	Solid	300.0	18346
885-17491-17	BS24-186 0'	Total/NA	Solid	300.0	18346
885-17491-18	BS24-187 0'	Total/NA	Solid	300.0	18346
885-17491-19	BS24-188 0'	Total/NA	Solid	300.0	18346
885-17491-20	BS24-189 0'	Total/NA	Solid	300.0	18346
885-17491-21	BS24-190 0'	Total/NA	Solid	300.0	18349
885-17491-22	BS24-191 0'	Total/NA	Solid	300.0	18349
885-17491-23	BS24-192 0'	Total/NA	Solid	300.0	18349
885-17491-24	BS24-193 0'	Total/NA	Solid	300.0	18349
MB 885-18346/1-A	Method Blank	Total/NA	Solid	300.0	18346
MB 885-18349/1-A	Method Blank	Total/NA	Solid	300.0	18349
LCS 885-18346/2-A	Lab Control Sample	Total/NA	Solid	300.0	18346
LCS 885-18349/2-A	Lab Control Sample	Total/NA	Solid	300.0	18349

QC Association Summary

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

HPLC/IC

Prep Batch: 18349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17491-21	BS24-190 0'	Total/NA	Solid	300_Prep	
885-17491-22	BS24-191 0'	Total/NA	Solid	300_Prep	
885-17491-23	BS24-192 0'	Total/NA	Solid	300_Prep	
885-17491-24	BS24-193 0'	Total/NA	Solid	300_Prep	
MB 885-18349/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18349/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-170 0'
Lab Sample ID: 885-17491-1
Date Collected: 12/18/24 09:45
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 12:50
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 12:50
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 12:07
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 14:39

Client Sample ID: BS24-171 0'
Lab Sample ID: 885-17491-2
Date Collected: 12/18/24 09:45
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 14:02
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 14:02
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 13:33
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 15:09

Client Sample ID: BS24-172 0'
Lab Sample ID: 885-17491-3
Date Collected: 12/18/24 09:55
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 15:14
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 15:14
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 13:43
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 15:38

Client Sample ID: BS24-173 0'
Lab Sample ID: 885-17491-4
Date Collected: 12/18/24 10:00
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 15:37

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-173 0'
Lab Sample ID: 885-17491-4
Date Collected: 12/18/24 10:00
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 15:37
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 13:54
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 15:48

Client Sample ID: BS24-174 0'
Lab Sample ID: 885-17491-5
Date Collected: 12/18/24 10:00
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 16:01
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 16:01
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 14:05
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 16:18

Client Sample ID: BS24-175 0'
Lab Sample ID: 885-17491-6
Date Collected: 12/18/24 10:05
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 16:25
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 16:25
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 14:16
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 16:27

Client Sample ID: BS24-176 0'
Lab Sample ID: 885-17491-7
Date Collected: 12/18/24 10:10
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 16:48
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 16:48

Lab Chronicle

Client: Vertex Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-176 0' Lab Sample ID: 885-17491-7

Date Collected: 12/18/24 10:10 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 14:48
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 16:37

Client Sample ID: BS24-177 0' Lab Sample ID: 885-17491-8

Date Collected: 12/18/24 10:15 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 17:12
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 17:12
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 14:59
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 16:47

Client Sample ID: BS24-178 0' Lab Sample ID: 885-17491-9

Date Collected: 12/18/24 10:20 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 17:35
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 17:35
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 15:09
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 16:57

Client Sample ID: BS24-179 0' Lab Sample ID: 885-17491-10

Date Collected: 12/18/24 10:25 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 17:59
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 17:59
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 15:20

Lab Chronicle

Client: Vertex Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-179 0' Lab Sample ID: 885-17491-10

Date Collected: 12/18/24 10:25 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 17:07

Client Sample ID: BS24-180 0' Lab Sample ID: 885-17491-11

Date Collected: 12/18/24 10:30 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 18:46
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 18:46
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 15:31
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 17:17

Client Sample ID: BS24-181 0' Lab Sample ID: 885-17491-12

Date Collected: 12/18/24 10:30 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 19:09
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 19:09
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 15:42
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 17:27

Client Sample ID: BS24-182 0' Lab Sample ID: 885-17491-13

Date Collected: 12/18/24 10:35 **Matrix: Solid**
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 19:33
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 19:33
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 15:53
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 17:36

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-183 0'
Lab Sample ID: 885-17491-14
Date Collected: 12/18/24 10:40
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 19:56
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 19:56
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 16:04
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 17:46

Client Sample ID: BS24-184 0'
Lab Sample ID: 885-17491-15
Date Collected: 12/18/24 10:45
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 20:20
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 20:20
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 16:15
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 18:16

Client Sample ID: BS24-185 0'
Lab Sample ID: 885-17491-16
Date Collected: 12/18/24 10:50
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 20:43
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 20:43
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 16:26
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 18:26

Client Sample ID: BS24-186 0'
Lab Sample ID: 885-17491-17
Date Collected: 12/18/24 10:55
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 21:07

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-186 0'
Lab Sample ID: 885-17491-17
Date Collected: 12/18/24 10:55
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 21:07
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 16:48
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 18:35

Client Sample ID: BS24-187 0'
Lab Sample ID: 885-17491-18
Date Collected: 12/18/24 11:00
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 21:30
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 21:30
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 17:06
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 18:45

Client Sample ID: BS24-188 0'
Lab Sample ID: 885-17491-19
Date Collected: 12/18/24 11:00
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 21:54
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 21:54
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 17:16
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 18:55

Client Sample ID: BS24-189 0'
Lab Sample ID: 885-17491-20
Date Collected: 12/18/24 11:05
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8015M/D		1	18410	AT	EET ALB	12/24/24 22:17
Total/NA	Prep	5030C			18324	JP	EET ALB	12/23/24 11:30
Total/NA	Analysis	8021B		1	18415	AT	EET ALB	12/24/24 22:17

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-189 0'
Lab Sample ID: 885-17491-20
Date Collected: 12/18/24 11:05
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18620	MI	EET ALB	12/31/24 09:00
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 17:27
Total/NA	Prep	300_Prep			18346	EH	EET ALB	12/23/24 13:07
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 19:05

Client Sample ID: BS24-190 0'
Lab Sample ID: 885-17491-21
Date Collected: 12/18/24 11:10
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8015M/D		1	18444	AT	EET ALB	12/25/24 00:37
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8021B		1	18443	AT	EET ALB	12/25/24 00:37
Total/NA	Prep	SHAKE			18538	MI	EET ALB	12/30/24 08:39
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	01/01/25 08:29
Total/NA	Prep	300_Prep			18349	EH	EET ALB	12/23/24 13:59
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 21:33

Client Sample ID: BS24-191 0'
Lab Sample ID: 885-17491-22
Date Collected: 12/18/24 11:15
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8015M/D		1	18444	AT	EET ALB	12/25/24 01:46
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8021B		1	18443	AT	EET ALB	12/25/24 01:46
Total/NA	Prep	SHAKE			18538	MI	EET ALB	12/30/24 08:39
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	01/01/25 09:12
Total/NA	Prep	300_Prep			18349	EH	EET ALB	12/23/24 13:59
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 21:43

Client Sample ID: BS24-192 0'
Lab Sample ID: 885-17491-23
Date Collected: 12/18/24 11:20
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8015M/D		1	18444	AT	EET ALB	12/25/24 02:56
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8021B		1	18443	AT	EET ALB	12/25/24 02:56
Total/NA	Prep	SHAKE			18538	MI	EET ALB	12/30/24 08:39
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	01/01/25 09:22

Lab Chronicle

Client: Vertex
Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-192 0'
Lab Sample ID: 885-17491-23
Date Collected: 12/18/24 11:20
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			18349	EH	EET ALB	12/23/24 13:59
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 22:12

Client Sample ID: BS24-193 0'
Lab Sample ID: 885-17491-24
Date Collected: 12/18/24 11:25
Matrix: Solid
Date Received: 12/21/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8015M/D		1	18444	AT	EET ALB	12/25/24 03:19
Total/NA	Prep	5030C			18339	JP	EET ALB	12/23/24 12:26
Total/NA	Analysis	8021B		1	18443	AT	EET ALB	12/25/24 03:19
Total/NA	Prep	SHAKE			18538	MI	EET ALB	12/30/24 08:39
Total/NA	Analysis	8015M/D		1	18540	EM	EET ALB	01/01/25 09:33
Total/NA	Prep	300_Prep			18349	EH	EET ALB	12/23/24 13:59
Total/NA	Analysis	300.0		20	18348	ES	EET ALB	12/23/24 22:22

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-17491-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address (On File)

Phone #

email or Fax#

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L Pullman
On Ice: ☑ Yes ☐ No
# of Coolers: 1 Mojo
Cooler Temp(including CF): 3.9+0.1=4.0°C

HALL ENVIRONMENTAL ANALYSIS LABORA
www hallenvironmental com
4901 Hawkins NE - Albuquerque, NM 87109
Tel 505-345-3975 Fax 505-345-4107

885-17491 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12 18 24	9 45	Soil	BS24-170 0'	1, 4oz jar		-1	X	X					X									
12 18 24	9 45	Soil	BS24-171 0'	1, 4oz jar		-2	X	X					X									
12 18 24	9 55	Soil	BS24-172 0'	1, 4oz jar		-3	X	X					X									
12 18 24	10.00	Soil	BS24-173 0'	1, 4oz jar		-4	X	X					X									
12 18.24	10 00	Soil	BS24-174 0'	1, 4oz jar		-5	X	X					X									
12.18.24	10 05	Soil	BS24-175 0'	1, 4oz jar		-6	X	X					X									
12 18.24	10 10	Soil	BS24-176 0'	1, 4oz jar		-7	X	X					X									
12 18 24	10 15	Soil	BS24-177 0'	1, 4oz jar		-8	X	X					X									
12 18.24	10 20	Soil	BS24-178 0'	1, 4oz jar		-9	X	X					X									
12 18 24	10 25	Soil	BS24-179 0'	1, 4oz jar		-10	X	X					X									
12 18 24	10 30	Soil	BS24-180 0'	1, 4oz jar		-11	X	X					X									
12.18.24	10 30	Soil	BS24-181 0'	1, 4oz jar		-12	X	X					X									

Date	Time	Relinquished by	Received by	Via	Date	Time
12/18/24	1700	[signature]	[signature]		12/20/24	700
12/20/24	1900	[signature]	[signature]	courier	12/21/24	11:20

Remarks:
Direct Bill to Mack Energy. ATTN. Matt Buckles
CC Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

1/2

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #

email or Fax#:

QA/QC Package
☐ Standard ☐ Level 4 (Full Validation)

Accreditation ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L Pullman
On Ice: ☐ Yes ☐ No
# of Coolers:
Cooler Temp(including CF):

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www hallenvironmental com
4901 Hawkins NE - Albuquerque, NM 87109
Tel 505-345-3975 Fax 505-345-4107

17491

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH.8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504 1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12 18 24	10:35	Soil	BS24-182 0'	1, 4oz jar		-13	X	X					X			
12 18 24	10 40	Soil	BS24-183 0'	1, 4oz jar		-14	X	X					X			
12 18 24	10 45	Soil	BS24-184 0'	1, 4oz jar		-15	X	X					X			
12.18 24	10 50	Soil	BS24-185 0'	1, 4oz jar		-16	X	X					X			
12 18 24	10 55	Soil	BS24-186 0'	1, 4oz jar		-17	X	X					X			
12 18 24	11 00	Soil	BS24-187 0'	1, 4oz jar		-18	X	X					X			
12 18 24	11 00	Soil	BS24-188 0'	1, 4oz jar		-19	X	X					X			
12 18 24	11 05	Soil	BS24-189 0'	1, 4oz jar		-20	X	X					X			
12 18 24	11.10	Soil	BS24-190 0'	1, 4oz jar		-21	X	X					X			
12 18 24	11.15	Soil	BS24-191 0'	1, 4oz jar		-22	X	X					X			
12 18 24	11:20	Soil	BS24-192 0'	1, 4oz jar		-23	X	X					X			
12 18 24	11 25	Soil	BS24-193 0'	1, 4oz jar		-24	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
12/18/24	07:00	[signature]	[signature]		12/20/24	0700
12/20/24	1200	[signature]				

Remarks
Direct Bill to Mack Energy: ATTN Matt Buckles
CC Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource com), and Lakin Pullman (LPullman@vertexresource com) for Final Report.

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

2/2

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-17491-1

Login Number: 17491 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Proctor, Nancy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 1/6/2025 4:03:29 PM

JOB DESCRIPTION

Calgary Federal #002E

JOB NUMBER

885-17657-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 1/21/2025 9:47:20 AM

my EOL

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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1/6/2025 4:03:29 PM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Calgary Federal #002E

Laboratory Job ID: 885-17657-1

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Definitions/Glossary

Client: Vertex Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-17657-1
Project: Calgary Federal #002E

Job ID: 885-17657-1 Eurofins Albuquerque

Job Narrative
885-17657-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 12/28/2024 8:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.7°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-98 0'
Lab Sample ID: 885-17657-1
Date Collected: 12/20/24 09:25
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/30/24 09:49	12/31/24 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*35 - 166*	*12/30/24 09:49*	*12/31/24 18:52*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/30/24 09:49	12/31/24 18:52	1
Ethylbenzene	ND		0.048		mg/Kg		12/30/24 09:49	12/31/24 18:52	1
Toluene	ND		0.048		mg/Kg		12/30/24 09:49	12/31/24 18:52	1
Xylenes, Total	ND		0.095		mg/Kg		12/30/24 09:49	12/31/24 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*12/30/24 09:49*	*12/31/24 18:52*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/31/24 11:06	01/02/25 18:00	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/31/24 11:06	01/02/25 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*12/31/24 11:06*	*01/02/25 18:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/30/24 11:41	12/30/24 16:18	20

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-194 0'
Lab Sample ID: 885-17657-2
Date Collected: 12/20/24 09:35
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/30/24 09:49	12/31/24 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*12/30/24 09:49*	*12/31/24 20:03*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/30/24 09:49	12/31/24 20:03	1
Ethylbenzene	ND		0.050		mg/Kg		12/30/24 09:49	12/31/24 20:03	1
Toluene	ND		0.050		mg/Kg		12/30/24 09:49	12/31/24 20:03	1
Xylenes, Total	ND		0.10		mg/Kg		12/30/24 09:49	12/31/24 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*12/30/24 09:49*	*12/31/24 20:03*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		12/31/24 11:06	01/02/25 18:32	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		12/31/24 11:06	01/02/25 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*12/31/24 11:06*	*01/02/25 18:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/30/24 11:41	12/30/24 16:27	20

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-195 0'
Lab Sample ID: 885-17657-3

Date Collected: 12/20/24 09:45
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		12/30/24 09:49	12/31/24 21:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/30/24 09:49*	*12/31/24 21:14*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/30/24 09:49	12/31/24 21:14	1
Ethylbenzene	ND		0.048		mg/Kg		12/30/24 09:49	12/31/24 21:14	1
Toluene	ND		0.048		mg/Kg		12/30/24 09:49	12/31/24 21:14	1
Xylenes, Total	ND		0.096		mg/Kg		12/30/24 09:49	12/31/24 21:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/30/24 09:49*	*12/31/24 21:14*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		12/31/24 11:06	01/02/25 18:53	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		12/31/24 11:06	01/02/25 18:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*74*		*62 - 134*	*12/31/24 11:06*	*01/02/25 18:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/30/24 11:41	12/30/24 16:37	20

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-24 0-3.5'
Lab Sample ID: 885-17657-4
Date Collected: 12/20/24 09:50
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/30/24 09:49	12/31/24 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*12/30/24 09:49*	*12/31/24 21:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/30/24 09:49	12/31/24 21:37	1
Ethylbenzene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 21:37	1
Toluene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 21:37	1
Xylenes, Total	ND		0.091		mg/Kg		12/30/24 09:49	12/31/24 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*12/30/24 09:49*	*12/31/24 21:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		12/31/24 11:06	01/02/25 19:04	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		12/31/24 11:06	01/02/25 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*12/31/24 11:06*	*01/02/25 19:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		12/30/24 11:41	12/30/24 16:47	20

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-23 0-3.5'
Lab Sample ID: 885-17657-5

Date Collected: 12/20/24 09:55
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		12/30/24 09:49	12/31/24 22:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*12/30/24 09:49*	*12/31/24 22:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		12/30/24 09:49	12/31/24 22:01	1
Ethylbenzene	ND		0.047		mg/Kg		12/30/24 09:49	12/31/24 22:01	1
Toluene	ND		0.047		mg/Kg		12/30/24 09:49	12/31/24 22:01	1
Xylenes, Total	ND		0.095		mg/Kg		12/30/24 09:49	12/31/24 22:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*48 - 145*	*12/30/24 09:49*	*12/31/24 22:01*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		12/31/24 11:06	01/02/25 19:15	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/31/24 11:06	01/02/25 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*12/31/24 11:06*	*01/02/25 19:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/30/24 11:41	12/30/24 16:57	20

Client Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17657-1

Client Sample ID: WS24-22 0-3.5'

Date Collected: 12/20/24 10:00
Date Received: 12/28/24 08:30

Lab Sample ID: 885-17657-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/30/24 09:49	12/31/24 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/30/24 09:49*	*12/31/24 22:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/30/24 09:49	12/31/24 22:24	1
Ethylbenzene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 22:24	1
Toluene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 22:24	1
Xylenes, Total	ND		0.093		mg/Kg		12/30/24 09:49	12/31/24 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*12/30/24 09:49*	*12/31/24 22:24*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		12/31/24 11:06	01/02/25 19:25	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		12/31/24 11:06	01/02/25 19:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*12/31/24 11:06*	*01/02/25 19:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		59		mg/Kg		12/30/24 11:41	12/30/24 17:07	20

Client Sample Results

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-21 0-3.5'
Lab Sample ID: 885-17657-7
Date Collected: 12/20/24 10:05
Matrix: Solid
Date Received: 12/28/24 08:30

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		12/30/24 09:49	12/31/24 22:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*12/30/24 09:49*	*12/31/24 22:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		12/30/24 09:49	12/31/24 22:48	1
Ethylbenzene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 22:48	1
Toluene	ND		0.046		mg/Kg		12/30/24 09:49	12/31/24 22:48	1
Xylenes, Total	ND		0.092		mg/Kg		12/30/24 09:49	12/31/24 22:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*12/30/24 09:49*	*12/31/24 22:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		12/31/24 11:06	01/02/25 19:36	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 11:06	01/02/25 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*12/31/24 11:06*	*01/02/25 19:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		12/30/24 11:41	12/30/24 17:17	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17657-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-18545/1-A
Matrix: Solid
Analysis Batch: 18665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18545

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		12/30/24 09:49	12/31/24 18:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*35 - 166*	*12/30/24 09:49*	*12/31/24 18:28*	*1*

Lab Sample ID: LCS 885-18545/2-A
Matrix: Solid
Analysis Batch: 18665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18545

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	26.9		mg/Kg		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*216*		*35 - 166*

Lab Sample ID: 885-17657-1 MS
Matrix: Solid
Analysis Batch: 18665

Client Sample ID: BS24-98 0'
Prep Type: Total/NA
Prep Batch: 18545

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		23.9	26.8		mg/Kg		112	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*223*		*35 - 166*

Lab Sample ID: 885-17657-1 MSD
Matrix: Solid
Analysis Batch: 18665

Client Sample ID: BS24-98 0'
Prep Type: Total/NA
Prep Batch: 18545

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.0	26.1		mg/Kg		109	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*219*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-18545/1-A
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18545

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		12/30/24 09:49	12/31/24 18:28	1
Ethylbenzene	ND		0.050		mg/Kg		12/30/24 09:49	12/31/24 18:28	1
Toluene	ND		0.050		mg/Kg		12/30/24 09:49	12/31/24 18:28	1

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17657-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-18545/1-A
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18545

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		12/30/24 09:49	12/31/24 18:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*	*12/30/24 09:49*	*12/31/24 18:28*	*1*

Lab Sample ID: LCS 885-18545/3-A
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18545

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	1.12		mg/Kg		112	70 - 130		
Ethylbenzene			1.00	1.17		mg/Kg		117	70 - 130		
m,p-Xylene			2.00	2.31		mg/Kg		115	70 - 130		
o-Xylene			1.00	1.14		mg/Kg		114	70 - 130		
Toluene			1.00	1.15		mg/Kg		115	70 - 130		
Xylenes, Total			3.00	3.45		mg/Kg		115	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*48 - 145*

Lab Sample ID: 885-17657-2 MS
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: BS24-194 0'
Prep Type: Total/NA
Prep Batch: 18545

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.994	1.13		mg/Kg		114	70 - 130		
Ethylbenzene	ND		0.994	1.18		mg/Kg		119	70 - 130		
m,p-Xylene	ND		1.99	2.34		mg/Kg		118	70 - 130		
o-Xylene	ND		0.994	1.16		mg/Kg		117	70 - 130		
Toluene	ND		0.994	1.15		mg/Kg		116	70 - 130		
Xylenes, Total	ND		2.98	3.50		mg/Kg		117	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*48 - 145*

Lab Sample ID: 885-17657-2 MSD
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: BS24-194 0'
Prep Type: Total/NA
Prep Batch: 18545

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.990	1.13		mg/Kg		114	70 - 130	1	20
Ethylbenzene	ND		0.990	1.20		mg/Kg		121	70 - 130	1	20
m,p-Xylene	ND		1.98	2.37		mg/Kg		120	70 - 130	1	20
o-Xylene	ND		0.990	1.16		mg/Kg		117	70 - 130	0	20
Toluene	ND		0.990	1.18		mg/Kg		119	70 - 130	2	20
Xylenes, Total	ND		2.97	3.53		mg/Kg		119	70 - 130	1	20

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17657-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-17657-2 MSD
Matrix: Solid
Analysis Batch: 18666

Client Sample ID: BS24-194 0'
Prep Type: Total/NA
Prep Batch: 18545

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-18629/1-A
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18629

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		12/31/24 11:06	01/02/25 17:38	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		12/31/24 11:06	01/02/25 17:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*131*		*62 - 134*	*12/31/24 11:06*	*01/02/25 17:38*	*1*

Lab Sample ID: LCS 885-18629/2-A
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18629

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	65.1		mg/Kg		130	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*112*		*62 - 134*

Lab Sample ID: 885-17657-1 MS
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: BS24-98 0'
Prep Type: Total/NA
Prep Batch: 18629

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		4.92	41.6		mg/Kg		NC	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*617*	*S1+*	*62 - 134*

Lab Sample ID: 885-17657-1 MSD
Matrix: Solid
Analysis Batch: 18695

Client Sample ID: BS24-98 0'
Prep Type: Total/NA
Prep Batch: 18629

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		5.00	42.2		mg/Kg		NC	44 - 136	2	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*613*	*S1+*	*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Calgary Federal #002E

Job ID: 885-17657-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MRL 885-18567/3
Matrix: Solid
Analysis Batch: 18567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.498	J	mg/L		100	50 - 150		

Lab Sample ID: MB 885-18574/1-A
Matrix: Solid
Analysis Batch: 18567

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18574

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		12/30/24 11:41	12/30/24 12:19	1

Lab Sample ID: LCS 885-18574/2-A
Matrix: Solid
Analysis Batch: 18567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18574

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	27.9		mg/Kg		93	90 - 110		

QC Association Summary

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

GC VOA

Prep Batch: 18545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	5030C	
885-17657-2	BS24-194 0'	Total/NA	Solid	5030C	
885-17657-3	BS24-195 0'	Total/NA	Solid	5030C	
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	5030C	
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	5030C	
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	5030C	
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	5030C	
MB 885-18545/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-18545/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-18545/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-17657-1 MS	BS24-98 0'	Total/NA	Solid	5030C	
885-17657-1 MSD	BS24-98 0'	Total/NA	Solid	5030C	
885-17657-2 MS	BS24-194 0'	Total/NA	Solid	5030C	
885-17657-2 MSD	BS24-194 0'	Total/NA	Solid	5030C	

Analysis Batch: 18665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	8015M/D	18545
885-17657-2	BS24-194 0'	Total/NA	Solid	8015M/D	18545
885-17657-3	BS24-195 0'	Total/NA	Solid	8015M/D	18545
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	8015M/D	18545
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	8015M/D	18545
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	8015M/D	18545
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	8015M/D	18545
MB 885-18545/1-A	Method Blank	Total/NA	Solid	8015M/D	18545
LCS 885-18545/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18545
885-17657-1 MS	BS24-98 0'	Total/NA	Solid	8015M/D	18545
885-17657-1 MSD	BS24-98 0'	Total/NA	Solid	8015M/D	18545

Analysis Batch: 18666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	8021B	18545
885-17657-2	BS24-194 0'	Total/NA	Solid	8021B	18545
885-17657-3	BS24-195 0'	Total/NA	Solid	8021B	18545
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	8021B	18545
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	8021B	18545
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	8021B	18545
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	8021B	18545
MB 885-18545/1-A	Method Blank	Total/NA	Solid	8021B	18545
LCS 885-18545/3-A	Lab Control Sample	Total/NA	Solid	8021B	18545
885-17657-2 MS	BS24-194 0'	Total/NA	Solid	8021B	18545
885-17657-2 MSD	BS24-194 0'	Total/NA	Solid	8021B	18545

GC Semi VOA

Prep Batch: 18629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	SHAKE	
885-17657-2	BS24-194 0'	Total/NA	Solid	SHAKE	
885-17657-3	BS24-195 0'	Total/NA	Solid	SHAKE	
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

GC Semi VOA (Continued)

Prep Batch: 18629 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	SHAKE	
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	SHAKE	
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	SHAKE	
MB 885-18629/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-18629/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-17657-1 MS	BS24-98 0'	Total/NA	Solid	SHAKE	
885-17657-1 MSD	BS24-98 0'	Total/NA	Solid	SHAKE	

Analysis Batch: 18695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	8015M/D	18629
885-17657-2	BS24-194 0'	Total/NA	Solid	8015M/D	18629
885-17657-3	BS24-195 0'	Total/NA	Solid	8015M/D	18629
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	8015M/D	18629
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	8015M/D	18629
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	8015M/D	18629
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	8015M/D	18629
MB 885-18629/1-A	Method Blank	Total/NA	Solid	8015M/D	18629
LCS 885-18629/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	18629
885-17657-1 MS	BS24-98 0'	Total/NA	Solid	8015M/D	18629
885-17657-1 MSD	BS24-98 0'	Total/NA	Solid	8015M/D	18629

HPLC/IC

Analysis Batch: 18567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	300.0	18574
885-17657-2	BS24-194 0'	Total/NA	Solid	300.0	18574
885-17657-3	BS24-195 0'	Total/NA	Solid	300.0	18574
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	300.0	18574
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	300.0	18574
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	300.0	18574
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	300.0	18574
MB 885-18574/1-A	Method Blank	Total/NA	Solid	300.0	18574
LCS 885-18574/2-A	Lab Control Sample	Total/NA	Solid	300.0	18574
MRL 885-18567/3	Lab Control Sample	Total/NA	Solid	300.0	

Prep Batch: 18574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-17657-1	BS24-98 0'	Total/NA	Solid	300_Prep	
885-17657-2	BS24-194 0'	Total/NA	Solid	300_Prep	
885-17657-3	BS24-195 0'	Total/NA	Solid	300_Prep	
885-17657-4	WS24-24 0-3.5'	Total/NA	Solid	300_Prep	
885-17657-5	WS24-23 0-3.5'	Total/NA	Solid	300_Prep	
885-17657-6	WS24-22 0-3.5'	Total/NA	Solid	300_Prep	
885-17657-7	WS24-21 0-3.5'	Total/NA	Solid	300_Prep	
MB 885-18574/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-18574/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Lab Chronicle

Client: Vertex Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: BS24-98 0' Lab Sample ID: 885-17657-1

Date Collected: 12/20/24 09:25 **Matrix: Solid**
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 18:52
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 18:52
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 18:00
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 16:18

Client Sample ID: BS24-194 0' Lab Sample ID: 885-17657-2

Date Collected: 12/20/24 09:35 **Matrix: Solid**
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 20:03
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 20:03
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 18:32
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 16:27

Client Sample ID: BS24-195 0' Lab Sample ID: 885-17657-3

Date Collected: 12/20/24 09:45 **Matrix: Solid**
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 21:14
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 21:14
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 18:53
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 16:37

Client Sample ID: WS24-24 0-3.5' Lab Sample ID: 885-17657-4

Date Collected: 12/20/24 09:50 **Matrix: Solid**
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 21:37

Lab Chronicle

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-24 0-3.5'
Lab Sample ID: 885-17657-4
Date Collected: 12/20/24 09:50
Matrix: Solid
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 21:37
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 19:04
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 16:47

Client Sample ID: WS24-23 0-3.5'
Lab Sample ID: 885-17657-5
Date Collected: 12/20/24 09:55
Matrix: Solid
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 22:01
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 22:01
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 19:15
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 16:57

Client Sample ID: WS24-22 0-3.5'
Lab Sample ID: 885-17657-6
Date Collected: 12/20/24 10:00
Matrix: Solid
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 22:24
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 22:24
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 19:25
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 17:07

Client Sample ID: WS24-21 0-3.5'
Lab Sample ID: 885-17657-7
Date Collected: 12/20/24 10:05
Matrix: Solid
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8015M/D		1	18665	JP	EET ALB	12/31/24 22:48
Total/NA	Prep	5030C			18545	JP	EET ALB	12/30/24 09:49
Total/NA	Analysis	8021B		1	18666	JP	EET ALB	12/31/24 22:48

Lab Chronicle

Client: Vertex
Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Client Sample ID: WS24-21 0-3.5'
Lab Sample ID: 885-17657-7

Date Collected: 12/20/24 10:05
Matrix: Solid
Date Received: 12/28/24 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			18629	MI	EET ALB	12/31/24 11:06
Total/NA	Analysis	8015M/D		1	18695	MI	EET ALB	01/02/25 19:36
Total/NA	Prep	300_Prep			18574	JT	EET ALB	12/30/24 11:41
Total/NA	Analysis	300.0		20	18567	EH	EET ALB	12/30/24 17:17

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-17657-1
Project/Site: Calgary Federal #002E

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-25-25

Released to Imaging: 1/21/2025 9:47:20 AM
Received by OCD: 1/18/2025 12:00:12 AM

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush_5-day-rush

Project Name:
Calgary Federal #002E

Project #:
24E-04822

Project Manager:
Sally Carttar
SCarttar@vertexresource.com

Sampler: L. Pullman
On Ice: ☒ Yes ☐ No mojo
# of Coolers: 1
Cooler Temp(including CF): 2.6+0.1 = 2.7

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87
Tel. 505-345-3975 Fax 505-345-4107

885-17657 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
12.20.24	9:25	Soil	BS24-98 0'	1, 4oz jar			X	X					X									
12.20.24	9:35	Soil	BS24-194 0'	1, 4oz jar			X	X					X									
12.20.24	9:45	Soil	BS24-195 0'	1, 4oz jar			X	X					X									
12.20.24	9:50	Soil	WS24-24 0-3.5'	1, 4oz jar			X	X					X									
12.20.24	9:55	Soil	WS24-23 0-3.5'	1, 4oz jar			X	X					X									
12.20.24	10:00	Soil	WS24-22 0-3.5'	1, 4oz jar			X	X					X									
12.20.24	10:05	Soil	WS24-21 0-3.5'	1, 4oz jar			X	X					X									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12-20-24	07:00	Lakin Pullman				
12/21/24	1900				12/21/24	0700
				Courier		
					12/28/24	8:30

Remarks:
Direct Bill to Mack Energy: ATTN: Matt Buckles
CC.Sally Carttar (SCarttar@vertexresource.com), Andrew Ludvik (ALudvik@vertexresource.com), and Lakin Pullman (LPullman@vertexresource.com) for Final Report.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

1 of 1

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-17657-1

Login Number: 17657 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	True	

APPENDIX F – SESI Site Investigation Work Plan

Mack Energy Corporation
Calgary Federal #2
Site Investigation Work Plan
Section 25, Township 15S, Range 28E
Chaves, New Mexico

January 25, 2017

Prepared for:

Mack Energy Corporation
P.O. Box 960
Artesia, New Mexico 88211-0960

By:

Safety & Environmental Solutions, Inc.
703 E. Clinton Suite 102
Hobbs, New Mexico 88240
(505) 397-0510

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I. Background

Safety & Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Mack Energy to perform a site delineation at the Calgary Federal #2 concerning a one hundred sixty (160) bbl. release of oil and produced water.

According to the C-141: A 2 7/8" steel flowline developed a leak between the Calgary #2 well and the tank battery. An estimated release of 160 bbl (40 bbl of oil and 120 bbl of produced water) was released on the NE section of Sec 25, Township 15S, Range 28E. The oil was immediately dug out and hauled off for proper disposal. A 32 sx of oil gator was also used in the canyon to keep oil from leaching any further.

II. Surface and Ground Water

According to the BLM representative onsite the Calgary Federal #2, the average depth to groundwater in the vicinity of the site location is 130' bgs.

IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), and 5,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	
	50 feet to 99 feet	10 points	
	>100 feet	0 points	**X**
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	**X**
Distance to Surface Water:			
(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	**X**
RANKING SCORE (TOTAL POINTS)			**0**

V. Work Performed

On December 12, 2016, Bob Allen (SESI), was onsite for the initial site assessment. Site photos were taken, the area was mapped, and white flags were put in place for the One Call.

On December 20, 2016, Dave Boyer (SESI), was onsite with Mack Energy staff, NMOCD, and BLM representatives to discuss a sampling plan. Sampling began. Samples were taken on each: the east sidewall base, the west side wall base, the bottom of the trench. One sample was taken on the east surface, one background, and two in the drainage arroyo below furthest spill extent. The sample points were mapped using the Juno 3B. The samples were properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for TPH (total petroleum hydrocarbons)(Method 8015M), BTEX, and Chlorides. The results are presented in the table below:

Soil Sample Results: Cardinal Laboratories 12-20-16									
SAMPLE ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	TPH GRO	TPH DRO	TPH EXT DRO	Chlorides
ESW-1, 4.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	160
ESW-2, 3.4'	<0.050	0.068	0.854	2.23	3.15	81.9	1170	188	416
ESW-3, 2.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	226	57.5	464
WSW-1,1.3'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
WSW-2,1.6'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	48.0
WSW-3, 2.4'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.0
S-1, 0-0.7'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.0
Bkg-1, 0-0.7'	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	16.0
SP-B1	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	6240
SP-B-2	0.080	1.38	2.78	4.80	9.05	57.7	717	134	6880
SP-B3	34.2	183	157	194	569	3290	7440	1230	3760

On December 21, 2017, Bob Allen (SESI), was onsite to sample the arroyo. The sample points were mapped using the Juno 3B. The samples were properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for TPH (total petroleum hydrocarbons)(Method 8015M), BTEX, and Chlorides. The results are presented in the table below:

Soil Sample Results: Cardinal Laboratories 12-21-16									
SAMPLE ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	TPH GRO	TPH DRO	TPH EXT DRO	Chlorides
ASP-1	0.120	1.15	5.27	8.98	15.5	2630	7440	1470	4240
ASP-2	<2.00	<2.00	29.2	56.5	85.7	2590	26100	4430	4400
ASP-3	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	22.9	32.0

IV. Action Plan

Based on the results of the sampling analysis, and TPH and chloride limits of 5,000 and 1,000 mg/kg respectively (based on a depth to groundwater of 130 feet), the following remedial actions are recommended:

1. East sidewall – the east sidewall samples at the depths sampled show no exceedance of the above constituent limits. However, staining was observed on the sidewall in the vicinity and between ESW-2 and ESW-3. It is recommended that the east sidewall be cut back several feet to remove obvious staining and odor. The surface sample S-1 located 2 to 3 feet east of the existing trench did not show contamination so excavation east of that location is not necessary.
2. West sidewall – samples from the west sidewall were clean. No further sidewall excavation is necessary.
3. Excavation trench bottom – three samples from the trench bottom exceeded TPH or chloride levels, or both. Additional removal of material is needed especially in the shallow depression at the south end of the excavation near Sample Point B3 followed by resampling.
4. Samples ASP-1 and ASP-2 both exceeded TPH and chloride levels by a considerable amount. However the small width and shallow depth of the impact in the very narrow, steep and rocky drainage-way is limited and action to remove the contamination would likely cause more environmental damage (sediment transport and deposition in un-impacted areas) than currently exists. It is recommended that the application of a microbial product such as Micro-Blaze be considered followed by subsequent sampling to gauge effectiveness.
5. Sample ASP-3 was further down the drainage-way and did not exhibit any impacts from the release. No further action is necessary at that location. However, if follow up sampling at ASP-1 and ASP-2 is performed, sampling of ASP-3 is suggested to determine if migration has occurred to that location from the upper drainage areas.

V. Figures & Appendices

Figure 1 - Vicinity Map
Figure 2 - Site Plan
Appendix A – C-141
Appendix B – Groundwater
Appendix C – Analytical Results
Appendix D – Photo Documentation

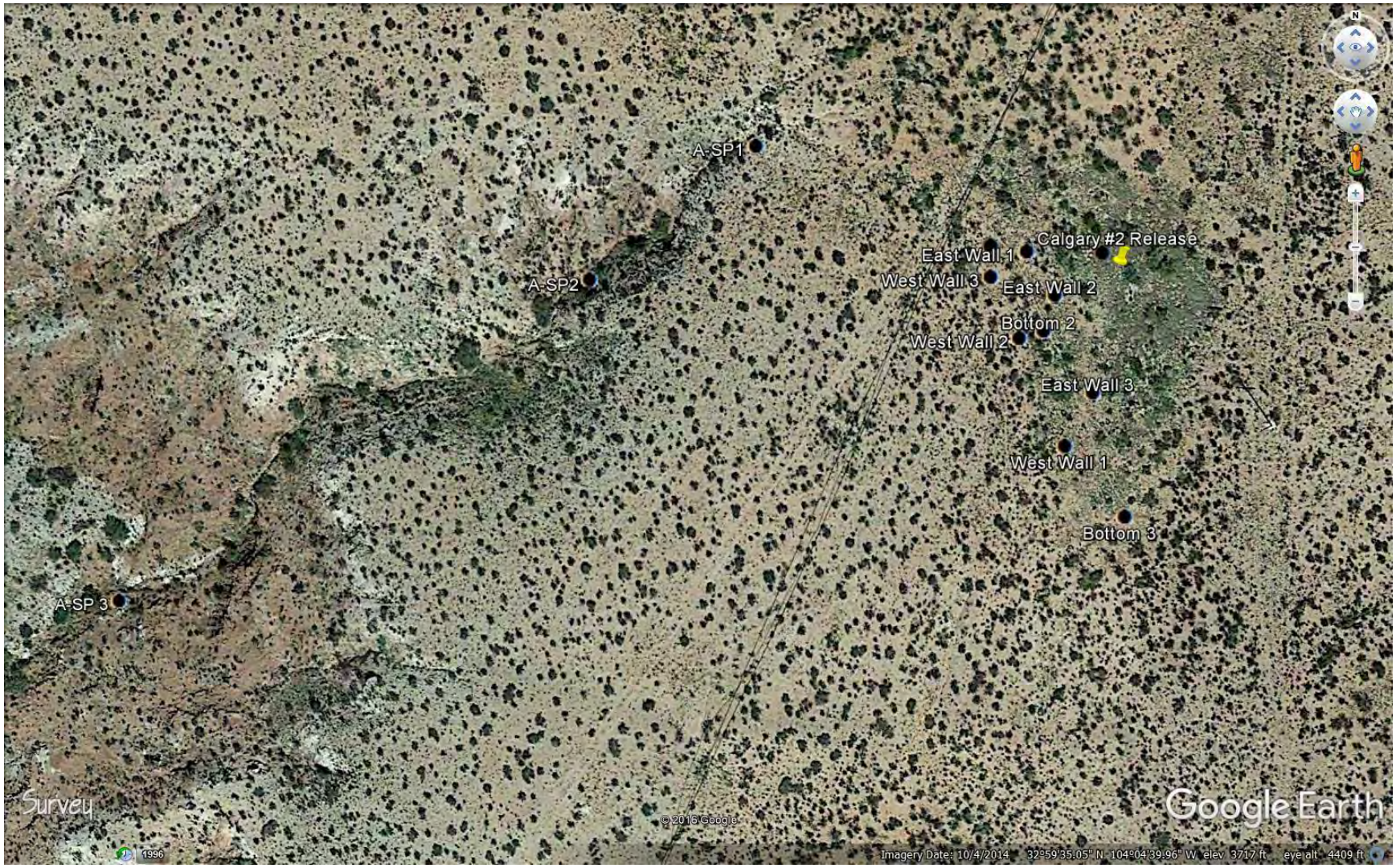
Released to Imaging: 1/21/2025 9:47:20 AM

Figure 1
Vicinity Map

24
19
POINT STARTED OF SPILL
DUG OUT
DRAINAGE SPILL
T15S
R28E
T15S
R29E
25
30
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 2
Site Plan

Mack Calgary—All Sample Points



Sample Points – South

Mack Calgary—Sample Points North

Appendix A
C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

X Initial Report ☐ Final Report

Name of Company MACK ENERGY CORPORATION	Contact MATT BUCKLES
Address PO BOX 960 ARTESIA, NM 88211-0960	Telephone No. 575-748-1288
Facility Name Calgary Federal #2	Facility Type Flowline

Surface Owner BLM	Mineral Owner BLM	API No. 30-005-64100

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	25	15S	28E	1320	North	330	East	Chaves

Latitude_ 32.996844__ **Longitude**_-104.079847 __

NATURE OF RELEASE

Type of Release Oil and PRODUCED WATER	Volume of Release 160 BBLS	Volume Recovered 0 BBLS
Source of Release Flow Line	Date and Hour of Occurrence 11/26/16 @ 7:00 AM	Date and Hour of Discovery 11/26/2016 @ 7:00AM
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher and Harley Davis	
By Whom? Jerry Sherrell	Date and Hour 11/28/2016 8:30am	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A 2 7/8" steel flowline developed a leak between the Calgary #2 well and the tank battery. Immediately upon discovery all oil was dug out and hauled off for proper disposal. We also used 32 sx of oil gator for use in the canyon to keep oil from leaching any further.

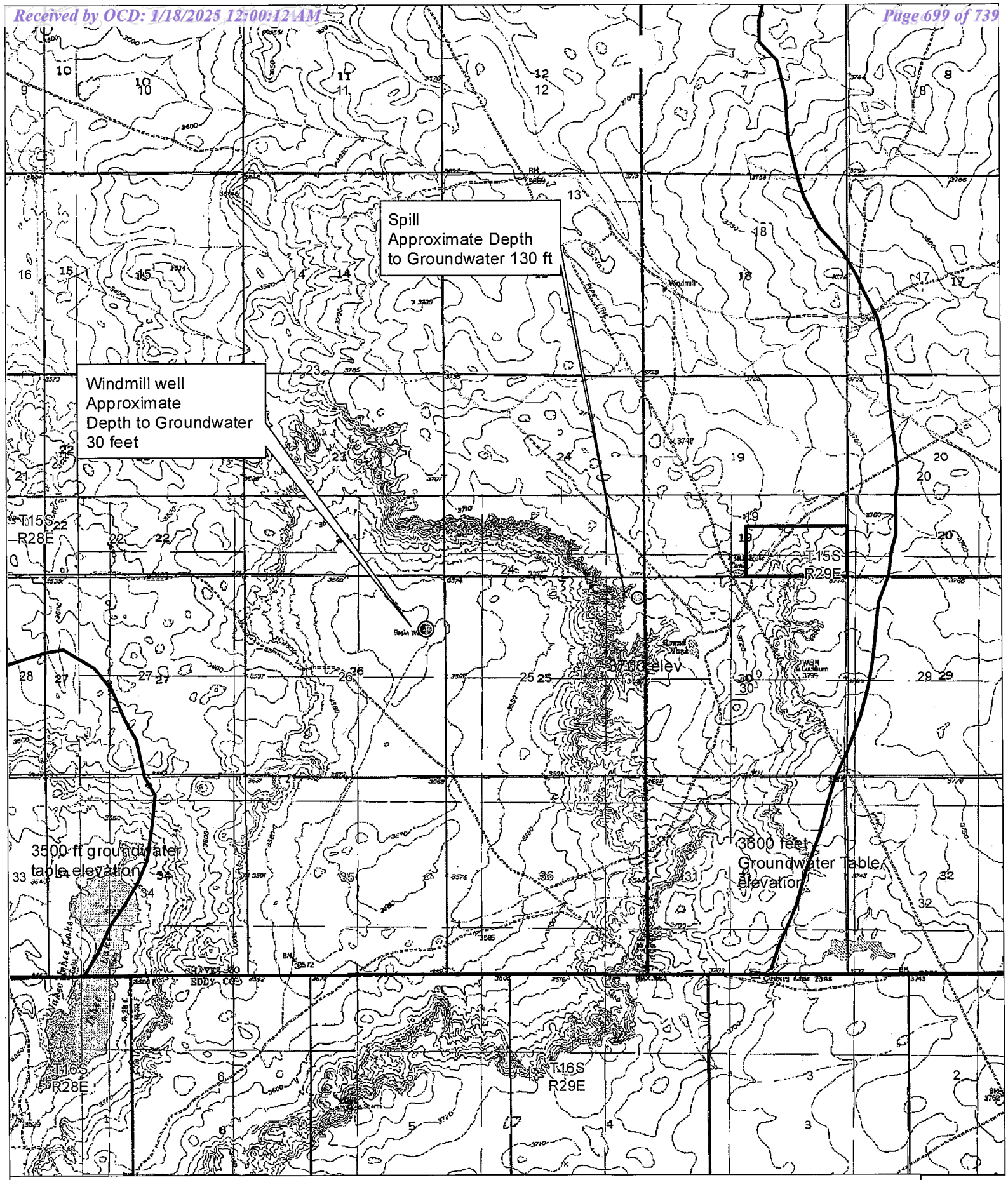
Describe Area Affected and Cleanup Action Taken.*
The area affected is the NE of sec 25 T 15S R28E. ESTIMATED RELEASE OF 160 BBLS (40 bbls of oil and 120 bbls of produced water). We have teamed up with Safety & Environmental Solutions out of Hobbs, NM to complete a horizontal and vertical site delineation.
.

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

Signature: Matt Buckles	OIL CONSERVATION DIVISION	
Printed Name: MATT BUCKLES	Approved by Environmental Specialist:	
Title: ENVIRONMENTAL	Approval Date:	Expiration Date:
E-mail Address: mattbuckles@mec.com	Conditions of Approval:	Attached ☐
Date:12/12/2016 Phone: 575-748-1288		

* Attach Additional Sheets If Necessary

Appendix B
Groundwater



Depth to Water for Spill (Geohydrology Groundwater Table Map)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 0.175 0.35 0.7 1.05 1.4 Miles

N W E S

Appendix C
Analytical Results

CARDINAL Laboratories

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

December 30, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: MAC-16-003

Enclosed are the results of analyses for samples received by the laboratory on 12/21/16 17:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ESW-1 4.3' (H602857-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *123 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/22/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/22/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/22/2016	ND					

Surrogate: 1-Chlorooctane *71.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *85.1 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

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

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ESW-2 3.4' (H602857-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	**0.068**	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	**0.854**	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	**2.23**	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	**3.15**	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *140 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**416**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**81.9**	10.0	12/22/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	**1170**	10.0	12/22/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	**188**	10.0	12/22/2016	ND					

Surrogate: 1-Chlorooctane *108 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

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

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ESW-3 2.3' (H602857-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *124 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**464**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/22/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	**226**	10.0	12/22/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	**57.5**	10.0	12/22/2016	ND					

Surrogate: 1-Chlorooctane *94.8 %* *35-147*

Surrogate: 1-Chlorooctadecane *110 %* *28-171*

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Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: WSW-1 1.3' (H602857-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *123 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/22/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/22/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/22/2016	ND					

Surrogate: 1-Chlorooctane *64.3 %* *35-147*

Surrogate: 1-Chlorooctadecane *76.8 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: WSW-2 1.6' (H602857-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *124 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *78.4 %* *35-147*

Surrogate: 1-Chlorooctadecane *93.5 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: WSW-3 2.4' (H602857-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *123 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *94.6 %* *35-147*

Surrogate: 1-Chlorooctadecane *81.6 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S-1 0-0.7' (H602857-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/22/2016	ND	2.00	100	2.00	0.129	
Toluene*	<0.050	0.050	12/22/2016	ND	2.07	104	2.00	1.25	
Ethylbenzene*	<0.050	0.050	12/22/2016	ND	2.03	102	2.00	1.58	
Total Xylenes*	<0.150	0.150	12/22/2016	ND	6.08	101	6.00	1.39	
Total BTEX	<0.300	0.300	12/22/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *123 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *74.3 %* *35-147*

Surrogate: 1-Chlorooctadecane *85.5 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: BKG-1 0-0.7' (H602857-08)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	<0.050	0.050	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	<0.050	0.050	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	<0.150	0.150	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	<0.300	0.300	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *129 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *74.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *92.9 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP - B1 (H602857-09)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	<0.050	0.050	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	<0.050	0.050	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	<0.150	0.150	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	<0.300	0.300	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *127 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6240**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	<10.0	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	<10.0	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *72.0 %* *35-147*

Surrogate: 1-Chlorooctadecane *92.2 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP - B2 (H602857-10)

BTEX 8021B mg/kg Analyzed By: MS S-04

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.080**	0.050	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	**1.38**	0.050	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	**2.78**	0.050	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	**4.80**	0.150	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	**9.05**	0.300	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *147 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6880**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**57.7**	10.0	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	**717**	10.0	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	**134**	10.0	12/23/2016	ND					

Surrogate: 1-Chlorooctane *99.5 %* *35-147*

Surrogate: 1-Chlorooctadecane *92.3 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP - B3 (H602857-11)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**34.2**	2.00	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	**183**	2.00	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	**157**	2.00	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	**194**	6.00	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	**569**	12.0	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *134 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3760**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**3290**	100	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	**7440**	100	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	**1230**	100	12/23/2016	ND					

Surrogate: 1-Chlorooctane *270 %* *35-147*

Surrogate: 1-Chlorooctadecane *225 %* *28-171*

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Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ASP - 1 (H602857-12)

BTEX 8021B mg/kg Analyzed By: MS S-04

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.120**	0.100	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	**1.15**	0.100	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	**5.27**	0.100	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	**8.98**	0.300	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	**15.5**	0.600	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *153 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4240**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**263**	100	12/23/2016	ND	182	90.9	200	14.0	
DRO >C10-C28	**7440**	100	12/23/2016	ND	180	90.2	200	16.3	
EXT DRO >C28-C35	**1470**	100	12/23/2016	ND					

Surrogate: 1-Chlorooctane *141 %* *35-147*

Surrogate: 1-Chlorooctadecane *226 %* *28-171*

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

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ASP - 2 (H602857-13)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<2.00	2.00	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	<2.00	2.00	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	**29.2**	2.00	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	**56.5**	6.00	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	**85.7**	12.0	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *132 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4400**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**2590**	100	12/27/2016	ND	186	93.0	200	6.66	
DRO >C10-C28	**26100**	100	12/27/2016	ND	189	94.4	200	6.77	
EXT DRO >C28-C35	**4430**	100	12/27/2016	ND					

Surrogate: 1-Chlorooctane *384 %* *35-147*

Surrogate: 1-Chlorooctadecane *1030 %* *28-171*

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

CARDINAL Laboratories

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

Analytical Results For:

Safety & Environmental Solutions
Bob Allen
703 East Clinton
Hobbs NM, 88240
Fax To: (575) 393-4388

Received:	12/21/2016	Sampling Date:	12/20/2016
Reported:	12/30/2016	Sampling Type:	Soil
Project Name:	MAC-16-003	Sampling Condition:	Cool & Intact
Project Number:	MAC-16-003	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: ASP - 3 (H602857-14)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/28/2016	ND	1.91	95.7	2.00	2.70	
Toluene*	<0.050	0.050	12/28/2016	ND	2.02	101	2.00	2.11	
Ethylbenzene*	<0.050	0.050	12/28/2016	ND	1.98	98.9	2.00	2.63	
Total Xylenes*	<0.150	0.150	12/28/2016	ND	5.95	99.1	6.00	2.49	
Total BTEX	<0.300	0.300	12/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *128 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	12/28/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/27/2016	ND	186	93.0	200	6.66	
DRO >C10-C28	<10.0	10.0	12/27/2016	ND	189	94.4	200	6.77	
EXT DRO >C28-C35	**22.9**	10.0	12/27/2016	ND					

Surrogate: 1-Chlorooctane *90.0 %* *35-147*

Surrogate: 1-Chlorooctadecane *81.9 %* *28-171*

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

CARDINAL Laboratories

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 2

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

Company Name:	Safety and Environmental Solutions
Project Manager:	Bob Allen
Address:	703 East Clinton, PO Box 1613
City:	Hobbs State: NM Zip: 88240
Phone #:	575 397-0510 Fax #: 575 393-4388
Project #:	MAC-16-023 Project Owner:
Project Name:	
Project Location:	
Sampler Name:	D. Boyd

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING DATE	SAMPLING TIME	Chlorides	TPH 8015 EXT	BTEX
H602857													2016				
H602857																	
1	ESW-1, -4.3'	G	1			X					X		12/20	1155	X	X	X
2	ESW-2, -3.4'													1230			
3	ESW-3, -2.3'													1255			
4	WSW-1, -1.3'													1335			
5	WSW-2, -1.6'													1340			
6	WSW-3, -2.4'													1350			
7	S-1, 0-0.5'													1435			
8	BKG-1, 0-0.5'													1440			
9	SPS B1													1405			
10	SPS-B-2	G	1			X					X		12/20	1415	X	X	X

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Relinquished By: D. Boyd	Date: 12/21/16 Time: 5:00	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: #75	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials)	2.3°C

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS:

Received by OCD: 1/18/2023 12:00:12 AM

Released to Imaging: 1/21/2023 9:47:20 AM

Page 718 of 739

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 2 of 2

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

Company Name:	Safety and Environmental Solutions
Project Manager:	Bob Allen
Address:	703 East Clinton, PO Box 1613
City:	Hobbs
State:	NM
Zip:	88240
Phone #:	575 397-0510
Fax #:	575 393-4388
Project #:	MAS-16-003
Project Owner:	
Project Name:	
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING DATE	SAMPLING TIME	ANALYSIS REQUEST: Chlorides	TPH (8015 Ext)	BTEX
H602857													2016				
H602857																	
11	SP-B3	G	1			X					X		12/20	1430	X	X	X
12	ASP-1	1	1			1					1		12/20	1515	1	1	1
13	ASP-2												12/21	1430			
14	ASP-3	G	1			X					X		12/21	1440	X	X	X

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Relinquished By:	Date: 12/21/16	Received By: Jodi Henson	
Relinquished By:	Time: 5:00	Received By:	
	Date:		
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: #75 2.3°C

Sample Condition: Cool: ☑ Yes ☐ No; Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

Received by OCD: 1/18/2025 12:00:12 AM

Released to Imaging: 1/21/2025 9:47:20 AM

Appendix D
Photo Documentation

Calgary #2

Photo Page

APPENDIX G – Aspen Grow LLC Remediation Work Plan

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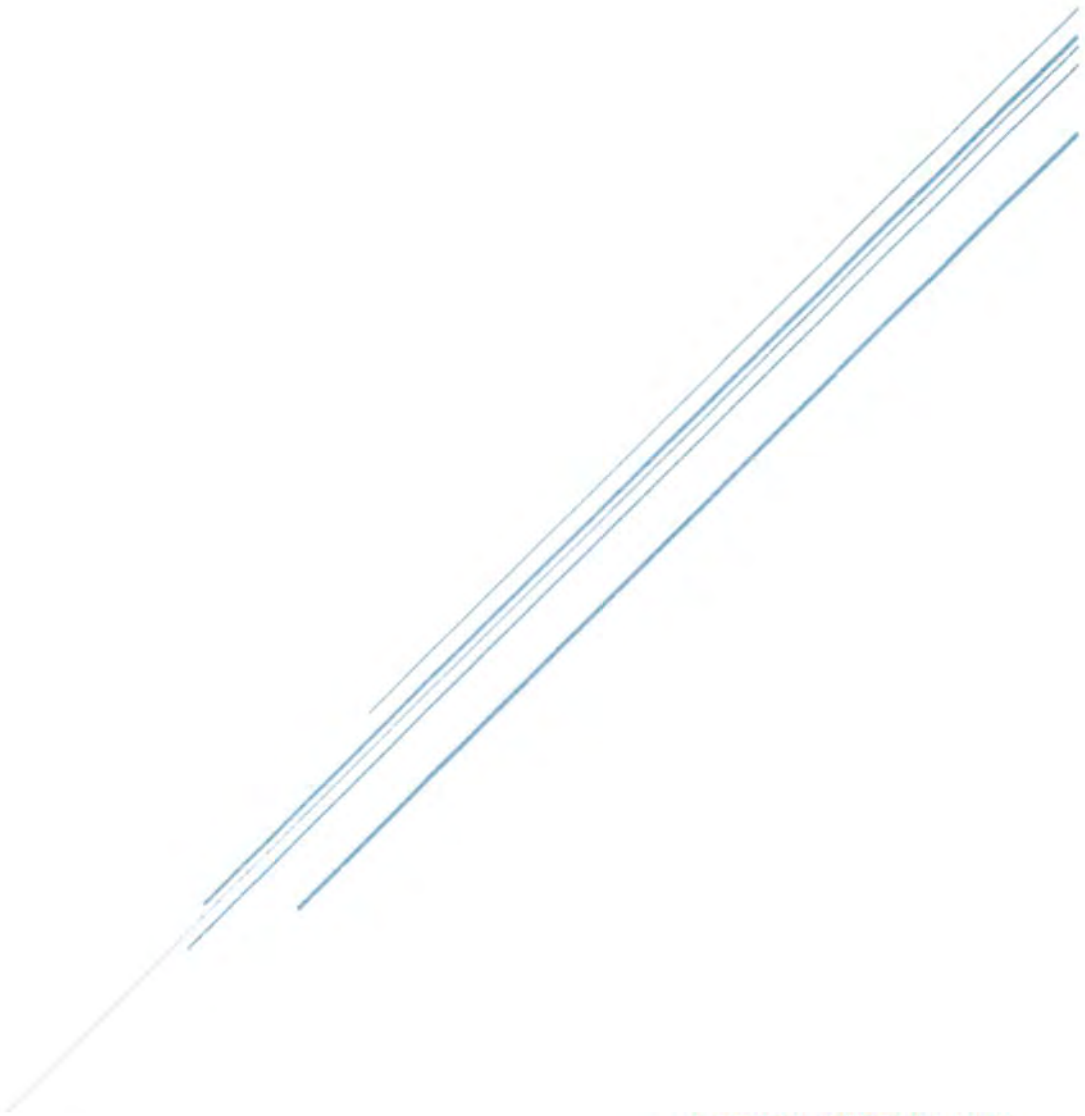
MACK ENERGY CORPORATION

Calgary Federal #2 Spill Report



ASPEN GROW LLC
REMEDEATION PLAN

Received by OCD: 1/18/2025 12:00:12 AM

Released to Imaging: 1/21/2025 9:47:20 AM

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1.0 Introduction

Aspen Grow, LLC, an environmental remediation company, is pleased to submit this Site Remediation Report to Mack Energy Corporation. The location of the leak occurred in Section 25, Township 15S, Range 28E, Chaves County, New Mexico (see Figures 1 & 2). Directions to the site from Loco Hills, New Mexico are as follows: Travel north on Hagerman Cutoff Road for approximately 10.34 miles. Turn west on Pipeline Road and travel 5.6 miles to the Calgary Federal Pad. The GPS coordinates recorded at the site are 32.996844 and -104.079847*.

1.1 Purpose of Remediation Plan

The purpose of this Remediation Plan is to document the remediation activities including the supporting analytical data completed thus far, and to outline the technology and procedures proposed to be employed by Aspen Grow, LLC to remediate the referenced site. This Remediation Plan will be submitted to the Oil Conservation Division (OCD) of the State of New Mexico and the Bureau of Land Management (BLM) for their comments.

1.2 Project Overview

On November 26, 2016, a steel flowline developed a leak in the pasture near the Calgary Federal #2 Well. The site consists of several flowlines carrying crude oil and produced water to a nearby tank battery. The accidently leaked fluid (crude oil and produced water) impacted an area under and around the flowlines to the West and Southeast of the leak site. A total of approximately 160 bbl. of fluids (40 bbl. of oil and 120 bbl. of produced water) were estimated to have leaked. The estimated total size of the area impacted by the leaking fluid was approximately 20,000 square feet.

To the West of the flowlines, the leaking fluid flowed about 450 feet down drainage. The majority of the flows to the West were confined to a narrow path about three feet in width. Artificial barriers were placed intermittently along the flow path to the West to restrict further migration of the contamination from possible storm water runoff.

To the East, the leak flowed onto a semi-flat area towards the tank battery. The size of the area impacted to the East of the flowlines was approximately 200 feet long by 65 feet wide.

The top 3.5 feet of contaminated soil from an area of about 150 feet by 60 feet on the Southeast side of the flowlines was excavated and transported to an approved off-site disposal facility. The soil in the entire area impacted by the leak was sampled and analyzed for Total Petroleum Hydrocarbons (TPH) and chlorides. The results of the soil analysis conducted by Permian Basin Environmental Lab indicated elevated levels of TPH and chlorides throughout the site. Further excavation of the site was discontinued after encountering a layer of caliche.

Aspen Grow, LLC re-tested the soils for the entire site to determine the levels of TPH and chlorides. Vertical and horizontal delineation soil samples were collected inside and outside the

impacted area to characterize the area and to delineate the background levels of chlorides and TPH in adjacent native soils. Elevated levels of TPH and BTEX were detected at the following locations: SP2, SP3, SP4, SP5, SP6, SP7 and SP10. Elevated levels of chlorides were detected at the following locations: SP3, SP2, SP16, SP4, SP5, SP6-down to 4 feet, SP7, SP9, SP10, SP11 and SP14. Sampling was also completed via coring rig on SP21 (site of release) which showed the release is below the recommended chloride level at 5 feet and is clean at 10 feet and 15 feet. (see Table 1 – Analytical Results).

1.3 Proposed Remediation

Aspen Grow's approach to remediating and restoring soils contaminated with TPH and chlorides is biologically based. Aspen Grow has developed a proprietary line of liquid probiotic soil products with chelating, carbon and nutrient complexing capabilities. The products are formulated utilizing a combination of essential organic acids, enzymes, naturally occurring microbial cultures, elemental minerals and bio-stimulants that have demonstrated their ability to balance and restore the natural ecosystem of the soil. By balancing and restoring the natural ecosystem of the soil, toxins and salts are easily broken down and consumed by soil bacterium or leached below the root zone in the soil with the addition of water. Detoxifying and restoring the natural balance of the soil also produces a soil ecosystem that is conducive for revegetating and restoring the native plant populations.

Aspen Grow, LLC proposes to apply our proprietary probiotic product with fresh water to the contaminated site at the rate of 13 ounces per 1,000 square feet. The application of water and product will be applied with a sprinkler type system to control the application rate, minimize the potential for runoff and enhance the percolation of water and product into the soil for maximum effectiveness. Controlling the application rate will also minimize the potential for surface erosion to occur.

Remediation of this site is expected to take up to ten (10) weeks. The combination of water and product will be applied weekly over the entire site. Aspen Grow, LLC will collect soil samples and have them analyzed after the tenth week to determine the levels of TPH and chlorides in the soil. It is our understanding the current regulatory compliance levels for TPH and chlorides are less than 5,000 mg/kg and less than 600 mg/kg respectively. If after ten (10) weeks of treatment the level of TPH and/or chlorides in any soil samples taken exceed the regulatory compliance limits, Aspen Grow, LLC will continue to treat the affected area until the levels are within the regulatory compliance limits from Surface to 4 feet ground depth per OCD specifications. Upon release of this spill site by the OCD and BLM, Mack Oil Corporation will back fill the area that was removed with clean uncontaminated soil with similar characteristics and re-seed with native grasses.

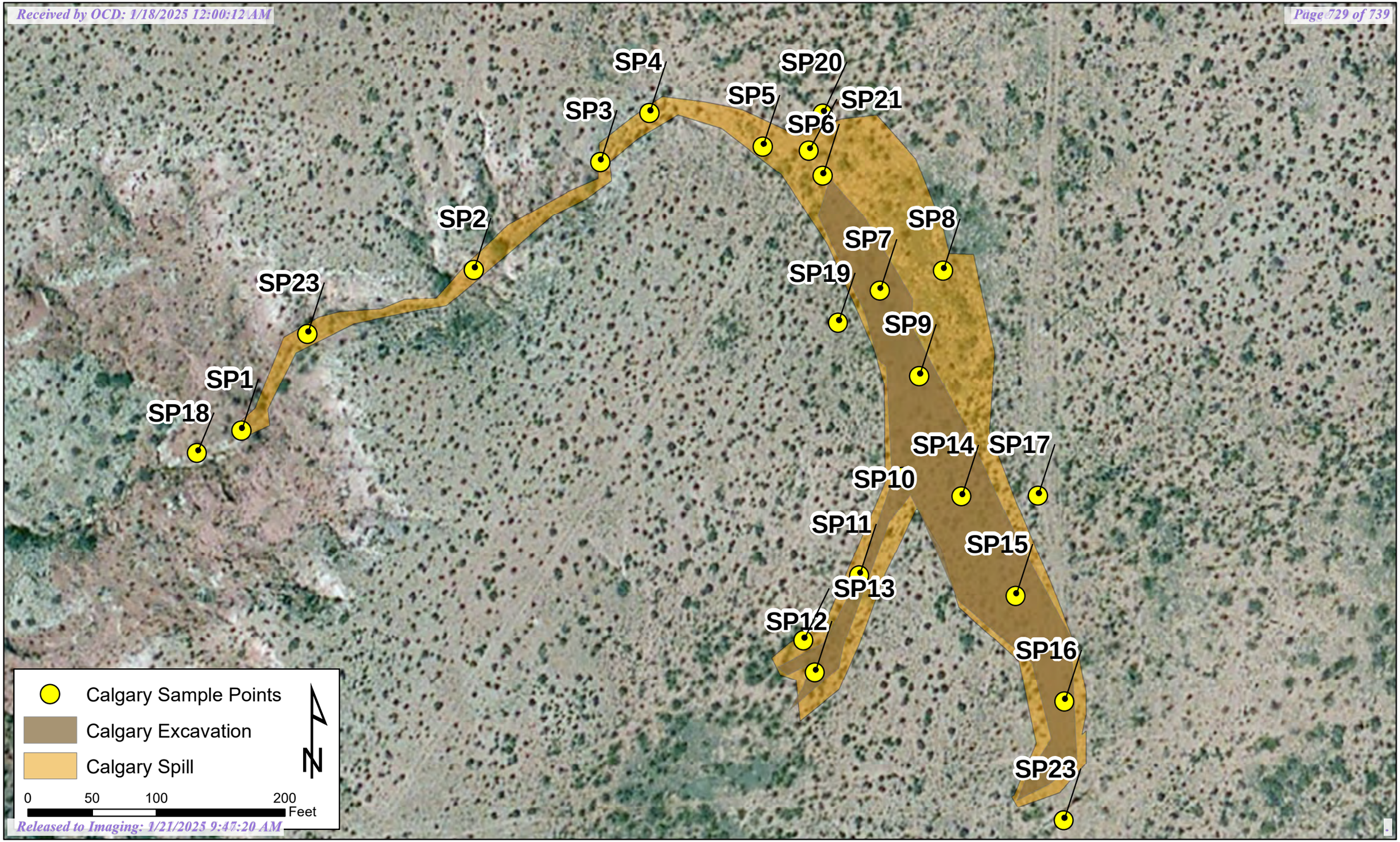
Aspen Grow's proprietary products do contain trace amounts of nitrate and sulfate, which are essential nutrients for the naturally occurring bacterium in the soils and aid in the breakdown of TPH. The rate at which they are applied is well below New Mexico's Water Quality Standards 206.6.6.2.3103 listed in subsection A, B, and C.

1.4 Contact Information

Mack Energy Corporation
11344 Lovington Highway
Artesia, New Mexico 88210
575-748-1288 / Matt Buckles

Aspen Grow, LLC
3001 W. Loop 250 N. Ste. C-105-166
Midland, Texas 79705
210-213-0397 / Kevin Freeman

Calgary Federal 2 release-Laboratory Analytical Results Summary											
Date	Sample ID	Depth (ft)	Chlorides	TPH - GRO	TPH - DRO	TPH-Total	Benzene	Toluene	Ethylbenzene	Xylene	BTEX
			SM4500Cl-B	TPH 8015m			BTEX 8021b				
12/28/2016	SP1	0-1	32	10	22.9	42.9	0.05	0.05	0.05	0.15	0.3
12/28/2016	SP2	0-1	4400	26100	4430	33120			29.2	56.5	85.7
12/28/2016	SP3	0-1	4240	7440	1470	9173	0.12	1.15	5.27	8.98	15.52
3/2/2017	SP4	0-1	2420			47100	0.187	0.671	8.21	15.75	24.818
3/2/2017	SP5	0-1	4970			4820	0.062	0.745	6.68	10.72	18.207
3/2/2017	SP6	0-1	2890			13400	7.85	78.7	60.5	75.4	222.45
3/2/2017	SP6	0-2	4890			11900	14.2	116	102	129	361.2
3/2/2017	SP6	2-3	6320			2440	0.0679	2.16	3.15	3.78	9.1579
3/2/2017	SP6	3-4	6190								0
3/2/2017	SP7	0-1	11800								0
3/2/2017	SP8	0-1	21.7								0
3/2/2017	SP8	1-2	<1.05								0
3/2/2017	SP9	0-1	3890								0
3/2/2017	SP10	0-1	6430			7930	<0.220	0.503	5.08	9.22	14.803
3/2/2017	SP11	0-1	1650								0
3/2/2017	SP12	0-1	5.65								0
3/2/2017	SP13	0-1	<1.09								0
3/2/2017	SP14	0-1	1430								0
3/2/2017	SP15	0-1	984			27900	0.191	5.62	41.5	64.6	111.911
3/2/2017	SP16	0-1	3150								0
3/2/2017	SP17	0-1	<1.06								0
3/2/2017	SP18	0-1	<1.02								0
3/2/2017	SP19	0-1	<1.05								0
3/2/2017	SP20	0 to 1	<1.05								0
5/10/2017	SP21	5 to 6'	560	11.3	664	675.3	<0.050	<0.050	0.233	0.505	0.738
5/11/2017	SP21	6 to 7 '	528	<10.0	42.7	42.7	<0.050	<0.050	0.053	<.150	<.300
5/12/2017	SP21	11 to 12	272	<10.0	17.5	17.5	<0.050	<0.050	<0.050	<.150	<.300
5/13/2017	SP21	16 to 17	160	<10.0	16.8	16.8	<0.050	<0.050	0.078	<.150	<.300
5/14/2017	SP21	21 to 22	96	<10.0	<10.0	0	<0.050	<0.050	<0.050	<.150	<.300
5/15/2017	SP22	0 to 1	176	51.3	7680	7731.3	<0.050	<0.050	0.109	0.45	0.559
5/16/2017	SP 23	0 to 1	48	<10.0	<10.0	0	<0.050	<0.050	0.065	0.256	0.321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SP20
SP5
SP21
SP3
SP6
SP2
SP8
SP7
SP23
SP19
SP9
SP1
SP18
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SP10
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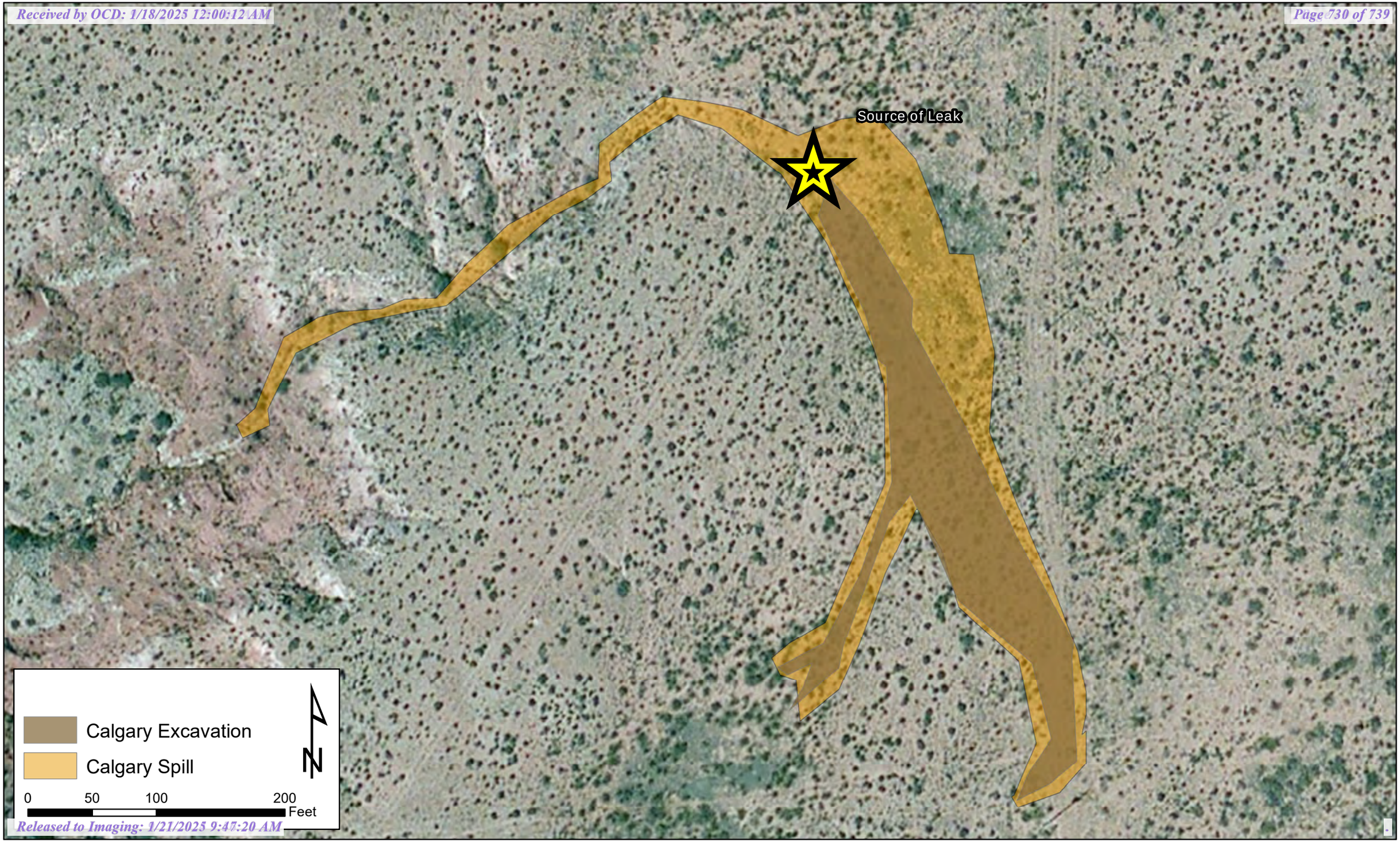
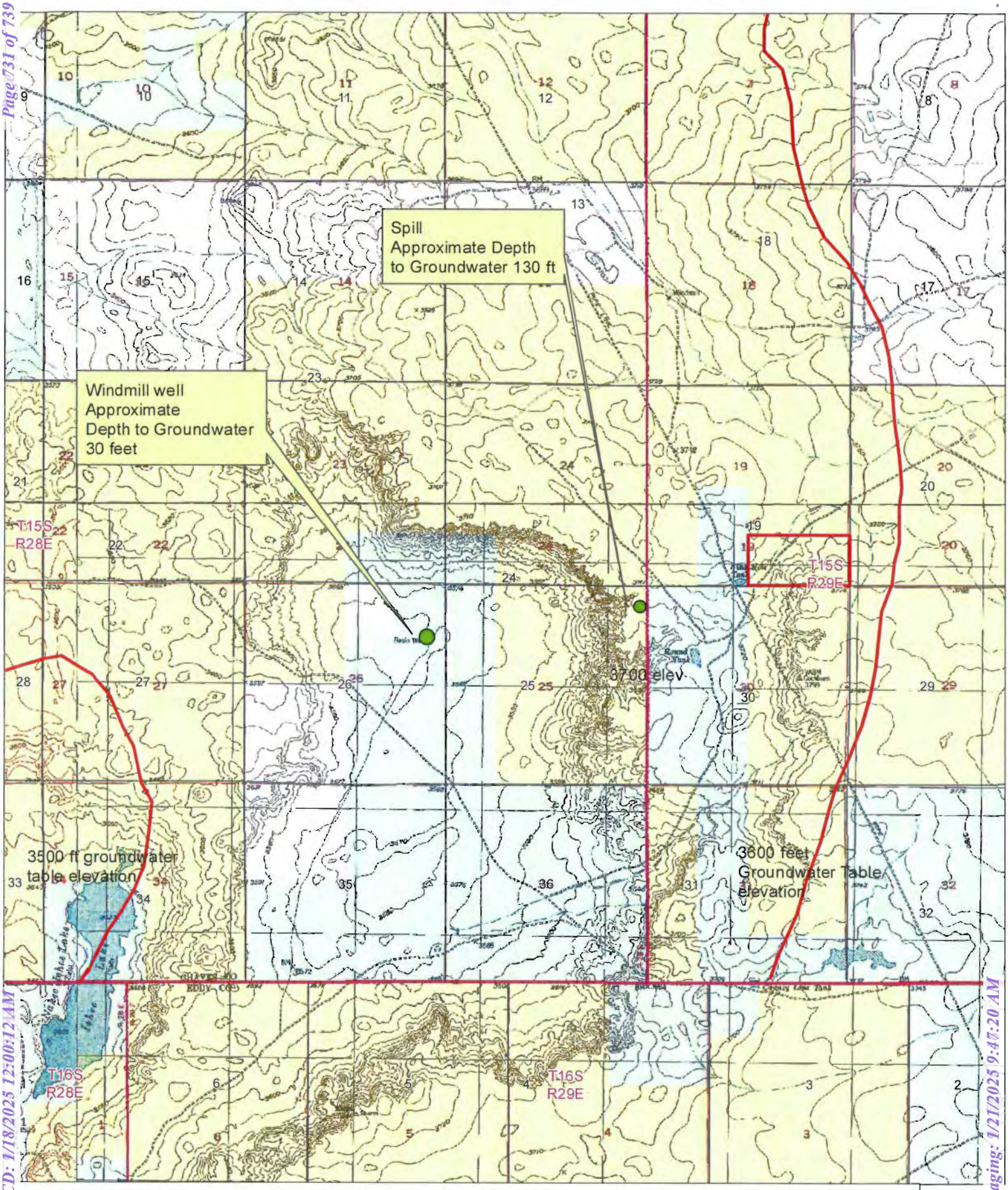
Feet


Source of Leak
Calgary Excavation
Calgary Spill
N
0
50
100
200
Feet

Received by OCD: 1/18/2025 12:00:12 AM



Depth to Water for Spill (Geohydrology Groundwater Table Map)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

0 0.175 0.35 0.7 1.05 1.4 Miles

N W E S

Released to Imaging: 1/21/2025 9:47:20 AM

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 421942
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAB1635457735**
Incident Name	**NAB1635457735 CALGARY FEDERAL #002E @ 30-005-64100**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-005-64100] CALGARY FEDERAL #002E**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	CALGARY FEDERAL #002E
Date Release Discovered	11/26/2016
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure | Flow Line - Production | Crude Oil | Released: 40 BBL | Recovered: 0 BBL | Lost: 40 BBL.
Produced Water Released (bbls) Details	Cause: Equipment Failure | Flow Line - Production | Produced Water | Released: 120 BBL | Recovered: 0 BBL | Lost: 120 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

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QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**

With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	False
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Release occurred outside of containment

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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

I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 01/17/2025

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QUESTIONS (continued)

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QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Zero feet, overlying, or within area
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1000 (ft.) and ½ (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Zero feet, overlying, or within area
Categorize the risk of this well / site being in a karst geology	High
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

Remediation Plan		
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.		
Requesting a remediation plan approval with this submission		Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.		
Have the lateral and vertical extents of contamination been fully delineated		Yes
Was this release entirely contained within a lined containment area		No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)		
Chloride	(EPA 300.0 or SM4500 Cl B)	11800
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	47100
GRO+DRO	(EPA SW-846 Method 8015M)	28690
BTEX	(EPA SW-846 Method 8021B or 8260B)	569
Benzene	(EPA SW-846 Method 8021B or 8260B)	34.2
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.		
On what estimated date will the remediation commence		11/26/2016
On what date will (or did) the final sampling or liner inspection occur		11/20/2024
On what date will (or was) the remediation complete(d)		12/20/2024
What is the estimated surface area (in square feet) that will be reclaimed		44316
What is the estimated volume (in cubic yards) that will be reclaimed		3299
What is the estimated surface area (in square feet) that will be remediated		44316
What is the estimated volume (in cubic yards) that will be remediated		3299
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.		
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.		

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QUESTIONS (continued)

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QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	GANDY MARLEY LANDFARM/LANDFILL [fEEM0112338393]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Yes
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 01/17/2025
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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QUESTIONS

Deferral Requests Only *Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.*	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**416075**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**01/03/2025**
What was the (estimated) number of samples that were to be gathered	**125**
What was the sampling surface area in square feet	**25000**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	44316
What was the total volume (cubic yards) remediated	3299
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	44316
What was the total volume (in cubic yards) reclaimed	3329
Summarize any additional remediation activities not included by answers (above)	All described above.

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (in .pdf format) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 01/17/2025

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QUESTIONS (continued)

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QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation closure approved.	1/21/2025
amaxwell	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. The OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	1/21/2025
amaxwell	All revegetation activities will need to be documented and included in the revegetation report. The revegetation report will need to include: An executive summary of the revegetation activities including: Seed mix, Method of seeding, dates of when the release area was reseeded, information pertinent to inspections, information about any amendments added to the soil, information on how the vegetative cover established meets the life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds per 19.15.29.13 D.(3) NMAC, and any additional information; a scaled Site Map including area that was revegetated in square feet; and pictures of the revegetated areas during reseeding activities, inspections, and final pictures when revegetation is achieved.	1/21/2025