

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2223528506
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Delek Logistics	OGRID 372603
Contact Name Cassie Whitefield	Contact Telephone 870-310-9078
Contact email cassie.whitefield@deleklogistics.com	Incident # (assigned by OCD) NAPP2223528506
Contact mailing address	

Location of Release Source

Latitude 32.41427 Longitude 103.444
(NAD 83 in decimal degrees to 5 decimal places)

Site Name LACT Earthstone Squeeze	Site Type Oilfield
Date Release Discovered 8/8/2022	API# (if applicable)

Unit Letter	Section	Township	Range	County
N	2	22S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) Unknown	Volume Recovered (bbls) 25
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Release from valve at LACT onto sandy soil in oilfield area.

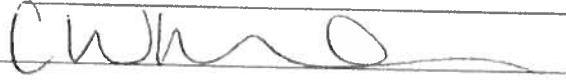
State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? 25 bbls recovered
If YES, was immediate notice given to the OCD? By whom? When and by what means (phone, email, etc)? Immediate notification was given to the State Land Office via email on August 8, 2022. Mike Bratcher of the OCD was emailed on August 11th, 2022 once initial clean up response was initiated.	

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. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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.	
Printed Name: <u>Cassie Whitefield</u> Signature: <u></u> email: <u>cassie.whitefield@deleklogistics.com</u>	Title: <u>EHS Manager</u> Date: <u>8/23/22</u> Telephone: <u>810.310.9028</u>
<u>OCD Only</u> Received by: <u>Jocelyn Harimon</u> Date: <u>08/23/2022</u>	

District I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax (505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3470 Fax (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 136650

CONDITIONS

Operator: 3 Bear Energy-Cottonwood, LLC 7102 Commerce Way Brentwood, TN 37027	OGRID:
	330291
	Action Number:
	136650
Action Type: [C-141] Release Corrective Action (C-141)	

CONDITIONS

Created By	Condition	Condition Date
jharimon	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	8/29/2022

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Site Assessment/Characterization

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?	Unknown (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

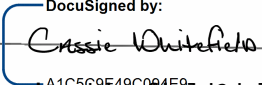
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Oil Conservation Division

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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.

Printed Name: Cassie whitefield Title: Sr. EHS Manager
Signature:  Date: 2/20/2023
email: Cassie.Whitefield@deleklogistics.com Telephone: 870-310-9078

OCD Only

Received by: Jocelyn Harimon Date: 03/20/2023

Incident ID	NAPP2223528506
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Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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.

Printed Name: Cassie Whitefield

Title: Sr. EHS Manager

DocuSigned by:

Signature: Cassie Whitefield

Date: 2/20/2023

email: Cassie.Whitefield@deleklogistics.com

Telephone: 8703109078

OCD Only

Received by: Jocelyn Harimon

Date: 03/20/2023

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Nelson Velaz

Date: 06/30/2023

Deferral of the remediation of crude oil impacted soils immediately surrounding the two (2) LACT Units represented by soil samples BH23, LACT STAIN, LACT WALL 1, and LACT WALL 2 due to equipment structural stability concerns is approved.

Deferral and closure can not be simultaneously approved; therefore, the remaining areas meeting the applicable closure standards are acknowledged by OCD and remediation of these areas do not require further action.

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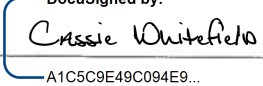
Closure

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 (electronic submittals in pdf format are preferred) 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.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate OCD District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to 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.

Printed Name: Cassie Whitefield Title: Sr. EHS Manager
Signature:  Date: 2/20/2023
email: Cassie.Whitefield@deleklogistics.com Telephone: 8703109078

OCD Only

Received by: Jocelyn Harimon Date: 03/20/2023

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____
Printed Name: _____ Title: _____

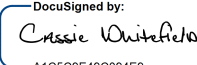


Certificate Of Completion

Envelope Id: B061D0086A534C08946B3AAC7FE1A207		Status: Completed
Subject: Here is your signed document: Draft Final C141- Earthstone squeeze.pdf		
Source Envelope:		
Document Pages: 7	Signatures: 3	Envelope Originator:
Certificate Pages: 1	Initials: 0	Cassie Whitefield
AutoNav: Disabled		7102 Commerce Way
Envelopeld Stamping: Disabled		Brentwood, TN 37027
Time Zone: (UTC-06:00) Central Time (US & Canada)		Cassie.Whitefield@deleklogistics.com
		IP Address: 198.245.44.140

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Cassie Whitefield Cassie.Whitefield@deleklogistics.com Sr. EHS Manager Delek US Holdings, Inc. Security Level: Email, Account Authentication (None)	DocuSigned by:  A1C5C9E49C094E9... Signature Adoption: Pre-selected Style Using IP Address: 198.245.44.140	Sent: 2/20/2023 1:32:03 PM Viewed: 2/20/2023 1:32:12 PM Signed: 2/20/2023 1:34:59 PM Freeform Signing

Electronic Record and Signature Disclosure:
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In Person Signer Events	Signature	Timestamp
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Editor Delivery Events	Status	Timestamp
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Agent Delivery Events	Status	Timestamp
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Intermediary Delivery Events	Status	Timestamp
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Certified Delivery Events	Status	Timestamp
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Carbon Copy Events	Status	Timestamp
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JT Murrey JT.Murrey@ghd.com Security Level: Email, Account Authentication (None)	COPIED	Sent: 2/20/2023 1:35:00 PM Viewed: 2/20/2023 1:35:45 PM
Electronic Record and Signature Disclosure: Not Offered via DocuSign		

Witness Events	Signature	Timestamp
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Notary Events	Signature	Timestamp
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Envelope Summary Events	Status	Timestamps
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Envelope Sent	Hashed/Encrypted	2/20/2023 1:32:04 PM
Certified Delivered	Security Checked	2/20/2023 1:32:12 PM
Signing Complete	Security Checked	2/20/2023 1:34:59 PM
Completed	Security Checked	2/20/2023 1:35:00 PM

Payment Events	Status	Timestamps
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2135 S. Loop 250,
Midland, Texas 79703
United States
www.ghd.com

Our ref: 12591378

February 27, 2023

New Mexico Oil Conservation Division
District II
811 S. First St.
Artesia, NM 88210

Re: **Site Closure Report**
Delek LACT Earthstone Squeeze Release Site
3 Bear Energy-Cottonwood, LLC
Incident ID: nAPP2223528506
N-2-22S-34E, Lea County, New Mexico

1. Introduction

GHD Services, Inc. (GHD), on behalf of 3 Bear Energy-Cottonwood, LLC, which is owned and operated by Delek Logistics Partners, LP (Delek), submits this Site Closure Report to the State of New Mexico Energy, Minerals and Resource Oil Conservation Division (OCD) District II Office. This report provides documentation of remedial activities in the crude oil impacted area at the LACT Earthstone Squeeze Release Site (Site). Earthstone Energy, Inc. is the operator of the pad location and associated equipment surrounding the release area. The Site is located in Unit Letter N Section 2 of Township 22 South and Range 34 East in Lea County, New Mexico. The GPS coordinates for the release site are 32.41427° N Latitude and 103.444° W Longitude. The surface owner of the land where the release occurred is Merchant Livestock. Figure 1 depicts the Site location. The Site and other details are depicted on Figure 2.

2. Background and Regulatory Notification Information

The release is subject to the jurisdiction of the OCD District II Office in Artesia, New Mexico. Notice was given to the OCD via Notification of Release (NOR) Submission, Action 136652. A C-141 Release Notification for this release was submitted to the OCD on August 23, 2022. The C-141 stated that the volume of crude oil released is unknown. The OCD assigned the release with Incident Number nAPP2223528506. The release occurred as the result of a human error which caused the release from a valve at the LACT unit onto the facility pad. Approximately 25 barrels (bbls) of crude oil were recovered.

3. Site Characterization and Closure Criteria

GHD characterized the Site according to Table I, Closure Criteria for Soils Impacted by a Release, from New Mexico Administrative Code (NMAC) Title 19, Chapter 15, Part 29, Section 12 (NMAC 19.15.29.12) (NMAC Table I Closure Criteria).

According to the Site characterization evaluation and 19.15.29.12.C(4)(a)(i), the Site is located within an area of low karst potential. No groundwater data was available within one-half mile of the Site. In addition, no receptors (i.e. water wells, playas, wetlands, waterways, lakebeds, or ordinance boundaries) were located within each regulatory specified distance and/or boundary from the Site. Also based on our review, the Site is not located in a mapped floodplain. Documentation of the Site characterization and receptor review are included as Attachment A. Based on the results of the site characterization, the closure criteria are listed below:

General Site Characterization and Groundwater Information:

Site Characterization	Average Groundwater Depth (ft)
No Receptors Found	Unknown, treated as less than fifty (50) feet

Closure Criteria for Soils Impacted by a Release (NMAC 19.15.29.12)

Regulatory Standard	Chloride	TPH (GRO+DRO+MRO)	BTEX	Benzene
19.15.29.13 Restoration, Reclamation and Re-Vegetation (Impacted Area 0-4 feet)	600 mg/kg	100 mg/kg	50 mg/kg	10 mg/kg
19.15.29.12 NMAC Table I Closure Criteria for Soils Impacted by a Release	600 mg/kg	100 mg/kg	50 mg/kg	10 mg/kg

4. Soil Remediation Activities

4.1 Initial Remedial Excavation and Soil Assessment Activities

On August 8, 2022, Delek's contractors Frontier Development, Inc. (Frontier) initiated soil excavation activities. Following the removal of the crude oil impacted soil, Delek contracted GHD to assess the release area. GHD conducted initial soil assessment sampling on August 12, 2022, with the collection of soil samples from four (4) locations across the Site (HA-1, HA-2, BH Grab-1, and SW Grab-1). Samples were submitted to Eurofins Environmental Testing America (Eurofins), located in Midland, Texas and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA SW846 Method 8021B, total petroleum hydrocarbons (TPH) by EPA SW846 Method 8015B Modified, and chloride by EPA Methods For Chemical Analysis of Water and Wastes (MCAWW) Method 300.0. Analytical results indicated benzene, BTEX, and TPH concentrations to be below the applicable NMAC Table I Closure Criteria. Analytical results indicated three (3) of the soil samples (HA1-S, BH Grab-1, and SW Grab-1) exhibited chloride concentrations above NMAC Table I Closure Criteria. Sample locations are presented on Figure 2 and summarized in Table 1. The laboratory analytical report and chain of custody (COC) are attached as Attachment B.

On August 23, 2022, GHD and Frontier, returned to the Site to conduct additional assessment soil sampling with the installation of seven (7) test pits within the suspected impacted area. Soil samples were collected at varying

depths from surface level to 10 feet below ground surface (bgs). Based on the initial assessment soil sampling having chloride exceedances, the additional assessment soil samples were only field screened for chlorides to provide guidance for on-going remedial excavation activities. The soil sample assessment locations are presented on Figure 2. Field Screening results are summarized in Table 1.

Based on the results of the field screening activities, additional excavation, and confirmation soil sampling was conducted. A photographic log is included as Attachment C.

4.2 Excavation Confirmation Soil Sampling Activities

On October 5, 2022, GHD collected twenty-three (23) composite excavation bottom hole soil samples (BH1-BH23), eight (8) composite excavation sidewall soil samples (LACT WALL 1, LACT WALL 2, and SW1-SW6), and one (1) discrete soil sample (LACT STAIN). The excavation bottom hole soil samples were collected at a depth of four (4) feet bgs and the excavation sidewall soil samples were collected at depths from zero (0) to four (4) feet bgs. The soil samples were analyzed for BTEX by EPA SW846 Method 8021B, TPH by EPA SW846 Method 8015B Modified, and chloride by EPA MCAWW Method 300.0 by Eurofins in Carlsbad, New Mexico.

None of the confirmation soil samples exhibited benzene or BTEX concentrations above the NMAC Table I Closure Criteria. Five (5) of the confirmation soil samples exhibited TPH concentrations above the NMAC Table I Closure Criteria (BH19, BH23, LACT STAIN, LACT WALL 1, and LACT WALL 2). Analytical results indicated twenty (20) of the confirmation soil samples exhibited chloride concentrations above NMAC Table I Closure Criteria (BH3, BH4, BH7-BH16, BH18, BH21, LACT WALL 1, SW1, SW3, SW4, SW6). Sample locations are presented on Figure 2 with the analytical data being summarized in Table 1. The laboratory analytical report and COC are attached as Attachment B. In accordance with 19.15.29.12 D(1)(a) NMAC, sampling notifications are included as Attachment D.

4.3 Additional Remedial Excavation and Soil Sampling Activities

On November 4, 2022, GHD, and Frontier, returned to the Site to conduct additional remedial excavation activities around soil sample location BH19 due to TPH having exceeded the NMAC Table I Closure Criteria. This area was excavated to a depth of seven (7) feet bgs. Following excavation activities, a composite soil sample was collected (BH19A) and submitted to Eurofins, located in Midland, Texas. The sample was analyzed for BTEX by EPA SW846 Method 8021B, TPH by EPA SW846 Method 8015B Modified, and chloride by EPA MCAWW Method 300.0. Benzene, BTEX, and TPH concentrations were determined to be below NMAC Table I Closure Criteria. Analytical results indicated the soil sample exhibited chloride concentrations above NMAC Table I Closure Criteria. Sample locations are presented on Figure 2 with the analytical data being summarized in Table 1. The laboratory analytical report and COC are attached as Attachment B. A photographic log is included as Attachment C. In accordance with 19.15.29.12 D(1)(a) NMAC, sampling notifications are included as Attachment D.

4.4 Waste Management and Site Restoration Activities

Waste management activities were performed in coordination with Delek directives. Frontier obtained regulatory approval via the successful processing of Form C-138 Request for Approval to Accept Solid Waste. The waste was approved for acceptance at the OCD-permitted (NM1-006), R360 Halfway Facility located at 6601 Hobbs Hwy US 62/180 Mile Marker 66, Carlsbad, New Mexico 88220. Approximately 900 cubic yards of impacted soils were removed from the remedial excavation and disposed of. The approved C-138 and waste manifests are

available upon request but are not attached due to the size of the file. A summary of soil disposal information is included in Table 3.

Based on the benzene, BTEX, and TPH analytical results being below the applicable NMAC Table I Closure Criteria, no further excavation was conducted. The excavation was backfilled with non-impacted soil imported to the Site from a locally sourced caliche and topsoil pit and compacted with heavy tracked equipment. A photographic log is included as Attachment C.

5. Chloride Impacted Soil Review

During the initial assessment and remedial excavation activities, chloride impacted soils were documented through field screening and laboratory testing of collected soil samples. Chloride impacted soils were initially assumed to be related to the released crude oil; however, additional analysis of impacted soil and the crude oil suggests the chloride impacts may not be related to this crude oil release.

A discrete soil sample of crude oil-stained soil collected immediately beneath one of the LACT Units (LACT STAIN) was submitted for the determination of BTEX by EPA SW846 Method 8021B, TPH by EPA SW846 Method 8015B Modified, and chloride by EPA MCAWW Method 300.0. Based on the analytical results, benzene was reported to be 0.114 mg/kg and BTEX was determined to be 9.87 mg/kg. TPH was reported to be 27,100 mg/kg and 148 mg/kg of chlorides was detected. On November 4, 2022, a sample of crude oil (Product Sample) was collected from the LACT Unit and submitted for chloride analysis. Chloride was detected in the sample with a concentration of 219 mg/kg. Both the crude oil-stained soil and crude oil contained roughly the same concentrations of chlorides which supports the fact that the identified chloride impacts, which concentrations ranged from 79.9 mg/kg to 4,410 mg/kg, are not related to the crude oil release. Analytical results for LACT STAIN are summarized in Table 1 and the analytical results for the crude oil sample are summarized in Table 2 with the laboratory analytical reports and COCs included in Attachment B.

As a result of the stained soil and crude oil sampling and analysis, remedial excavation activities focused solely on the removal of benzene, BTEX, and TPH impacted soils within the release area. The source and extent of chloride impacted soil was not further investigated by Delek or its contractors.

Earthstone Energy, Inc is the current operator of the pad where the release occurred and is most likely the responsible party of the chloride impacted soil. On November 4, 2022, during remedial excavation and soil sampling activities, GHD personnel witnessed contractors for Earthstone cleaning up a produced water release that occurred within the adjacent tank battery. Photographs of the Earthstone pad have been provided in Attachment C showing other potential impacts to the pad that were not related to the Delek crude oil release.

6. nAPP2223528506 Deferral and Closure Request

Site characterization, soil delineation, and remediation activities for Incident nAPP2223528506 have been performed in accordance with applicable OCD guidance and regulations. GHD, on behalf of Delek, requests deferral of the remediation of crude oil impacted soils immediately surrounding the two (2) LACT Units represented by soil samples BH23, LACT STAIN, LACT WALL 1, and LACT WALL 2 due to equipment structural stability concerns. These areas will be remediated when the oil and gas production equipment is removed from the Site during Site decommissioning. Based upon supporting documentation provided in this report, GHD, on behalf of Delek, respectfully requests closure of nAPP2223528506.

If you have any questions or comments concerning this Site Closure Report, please do not hesitate to contact our Midland office at (432) 686-0086.

Sincerely,

GHD



J.T. Murrey
Senior Project Manager

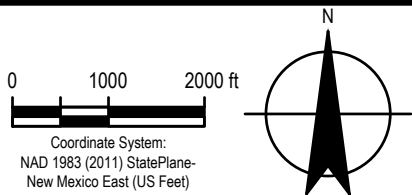
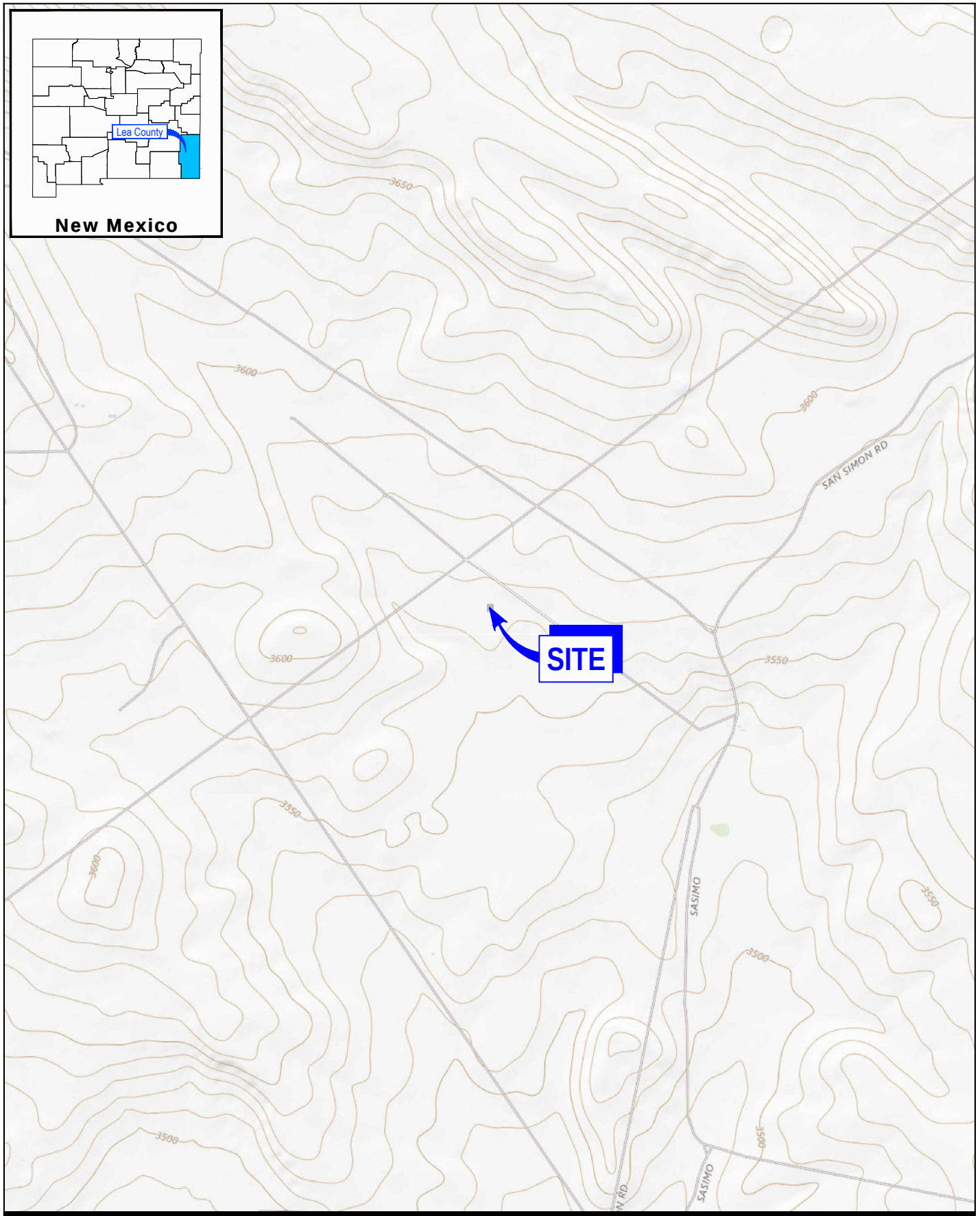


Mike Staffileno
Senior Project Director

Encl. Figure 1 – Site Location Map
 Figure 2 – Excavation and Sampling Details Map
 Table 1 – Summary of Soil Analytical Data
 Table 2 – Summary of Crude Oil Analytical Data
 Table 3 – Summary of Waste Management Information
 Attachment A – Site Characterization/Assessment Documentation
 Attachment B – Laboratory Analytical Reports and Chain-of-Custody Documentation
 Attachment C – Photographic Log
 Attachment D – Sampling Notifications

cc: Cassie Whitefield, Delek

Figures

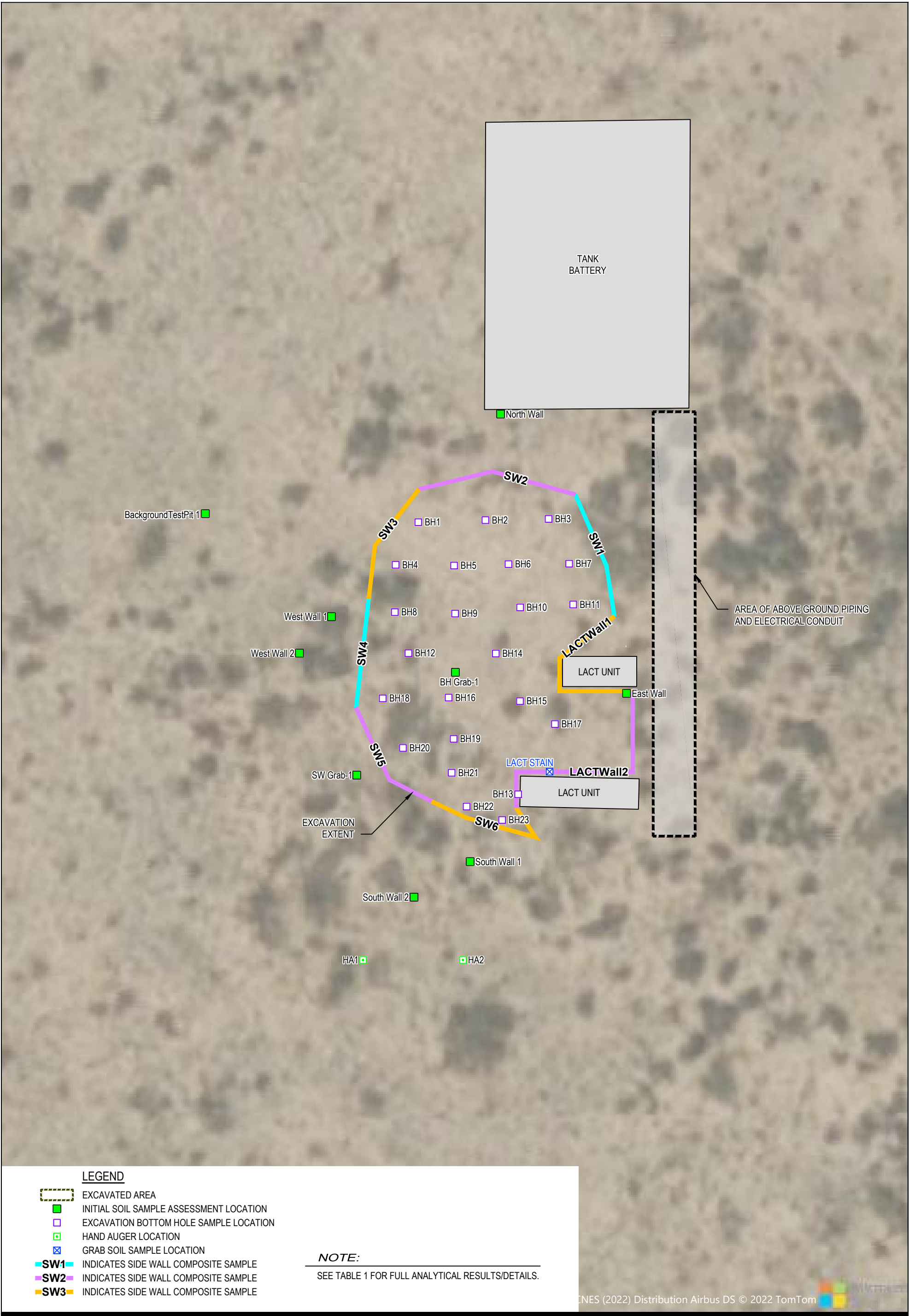


3 BEAR ENERGY-COTTONWOOD, LLC.
OPERATED BY DELEK LOGISTICS PARTNERS, L.P.
LEA COUNTY, NEW MEXICO
LACT EARTHSTONE SQUEEZE RELEASE

Project No. 12591378
Date February 2023

SITE LOCATION MAP

FIGURE 1



Tables

Table 1
Summary of Soil Analytical Data
3 Bear Energy-Cottonwood, LLC
LACT Earthstone Squeeze Release
Lea County, New Mexico

SAMPLE ID	SAMPLE DATE	DEPTH (FEET BGS)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	BTEX	TPH				CHLORIDE (Lab Analysis)	CHLORIDE (Field Screening)
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	TOTAL GRO/DRO/MRO		
			Table I Closure Criteria for Soils <50 feet Depth to Groundwater 19.15.29 NMAC										
10	---	---	---	50	---	---	---	100	600	---			
INITIAL ASSESSMENT SAMPLES													
HA1-S	8/12/22	Surface	< 0.00242	< 0.00242	< 0.00242	< 0.00484	< 0.00484	< 60.3	< 60.3	< 60.3	< 60.3	2890	> 836
HA1-1'	8/12/22	1'	< 0.00259	< 0.00259	< 0.00259	< 0.00518	< 0.00518	< 64.7	< 64.7	< 64.7	< 64.7	82.3	120
HA2-S	8/12/22	Surface	< 0.00239	< 0.00239	< 0.00239	< 0.00478	< 0.00478	< 59.6	< 59.6	< 59.6	< 59.6	86.1	0
HA2-1'	8/12/22	1'	< 0.00223	< 0.00223	< 0.00223	< 0.00445	< 0.00445	< 55.4	< 55.4	< 55.4	< 55.4	79.9	0
BH Grab-1	8/12/22	11'	< 0.00232	< 0.00232	< 0.00232	< 0.00463	< 0.00463	< 57.8	< 57.8	< 57.8	< 57.8	1570	–
SW Grab-1	8/12/22	0' - 4'	< 0.00286	< 0.00286	< 0.00286	< 0.00572	< 0.00572	< 71.4	< 71.4	< 71.4	< 71.4	965	–
Background Test Pit 1	8/23/22	2'	–	–	–	–	–	–	–	–	–	–	388
Background Test Pit 1	8/23/22	5'	–	–	–	–	–	–	–	–	–	–	716
North Wall	8/22/22	4'	–	–	–	–	–	–	–	–	–	–	180
East Wall	8/22/22	4'	–	–	–	–	–	–	–	–	–	–	596
West Wall 1	8/23/22	2'	–	–	–	–	–	–	–	–	–	–	776
West Wall 1	8/23/22	5'	–	–	–	–	–	–	–	–	–	–	656
West Wall 1	8/23/22	7'	–	–	–	–	–	–	–	–	–	–	540
West Wall 1	8/23/22	9'	–	–	–	–	–	–	–	–	–	–	980
West Wall 2	8/23/22	2'	–	–	–	–	–	–	–	–	–	–	388
West Wall 2	8/23/22	5'	–	–	–	–	–	–	–	–	–	–	540
West Wall 2	8/23/22	7'	–	–	–	–	–	–	–	–	–	–	776
West Wall 2	8/23/22	9'	–	–	–	–	–	–	–	–	–	–	656
West Wall 2	8/23/22	10'	–	–	–	–	–	–	–	–	–	–	908
South Wall 1	8/23/22	2'	–	–	–	–	–	–	–	–	–	–	656
South Wall 1	8/23/22	5'	–	–	–	–	–	–	–	–	–	–	1428
South Wall 1	8/23/22	7'	–	–	–	–	–	–	–	–	–	–	1104
South Wall 1	8/23/22	9'	–	–	–	–	–	–	–	–	–	–	1792
South Wall 2	8/23/22	2'	–	–	–	–	–	–	–	–	–	–	180
South Wall 2	8/23/22	5'	–	–	–	–	–	–	–	–	–	–	1272
South Wall 2	8/23/22	7'	–	–	–	–	–	–	–	–	–	–	1144
South Wall 2	8/23/22	10'	–	–	–	–	–	–	–	–	–	–	1144
EXCAVATION BOTTOM HOLE SAMPLES													
BH1	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00401	<0.00400	<50.0	<50.0	55.2	55.2	489	–
BH2	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<50.0	<50.0	<50.0	<50.0	420	–
BH3	10/05/2022	4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<50.0	<50.0	<50.0	<50.0	1010	–

Table 1
Summary of Soil Analytical Data
3 Bear Energy-Cottonwood, LLC
LACT Earthstone Squeeze Release
Lea County, New Mexico

SAMPLE ID	SAMPLE DATE	DEPTH (FEET BGS)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	BTEX	TPH				CHLORIDE (Lab Analysis)	CHLORIDE (Field Screening)
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	TOTAL GRO/DRO/MRO		
			Table I Closure Criteria for Soils <50 feet Depth to Groundwater 19.15.29 NMAC										
10	---	---	---	50	---	---	---	100	600	---			
BH4	10/05/2022	4'	<0.00198	<0.00198	<0.00198	<0.00397	<0.00400	<49.9	<49.9	<49.9	<50.0	610	–
BH5	10/05/2022	4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<49.9	<49.9	<49.9	<50.0	500	–
BH6	10/05/2022	4'	<0.00201	<0.00201	<0.00201	<0.00402	<0.00400	<49.9	<49.9	<49.9	<50.0	43.7	–
BH7	10/05/2022	4'	<0.00201	<0.00201	<0.00201	<0.00402	<0.00400	<50.0	<50.0	<50.0	<50.0	1150	–
BH8	10/05/2022	4'	<0.00202	<0.00202	<0.00202	<0.00403	<0.00400	<49.9	<49.9	<49.9	<50.0	1050	–
BH9	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<50.0	<50.0	<50.0	<50.0	1300	–
BH10	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00401	<0.00400	<50.0	<50.0	<50.0	<50.0	1670	–
BH11	10/05/2022	4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<49.8	<49.8	<49.8	<50.0	1980	–
BH12	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<49.9	<49.9	<49.9	<50.0	1170	–
BH13	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00401	<0.00400	<50.0	<50.0	<50.0	<50.0	1940	–
BH14	10/05/2022	4'	<0.00201	<0.00201	<0.00201	<0.00402	<0.00400	<50.0	<50.0	52.3	52.3	2780	–
BH15	10/05/2022	4'	<0.00202	<0.00202	<0.00202	<0.00403	<0.00400	<50.0	<50.0	<50.0	<50.0	1030	–
BH16	10/05/2022	4'	<0.00202	<0.00202	<0.00202	<0.00404	<0.00400	<49.8	<49.8	<49.8	<50.0	708	–
BH17	10/05/2022	7'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<49.8	<49.8	<49.8	<50.0	44.9	–
BH18	10/05/2022	8'	<0.00198	<0.00198	<0.00198	<0.00396	<0.00400	<49.8	56.3	<49.8	56.3	1290	–
BH19	10/05/2022	4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<49.9	108	172	280	1540	–
BH19A	11/4/2022	7'	0.000811 J	<0.000453 U	<0.000562 U 1	<0.00100 U	<0.00100 U	16.5 J	< 15.0 J	< 15.0 J	16.5	2450	–
BH20	10/05/2022	7'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<50.0	<50.0	<50.0	<50.0	358	–
BH21	10/05/2022	4'	<0.00202	<0.00202	<0.00202	<0.00403	<0.00400	<50.0	<50.0	<50.0	<50.0	919	–
BH22	10/05/2022	4'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<50.0	<50.0	<50.0	<50.0	504	–
BH23	10/05/2022	4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<50.0	203	<50.0	203	490	–
EXCAVATION SIDEWALL SAMPLES													
LACT STAIN	10/05/2022	0-4'	0.114	2.94	0.238	0.558	9.87	1090	26000	<250	27100	148	–
LACT WALL 1	10/05/2022	0-4'	<0.00200	0.0398	0.0118	0.0398	0.0949	<49.9	2870	<49.9	2870	1080	–
LACT WALL 2	10/05/2022	0-4'	0.0124	0.266	0.153	0.326	0.820	643	16300	<250	16900	487	–
SW1	10/05/2022	0-4'	<0.00199	0.0140	<0.00199	0.00477	0.0140	<50.0	<50.0	<50.0	<50.0	4410	–
SW2	10/05/2022	0-4'	<0.00201	<0.00201	<0.00201	<0.00402	<0.00400	<49.9	<49.9	<49.9	<50.0	528	–
SW3	10/05/2022	0-4'	<0.00200	<0.00200	<0.00200	<0.00399	<0.00400	<50.0	<50.0	<50.0	<50.0	1130	–
SW4	10/05/2022	0-4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<50.0	<50.0	<50.0	<50.0	790	–
SW5	10/05/2022	0-4'	<0.00200	<0.00200	<0.00200	<0.00401	<0.00400	<50.0	<50.0	<50.0	<50.0	185	–
SW6	10/05/2022	0-4'	<0.00199	<0.00199	<0.00199	<0.00398	<0.00400	<49.9	50.1	<49.9	50.1	1570	–

Table 1
Summary of Soil Analytical Data
3 Bear Energy-Cottonwood, LLC
LACT Earthstone Squeeze Release
Lea County, New Mexico

SAMPLE ID	SAMPLE DATE	DEPTH (FEET BGS)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	BTEX	TPH				CHLORIDE (Lab Analysis)	CHLORIDE (Field Screening)
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	TOTAL GRO/DRO/MRO		
			Table I Closure Criteria for Soils <50 feet Depth to Groundwater 19.15.29 NMAC										
			10	---	---	---	50	---	---	---	100	600	---

- Notes:
1. Values reported in mg/kg
2. < = Value Less than Reporting Limit (RL)
3. Bold Indicates Analyte Detected
4. BTEX analyses by EPA Method SW846 8021B
5. TPH analyses by EPA Method SW846 8015 Modified
- B-BH-2Sample Point Excavated
6. GRO/DRO/MRO = Gasoline/Diesel/Motor Oil
7. Chloride analysis by EPA MCAWW Method 300.0
8. Yellow shaded cells indicate analytical samples that exceed the NMOC 19.15.29.12 Table 1 Closure Criteria for the Site.
9. J - the target analytes was positively identified below the quantitation limit and above the detection limit.
10. – = Not analyzed for listed constituent or field tested.
11. Light red shaded cells are those soil samples representing a deferral of remediation.

Table 2
Summary of Crude Oil Analytical Data
3 Bear Energy-Cottonwood, LLC
LACT Earthstone Squeeze Release
Lea County, New Mexico

SAMPLE ID	SAMPLE DATE	DEPTH (FEET BGS)	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES	BTEX	TPH				CHLORIDE (Lab Analysis)
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	TOTAL GRO/DRO/ MRO	
			Table I Closure Criteria for Soils <50 feet Depth to Groundwater 19.15.29 NMAC									
10	---	---	---	50	---	---	---	100	600			
Product Sample												
Product Sample	11/4/22	NA	-	-	-	-	-	-	-	-	-	219

Notes:

1. Values reported in mg/kg

2. < = Value Less than Reporting Limit (RL)

3. Bold Indicates Analyte Detected

4. BTEX analyses by EPA Method SW846 8021B

5. TPH analyses by EPA Method SW846 8015 Modified

B-BH 2

Sample Point Excavated

6. GRO/DRO/MRO = Gasoline/Diesel/Motor Oil
7. Chloride anlaysis by EPA MCAWW Method 300.0
8. Yellow shaded cells indicate analytical samples that exceed the NMOC 19.15.29.12 Table 1 Closure Criteria for the Site.
9. J - the target analytes was positively identified below the quantitation limit and above the detection limit.
10. - = Not analyzed for listed constituent or field tested.

Table 3
Summary of of Waste Management Information
3 Bear Energy-Cottonwood, LLC
LACT Earthstone Squeeze Release
Lea County, New Mexico

Date	Ticket #	Volume (Cubic Yard)
8/11/2022	529425	20
8/11/2022	529422	20
8/11/2022	529402	20
8/11/2022	529427	20
8/11/2022	529428	20
8/11/2022	529426	20
8/12/2022	597029	20
8/12/2022	529401	20
8/12/2022	529420	20
8/12/2022	529419	20
8/12/2022	529417	20
8/12/2022	529416	20
8/12/2022	529418	20
8/12/2022	529415	20
8/12/2022	529414	20
8/12/2022	529413	20
8/12/2022	529412	20
8/12/2022	529411	20
8/12/2022	529410	20
8/12/2022	529409	20
8/12/2022	529407	20
8/12/2022	529498	20
8/12/2022	529406	20
8/12/2022	529403	20
8/12/2022	529404	20
8/12/2022	529405	20
8/18/2022	598176	20
8/18/2022	598177	20
8/18/2022	598180	20
8/18/2022	598179	20
8/16/2022	598181	20
8/18/2022	598182	20
8/18/2022	598183	20
8/18/2022	598178	20
8/18/2022	598184	20
8/18/2022	598190	20
8/18/2022	598186	20
8/18/2022	598188	20
8/18/2022	598189	20
8/18/2022	598187	20
8/19/2022	598240	20
8/19/2022	598243	20
8/19/2022	598242	20
8/19/2022	598245	20
8/19/2022	598244	20

Notes:

1. The waste was disposed of at the OCD-permitted (NM1-006), R360 Halfway Facility located at 6601 Hobbs Hwy US 62/180 Mile Marker 66, Carlsbad, New Mexico 88220

Attachment A

Site Characterization/Assessment Documentation

LACT Earthstone Squeeze Release

Karst Potential Map

Legend

 32.41427,-103.444

 High

 Low

 Medium

 Vitalizer

 Grama Ridge Station

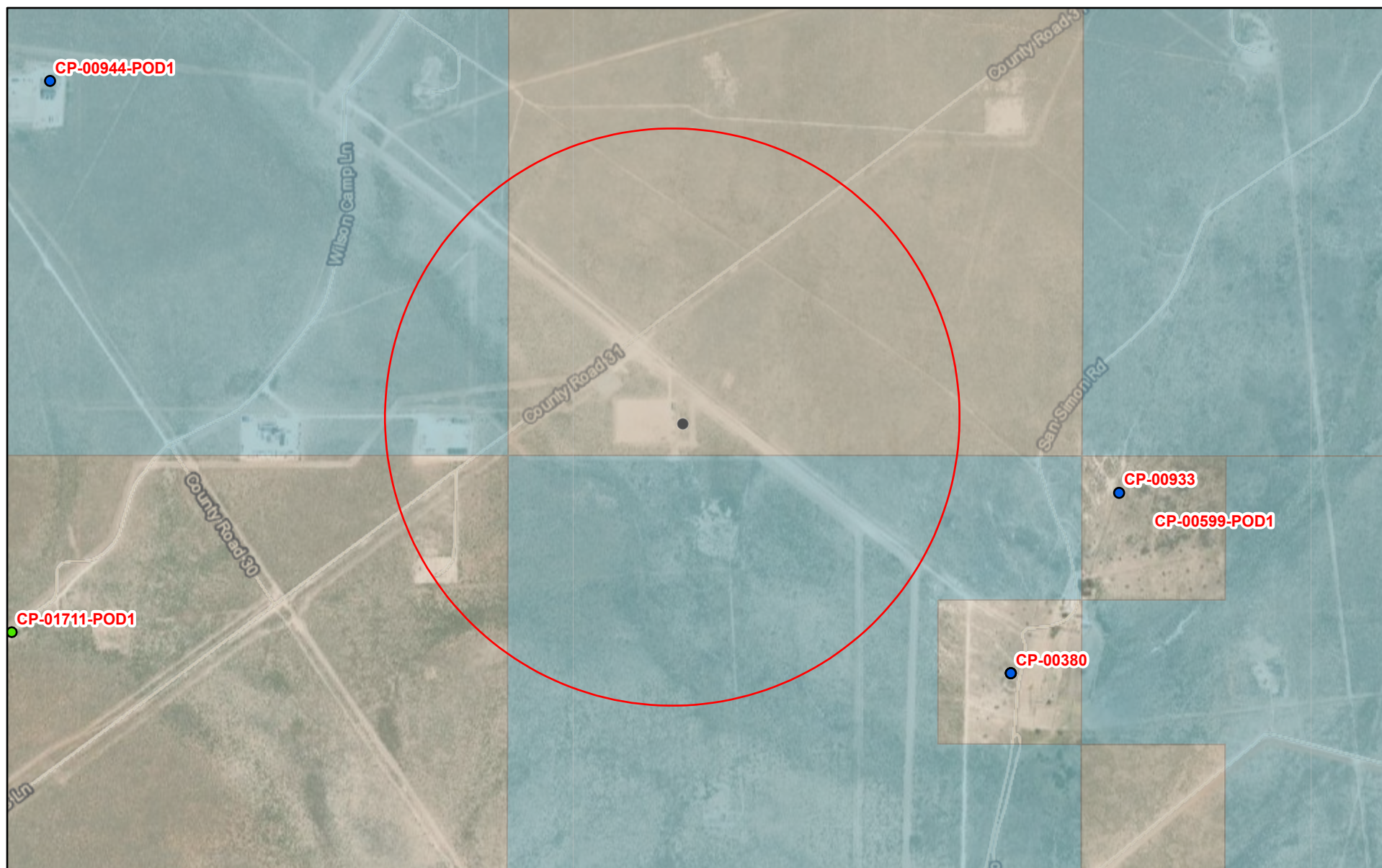
30

 32.41427,-103.444

32

32

OSE POD Locations Map - LACT Earthstone Squeeze



2/1/2023, 4:40:35 PM

GIS WATERS PODs

- Active (blue dot)
- Pending (green dot)

OSE District Boundary (red outline)

Water Right Regulations

Closure Area (grey rectangle)

New Mexico State Trust Lands

Subsurface Estate (tan rectangle)

Both Estates (light blue rectangle)

Site Boundaries (yellow dashed rectangle)

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management,
Esri, HERE, Garmin, iPC, Maxar

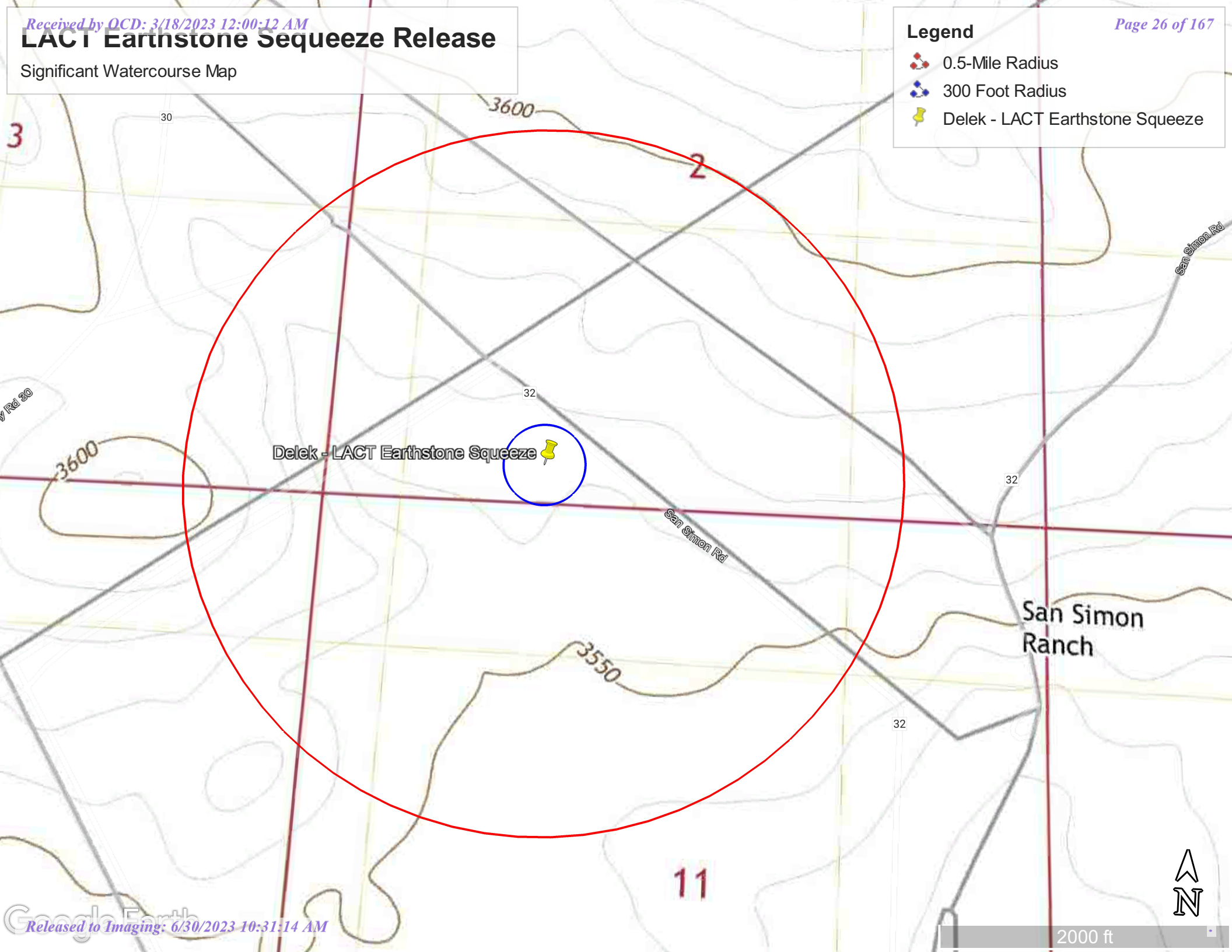
Web Generated Map
Map is generated by web users.

LACT Earthstone Squeeze Release

Significant Watercourse Map

Legend

-  0.5-Mile Radius
-  300 Foot Radius
-  Delek - LACT Earthstone Squeeze





LACT Earthstone Squeeze



February 1, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

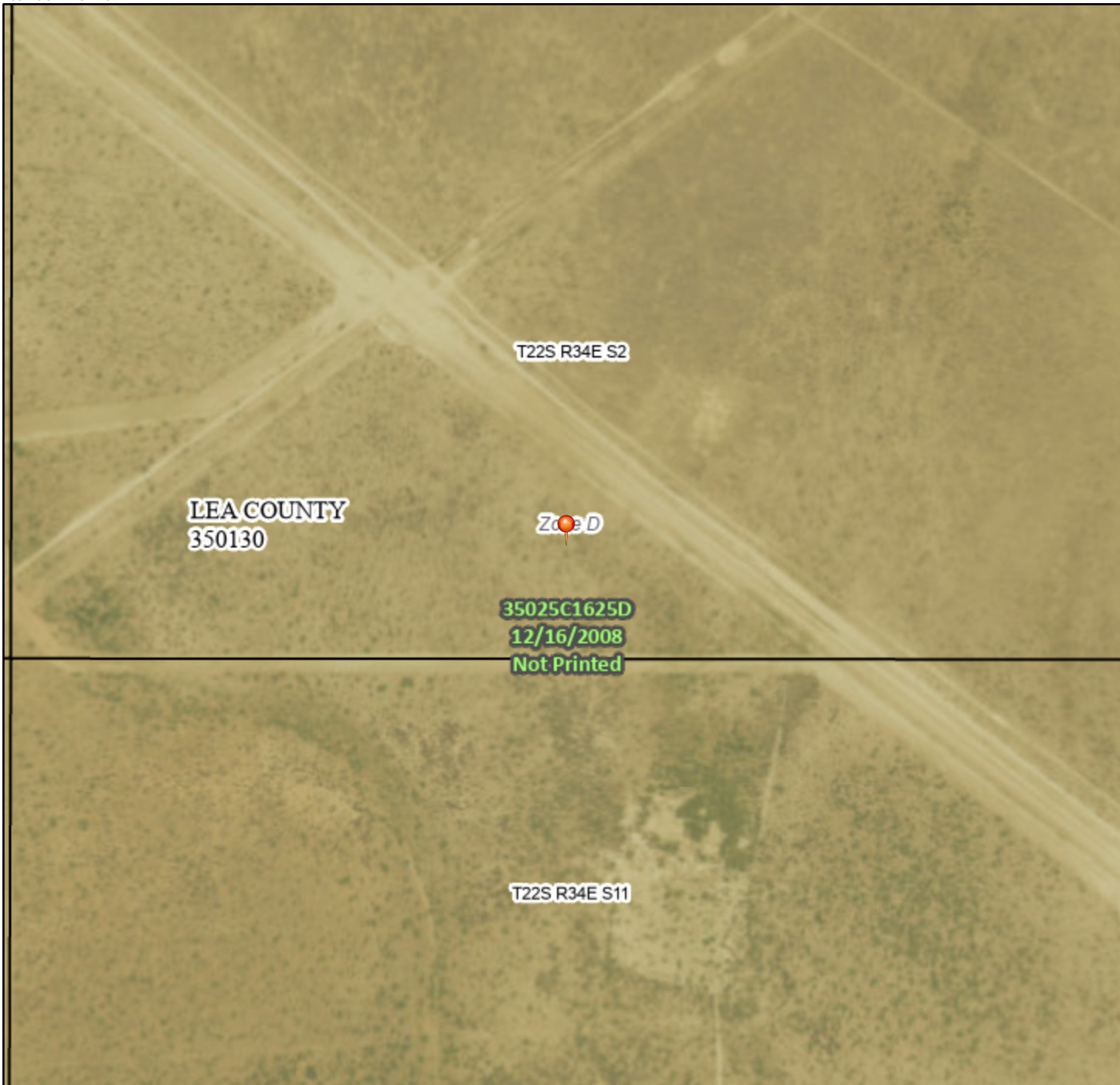
- Lake
- Other
- Riverine

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 Flood Hazard Layer FIRMette



103°26'57"W 32°25'7"N



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		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 <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
		Area of Minimal Flood Hazard <i>Zone X</i>
OTHER AREAS		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

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 **2/1/2023 at 4:00 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.

Attachment B

Laboratory Analytical Reports and Chain-of-Custody Documentation



Environment Testing America

ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-18062-1

Laboratory Sample Delivery Group: 12591378

Client Project/Site: LACT Earthstone Squeeze

For:

GHD Services Inc.
11451 Katy Freeway
Suite 400
Houston, Texas 77079

Attn: Valerie Phipps

A handwritten signature in black ink that reads "Debbie Simmons".

Authorized for release by:

8/16/2022 6:26:42 PM

Debbie Simmons, Project Manager
(832)986-6768

Debbie.Simmons@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Laboratory Job ID: 880-18062-1
SDG: 12591378

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Job ID: 880-18062-1

Laboratory: Eurofins Midland

Narrative

Job Narrative 880-18062-1

Comments

No additional comments.

Receipt

The samples were received on 8/15/2022 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 was 1.5° C.

GC VOA

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-32252 recovered above the upper control limit for Benzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-32252/2).

Method 8021B: Surrogate recovery for the following samples were outside control limits: (MB 880-32250/5-A) and (880-18062-A-1-F MSD). Evidence of matrix interferences is not obvious.

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

GC Semi VOA

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

General Chemistry

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

Organic Prep

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

VOA Prep

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA1-S

Lab Sample ID: 880-18062-1

Date Collected: 08/12/22 14:00

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 82.7

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000465	U	0.00242	0.000465	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1
Toluene	<0.000551	U	0.00242	0.000551	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1
Ethylbenzene	<0.000683	U	0.00242	0.000683	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1
m-Xylene & p-Xylene	<0.00122	U	0.00484	0.00122	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1
o-Xylene	<0.000416	U	0.00242	0.000416	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1
Xylenes, Total	<0.00122	U	0.00484	0.00122	mg/Kg	✱	08/16/22 11:31	08/16/22 14:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	08/16/22 11:31	08/16/22 14:27	1
1,4-Difluorobenzene (Surr)	90		70 - 130	08/16/22 11:31	08/16/22 14:27	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00122	U	0.00484	0.00122	mg/Kg	-		08/16/22 16:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<18.1	U	60.3	18.1	mg/Kg	-		08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<18.1	U	60.3	18.1	mg/Kg	✱	08/15/22 10:43	08/15/22 16:36	1
Diesel Range Organics (Over C10-C28)	<18.1	U	60.3	18.1	mg/Kg	✱	08/15/22 10:43	08/15/22 16:36	1
Oil Range Organics (Over C28-C36)	<18.1	U	60.3	18.1	mg/Kg	✱	08/15/22 10:43	08/15/22 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130	08/15/22 10:43	08/15/22 16:36	1
o-Terphenyl	101		70 - 130	08/15/22 10:43	08/15/22 16:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2890		30.2	5.19	mg/Kg	✱		08/16/22 13:47	5

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.3		0.100	0.100	%	-		08/15/22 15:28	1

Client Sample ID: HA1-1'

Lab Sample ID: 880-18062-2

Date Collected: 08/12/22 14:10

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 77.3

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000498	U	0.00259	0.000498	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1
Toluene	<0.000590	U	0.00259	0.000590	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1
Ethylbenzene	<0.000731	U	0.00259	0.000731	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1
m-Xylene & p-Xylene	<0.00131	U	0.00518	0.00131	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1
o-Xylene	<0.000445	U	0.00259	0.000445	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1
Xylenes, Total	<0.00131	U	0.00518	0.00131	mg/Kg	✱	08/16/22 11:31	08/16/22 14:54	1

Eurofins Midland

Client Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA1-1'

Lab Sample ID: 880-18062-2

Date Collected: 08/12/22 14:10

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 77.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	08/16/22 11:31	08/16/22 14:54	1
1,4-Difluorobenzene (Surr)	99		70 - 130	08/16/22 11:31	08/16/22 14:54	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00131	U	0.00518	0.00131	mg/Kg	-		08/16/22 16:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<19.4	U	64.7	19.4	mg/Kg	-		08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<19.4	U	64.7	19.4	mg/Kg	☼	08/15/22 10:43	08/15/22 16:57	1
Diesel Range Organics (Over C10-C28)	<19.4	U	64.7	19.4	mg/Kg	☼	08/15/22 10:43	08/15/22 16:57	1
Oil Range Organics (Over C28-C36)	<19.4	U	64.7	19.4	mg/Kg	☼	08/15/22 10:43	08/15/22 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130				08/15/22 10:43	08/15/22 16:57	1
o-Terphenyl	93		70 - 130				08/15/22 10:43	08/15/22 16:57	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	82.3		6.52	1.12	mg/Kg	✱		08/16/22 14:15	1

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	22.7		0.100	0.100	%	-		08/15/22 15:28	1

Client Sample ID: HA2-S

Lab Sample ID: 880-18062-3

Date Collected: 08/12/22 13:30

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 83.7

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000460	U	0.00239	0.000460	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
Toluene	<0.000545	U	0.00239	0.000545	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
Ethylbenzene	<0.000675	U	0.00239	0.000675	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
m-Xylene & p-Xylene	<0.00121	U	0.00478	0.00121	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
o-Xylene	<0.000411	U	0.00239	0.000411	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
Xylenes, Total	<0.00121	U	0.00478	0.00121	mg/Kg	☼	08/16/22 11:31	08/16/22 15:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130				08/16/22 11:31	08/16/22 15:20	1
1,4-Difluorobenzene (Surr)	102		70 - 130				08/16/22 11:31	08/16/22 15:20	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00121	U	0.00478	0.00121	mg/Kg	-		08/16/22 16:57	1

Eurofins Midland

Client Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA2-S

Lab Sample ID: 880-18062-3

Date Collected: 08/12/22 13:30

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 83.7

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<17.9	U	59.6	17.9	mg/Kg			08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<17.9	U	59.6	17.9	mg/Kg	✱	08/15/22 10:43	08/15/22 17:19	1
Diesel Range Organics (Over C10-C28)	<17.9	U	59.6	17.9	mg/Kg	✱	08/15/22 10:43	08/15/22 17:19	1
Oil Range Organics (Over C28-C36)	<17.9	U	59.6	17.9	mg/Kg	✱	08/15/22 10:43	08/15/22 17:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130				08/15/22 10:43	08/15/22 17:19	1
o-Terphenyl	100		70 - 130				08/15/22 10:43	08/15/22 17:19	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	86.1		6.04	1.04	mg/Kg	✱		08/16/22 14:24	1

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.3		0.100	0.100	%			08/15/22 15:28	1

Client Sample ID: HA2-1'

Lab Sample ID: 880-18062-4

Date Collected: 08/12/22 13:40

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 89.8

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000429	U	0.00223	0.000429	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
Toluene	<0.000508	U	0.00223	0.000508	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
Ethylbenzene	<0.000629	U	0.00223	0.000629	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
m-Xylene & p-Xylene	<0.00112	U	0.00445	0.00112	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
o-Xylene	<0.000383	U	0.00223	0.000383	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
Xylenes, Total	<0.00112	U	0.00445	0.00112	mg/Kg	✱	08/16/22 11:31	08/16/22 15:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130				08/16/22 11:31	08/16/22 15:47	1
1,4-Difluorobenzene (Surr)	100		70 - 130				08/16/22 11:31	08/16/22 15:47	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00112	U	0.00445	0.00112	mg/Kg			08/16/22 16:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<16.6	U	55.4	16.6	mg/Kg			08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<16.6	U	55.4	16.6	mg/Kg	✱	08/15/22 10:43	08/15/22 17:41	1
Diesel Range Organics (Over C10-C28)	<16.6	U	55.4	16.6	mg/Kg	✱	08/15/22 10:43	08/15/22 17:41	1

Eurofins Midland

Client Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA2-1'

Lab Sample ID: 880-18062-4

Date Collected: 08/12/22 13:40

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 89.8

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (Over C28-C36)	<16.6	U	55.4	16.6	mg/Kg	☆	08/15/22 10:43	08/15/22 17:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				08/15/22 10:43	08/15/22 17:41	1
o-Terphenyl	105		70 - 130				08/15/22 10:43	08/15/22 17:41	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	79.9		5.58	0.957	mg/Kg	☆		08/16/22 14:33	1

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	10.2		0.100	0.100	%			08/15/22 15:28	1

Client Sample ID: BH Grab-1

Lab Sample ID: 880-18062-5

Date Collected: 08/12/22 14:40

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 86.4

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000446	U	0.00232	0.000446	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
Toluene	<0.000528	U	0.00232	0.000528	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
Ethylbenzene	<0.000654	U	0.00232	0.000654	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
m-Xylene & p-Xylene	<0.00117	U	0.00463	0.00117	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
o-Xylene	<0.000398	U	0.00232	0.000398	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
Xylenes, Total	<0.00117	U	0.00463	0.00117	mg/Kg	☆	08/16/22 11:31	08/16/22 16:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130				08/16/22 11:31	08/16/22 16:13	1
1,4-Difluorobenzene (Surr)	107		70 - 130				08/16/22 11:31	08/16/22 16:13	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00117	U	0.00463	0.00117	mg/Kg			08/16/22 16:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<17.3	U	57.8	17.3	mg/Kg			08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<17.3	U	57.8	17.3	mg/Kg	☆	08/15/22 10:43	08/15/22 18:02	1
Diesel Range Organics (Over C10-C28)	<17.3	U	57.8	17.3	mg/Kg	☆	08/15/22 10:43	08/15/22 18:02	1
Oil Range Organics (Over C28-C36)	<17.3	U	57.8	17.3	mg/Kg	☆	08/15/22 10:43	08/15/22 18:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130				08/15/22 10:43	08/15/22 18:02	1
o-Terphenyl	103		70 - 130				08/15/22 10:43	08/15/22 18:02	1

Eurofins Midland

Client Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: BH Grab-1

Date Collected: 08/12/22 14:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-5

Matrix: Solid

Percent Solids: 86.4

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1570		28.9	4.96	mg/Kg	☆		08/16/22 14:42	5

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.6		0.100	0.100	%			08/15/22 15:28	1

Client Sample ID: SW Grab-1

Date Collected: 08/12/22 14:50

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-6

Matrix: Solid

Percent Solids: 69.9

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000551	U	0.00286	0.000551	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1
Toluene	<0.000652	U	0.00286	0.000652	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1
Ethylbenzene	<0.000808	U	0.00286	0.000808	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1
m-Xylene & p-Xylene	<0.00145	U	0.00572	0.00145	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1
o-Xylene	<0.000492	U	0.00286	0.000492	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1
Xylenes, Total	<0.00145	U	0.00572	0.00145	mg/Kg	☆	08/16/22 11:31	08/16/22 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	08/16/22 11:31	08/16/22 16:39	1
1,4-Difluorobenzene (Surr)	100		70 - 130	08/16/22 11:31	08/16/22 16:39	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00145	U	0.00572	0.00145	mg/Kg			08/16/22 16:57	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<21.4	U	71.4	21.4	mg/Kg			08/16/22 16:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<21.4	U	71.4	21.4	mg/Kg	☆	08/15/22 10:43	08/15/22 18:23	1
Diesel Range Organics (Over C10-C28)	<21.4	U	71.4	21.4	mg/Kg	☆	08/15/22 10:43	08/15/22 18:23	1
Oil Range Organics (Over C28-C36)	<21.4	U	71.4	21.4	mg/Kg	☆	08/15/22 10:43	08/15/22 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130	08/15/22 10:43	08/15/22 18:23	1
o-Terphenyl	105		70 - 130	08/15/22 10:43	08/15/22 18:23	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	965		7.15	1.23	mg/Kg	☆		08/16/22 15:10	1

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	30.1		0.100	0.100	%			08/15/22 15:28	1

Eurofins Midland

Surrogate Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-18062-1	HA1-S	108	90
880-18062-1 MS	HA1-S	101	105
880-18062-1 MSD	HA1-S	56 S1-	64 S1-
880-18062-2	HA1-1'	109	99
880-18062-3	HA2-S	103	102
880-18062-4	HA2-1'	120	100
880-18062-5	BH Grab-1	120	107
880-18062-6	SW Grab-1	108	100
LCS 880-32250/1-A	Lab Control Sample	95	99
LCSD 880-32250/2-A	Lab Control Sample Dup	103	94
MB 880-32250/5-A	Method Blank	77	0.7 S1-
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-18062-1	HA1-S	94	101
880-18062-2	HA1-1'	85	93
880-18062-3	HA2-S	91	100
880-18062-4	HA2-1'	97	105
880-18062-5	BH Grab-1	91	103
880-18062-6	SW Grab-1	96	105
LCS 880-32158/2-A	Lab Control Sample	123	129
LCSD 880-32158/3-A	Lab Control Sample Dup	119	123
MB 880-32158/1-A	Method Blank	91	103
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-32250/5-A

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 32250

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		08/16/22 11:31	08/16/22 14:01	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		08/16/22 11:31	08/16/22 14:01	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		08/16/22 11:31	08/16/22 14:01	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		08/16/22 11:31	08/16/22 14:01	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		08/16/22 11:31	08/16/22 14:01	1
Xylenes, Total	<0.00101	U	0.00400	0.00101	mg/Kg		08/16/22 11:31	08/16/22 14:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		70 - 130	08/16/22 11:31	08/16/22 14:01	1
1,4-Difluorobenzene (Surr)	0.7	S1-	70 - 130	08/16/22 11:31	08/16/22 14:01	1

Lab Sample ID: LCS 880-32250/1-A

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 32250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0996	0.1004		mg/Kg		101	70 - 130
Toluene	0.0996	0.09472		mg/Kg		95	70 - 130
Ethylbenzene	0.0996	0.09812		mg/Kg		99	70 - 130
m-Xylene & p-Xylene	0.199	0.1961		mg/Kg		98	70 - 130
o-Xylene	0.0996	0.09551		mg/Kg		96	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: LCSD 880-32250/2-A

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 32250

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09752		mg/Kg		98	70 - 130	3	35
Toluene	0.100	0.09550		mg/Kg		95	70 - 130	1	35
Ethylbenzene	0.100	0.09921		mg/Kg		99	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.1979		mg/Kg		99	70 - 130	1	35
o-Xylene	0.100	0.09639		mg/Kg		96	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

Lab Sample ID: 880-18062-1 MS

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: HA1-S

Prep Type: Total/NA

Prep Batch: 32250

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

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

Lab Sample ID: 880-18062-1 MS

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: HA1-S

Prep Type: Total/NA

Prep Batch: 32250

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 880-18062-1 MSD

Matrix: Solid

Analysis Batch: 32252

Client Sample ID: HA1-S

Prep Type: Total/NA

Prep Batch: 32250

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	56	S1-	70 - 130
1,4-Difluorobenzene (Surr)	64	S1-	70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-32158/1-A

Matrix: Solid

Analysis Batch: 32121

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 32158

Analyte	MB	MB								
	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		08/15/22 10:43	08/15/22 10:50	1	
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		08/15/22 10:43	08/15/22 10:50	1	
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		08/15/22 10:43	08/15/22 10:50	1	
Surrogate	MB	MB					Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier	Limits							
1-Chlorooctane	91		70 - 130				08/15/22 10:43	08/15/22 10:50	1	
o-Terphenyl	103		70 - 130				08/15/22 10:43	08/15/22 10:50	1	

Lab Sample ID: LCS 880-32158/2-A

Matrix: Solid

Analysis Batch: 32121

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 32158

Analyte	Spike	LCS	LCS							
	Added	Result	Qualifier	Unit	D	%Rec	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	1127		mg/Kg		113		70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1099		mg/Kg		110		70 - 130		
Surrogate	LCS	LCS								
	%Recovery	Qualifier	Limits							
1-Chlorooctane	123		70 - 130							
o-Terphenyl	129		70 - 130							

Lab Sample ID: LCSD 880-32158/3-A

Matrix: Solid

Analysis Batch: 32121

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 32158

Analyte	Spike	LCSD	LCSD							
	Added	Result	Qualifier	Unit	D	%Rec	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1094		mg/Kg		109		70 - 130	3	20

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-32158/3-A

Matrix: Solid

Analysis Batch: 32121

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 32158

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics (Over C10-C28)	1000	1054		mg/Kg		105	70 - 130	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	119		70 - 130						
o-Terphenyl	123		70 - 130						

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-32192/1-A

Matrix: Solid

Analysis Batch: 32257

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.860	U	5.01	0.860	mg/Kg			08/16/22 13:19	1

Lab Sample ID: LCS 880-32192/2-A

Matrix: Solid

Analysis Batch: 32257

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	249	250.6		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-32192/3-A

Matrix: Solid

Analysis Batch: 32257

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	240.3		mg/Kg		96	90 - 110	4	20

Lab Sample ID: 880-18062-1 MS

Matrix: Solid

Analysis Batch: 32257

Client Sample ID: HA1-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2890		1510	4537		mg/Kg	✱	109	90 - 110		

Lab Sample ID: 880-18062-1 MSD

Matrix: Solid

Analysis Batch: 32257

Client Sample ID: HA1-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2890		1510	4527		mg/Kg	✱	108	90 - 110	0	20

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QC Sample Results

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Method: D2216 - Percent Moisture

Lab Sample ID: MB 880-31637/1
Matrix: Solid
Analysis Batch: 31637

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	<0.100	U	0.100	0.100	%			08/15/22 15:28	1

Lab Sample ID: 880-18062-5 DU
Matrix: Solid
Analysis Batch: 31637

Client Sample ID: BH Grab-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	13.6		13.2		%		3	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

GC VOA

Prep Batch: 32250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	5035	
880-18062-2	HA1-1'	Total/NA	Solid	5035	
880-18062-3	HA2-S	Total/NA	Solid	5035	
880-18062-4	HA2-1'	Total/NA	Solid	5035	
880-18062-5	BH Grab-1	Total/NA	Solid	5035	
880-18062-6	SW Grab-1	Total/NA	Solid	5035	
MB 880-32250/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-32250/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-32250/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-18062-1 MS	HA1-S	Total/NA	Solid	5035	
880-18062-1 MSD	HA1-S	Total/NA	Solid	5035	

Analysis Batch: 32252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	8021B	32250
880-18062-2	HA1-1'	Total/NA	Solid	8021B	32250
880-18062-3	HA2-S	Total/NA	Solid	8021B	32250
880-18062-4	HA2-1'	Total/NA	Solid	8021B	32250
880-18062-5	BH Grab-1	Total/NA	Solid	8021B	32250
880-18062-6	SW Grab-1	Total/NA	Solid	8021B	32250
MB 880-32250/5-A	Method Blank	Total/NA	Solid	8021B	32250
LCS 880-32250/1-A	Lab Control Sample	Total/NA	Solid	8021B	32250
LCSD 880-32250/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	32250
880-18062-1 MS	HA1-S	Total/NA	Solid	8021B	32250
880-18062-1 MSD	HA1-S	Total/NA	Solid	8021B	32250

Analysis Batch: 32277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	Total BTEX	
880-18062-2	HA1-1'	Total/NA	Solid	Total BTEX	
880-18062-3	HA2-S	Total/NA	Solid	Total BTEX	
880-18062-4	HA2-1'	Total/NA	Solid	Total BTEX	
880-18062-5	BH Grab-1	Total/NA	Solid	Total BTEX	
880-18062-6	SW Grab-1	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 32121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	8015B NM	32158
880-18062-2	HA1-1'	Total/NA	Solid	8015B NM	32158
880-18062-3	HA2-S	Total/NA	Solid	8015B NM	32158
880-18062-4	HA2-1'	Total/NA	Solid	8015B NM	32158
880-18062-5	BH Grab-1	Total/NA	Solid	8015B NM	32158
880-18062-6	SW Grab-1	Total/NA	Solid	8015B NM	32158
MB 880-32158/1-A	Method Blank	Total/NA	Solid	8015B NM	32158
LCS 880-32158/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	32158
LCSD 880-32158/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	32158

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QC Association Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

GC Semi VOA

Prep Batch: 32158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	8015NM Prep	
880-18062-2	HA1-1'	Total/NA	Solid	8015NM Prep	
880-18062-3	HA2-S	Total/NA	Solid	8015NM Prep	
880-18062-4	HA2-1'	Total/NA	Solid	8015NM Prep	
880-18062-5	BH Grab-1	Total/NA	Solid	8015NM Prep	
880-18062-6	SW Grab-1	Total/NA	Solid	8015NM Prep	
MB 880-32158/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-32158/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-32158/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 32276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	8015 NM	
880-18062-2	HA1-1'	Total/NA	Solid	8015 NM	
880-18062-3	HA2-S	Total/NA	Solid	8015 NM	
880-18062-4	HA2-1'	Total/NA	Solid	8015 NM	
880-18062-5	BH Grab-1	Total/NA	Solid	8015 NM	
880-18062-6	SW Grab-1	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 32192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Soluble	Solid	DI Leach	
880-18062-2	HA1-1'	Soluble	Solid	DI Leach	
880-18062-3	HA2-S	Soluble	Solid	DI Leach	
880-18062-4	HA2-1'	Soluble	Solid	DI Leach	
880-18062-5	BH Grab-1	Soluble	Solid	DI Leach	
880-18062-6	SW Grab-1	Soluble	Solid	DI Leach	
MB 880-32192/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-32192/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-32192/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-18062-1 MS	HA1-S	Soluble	Solid	DI Leach	
880-18062-1 MSD	HA1-S	Soluble	Solid	DI Leach	

Analysis Batch: 32257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Soluble	Solid	300.0	32192
880-18062-2	HA1-1'	Soluble	Solid	300.0	32192
880-18062-3	HA2-S	Soluble	Solid	300.0	32192
880-18062-4	HA2-1'	Soluble	Solid	300.0	32192
880-18062-5	BH Grab-1	Soluble	Solid	300.0	32192
880-18062-6	SW Grab-1	Soluble	Solid	300.0	32192
MB 880-32192/1-A	Method Blank	Soluble	Solid	300.0	32192
LCS 880-32192/2-A	Lab Control Sample	Soluble	Solid	300.0	32192
LCSD 880-32192/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	32192
880-18062-1 MS	HA1-S	Soluble	Solid	300.0	32192
880-18062-1 MSD	HA1-S	Soluble	Solid	300.0	32192

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QC Association Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

General Chemistry

Analysis Batch: 31637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-18062-1	HA1-S	Total/NA	Solid	D2216	
880-18062-2	HA1-1'	Total/NA	Solid	D2216	
880-18062-3	HA2-S	Total/NA	Solid	D2216	
880-18062-4	HA2-1'	Total/NA	Solid	D2216	
880-18062-5	BH Grab-1	Total/NA	Solid	D2216	
880-18062-6	SW Grab-1	Total/NA	Solid	D2216	
MB 880-31637/1	Method Blank	Total/NA	Solid	D2216	
880-18062-5 DU	BH Grab-1	Total/NA	Solid	D2216	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA1-S

Lab Sample ID: 880-18062-1

Date Collected: 08/12/22 14:00

Matrix: Solid

Date Received: 08/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

Client Sample ID: HA1-S

Lab Sample ID: 880-18062-1

Date Collected: 08/12/22 14:00

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 82.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5.01 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 14:27	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 16:36	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		5			32257	08/16/22 13:47	CH	EET MID

Client Sample ID: HA1-1'

Lab Sample ID: 880-18062-2

Date Collected: 08/12/22 14:10

Matrix: Solid

Date Received: 08/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

Client Sample ID: HA1-1'

Lab Sample ID: 880-18062-2

Date Collected: 08/12/22 14:10

Matrix: Solid

Date Received: 08/15/22 08:00

Percent Solids: 77.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5.02 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 14:54	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 16:57	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		1			32257	08/16/22 14:15	CH	EET MID

Client Sample ID: HA2-S

Lab Sample ID: 880-18062-3

Date Collected: 08/12/22 13:30

Matrix: Solid

Date Received: 08/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: HA2-S

Date Collected: 08/12/22 13:30

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-3

Matrix: Solid

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5.03 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 15:20	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 17:19	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		1			32257	08/16/22 14:24	CH	EET MID

Client Sample ID: HA2-1'

Date Collected: 08/12/22 13:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

Client Sample ID: HA2-1'

Date Collected: 08/12/22 13:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-4

Matrix: Solid

Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5.04 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 15:47	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 17:41	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		1			32257	08/16/22 14:33	CH	EET MID

Client Sample ID: BH Grab-1

Date Collected: 08/12/22 14:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

Client Sample ID: BH Grab-1

Date Collected: 08/12/22 14:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-5

Matrix: Solid

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5.05 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 16:13	AJ	EET MID

Eurofins Midland

Lab Chronicle

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Client Sample ID: BH Grab-1

Date Collected: 08/12/22 14:40

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-5

Matrix: Solid

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 18:02	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		5			32257	08/16/22 14:42	CH	EET MID

Client Sample ID: SW Grab-1

Date Collected: 08/12/22 14:50

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Total BTEX		1			32277	08/16/22 16:57	AJ	EET MID
Total/NA	Analysis	8015 NM		1			32276	08/16/22 16:46	SM	EET MID
Total/NA	Analysis	D2216		1			31637	08/15/22 15:28	CH	EET MID

Client Sample ID: SW Grab-1

Date Collected: 08/12/22 14:50

Date Received: 08/15/22 08:00

Lab Sample ID: 880-18062-6

Matrix: Solid

Percent Solids: 69.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5.04 g	32250	08/16/22 11:31	AJ	EET MID
Total/NA	Analysis	8021B		1			32252	08/16/22 16:39	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	32158	08/15/22 10:43	DM	EET MID
Total/NA	Analysis	8015B NM		1			32121	08/15/22 18:23	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	32192	08/16/22 08:07	CH	EET MID
Soluble	Analysis	300.0		1			32257	08/16/22 15:10	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
D2216	Percent Moisture	ASTM	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Midland

Sample Summary

Client: GHD Services Inc.
Project/Site: LACT Earthstone Squeeze

Job ID: 880-18062-1
SDG: 12591378

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-18062-1	HA1-S	Solid	08/12/22 14:00	08/15/22 08:00
880-18062-2	HA1-1'	Solid	08/12/22 14:10	08/15/22 08:00
880-18062-3	HA2-S	Solid	08/12/22 13:30	08/15/22 08:00
880-18062-4	HA2-1'	Solid	08/12/22 13:40	08/15/22 08:00
880-18062-5	BH Grab-1	Solid	08/12/22 14:40	08/15/22 08:00
880-18062-6	SW Grab-1	Solid	08/12/22 14:50	08/15/22 08:00

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Xenco Laboratories

The Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS

12600 West I-20 East
Odessa, Texas 79765



880-18062 Chain of Custody

8/16/2022

Project Manager: Valerie Phipps @ GHD.com
Company Name: GHD
Company Address: 2135 S. Loop 250 W.
City/State/Zip: Midland, TX 79703
Telephone No: 432-686-0086
Sampler Signature: [Signature]
Fax No: _____
e-mail: Heath.Beyd @ GHD.com

Project Name: LAC1 EarthStone Squeeze
Project #: 12591378
Project Loc: Lea County, NM
PO #: _____
Report Format: ☒ Standard ☐ TRRP ☐ NPDES

(lab use only)
ORDER #:

Lab Use Only		FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total # of Containers	Preservation & # of Containers										Matrix										Special Instructions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
									Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	TPH	418 1	8015M	8015B	TX 1005	Cations (Ca Mg Na, K)	Anions (Cl SO ₄ Alkalinity)	SAR / ESP / CEC	Metals As Ag Ba Cd Cr Pb Hg Se	Volatiles		Semivolatiles	BTX 8021B/5030 or BTX 8260	RCI	NORM	Chloride 300 m																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Special Instructions: Please Email: Valerie, Heath
JT.Murray @ GHD.com
Cassie.Whitefield @ delek logistics.com

Direct Bill to: Delek Logistics

Relinquished by: <u>[Signature]</u>	Date: <u>8/12/22</u>	Time: <u>1555</u>	Received by: <u>[Signature]</u>	Date: <u>8/12</u>	Time: <u>3:47</u>
Relinquished by: <u>[Signature]</u>	Date: <u>8/12</u>	Time: <u>3:47</u>	Received by: <u>[Signature]</u>	Date: <u>8/15</u>	Time: <u>8:00</u>
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____

Laboratory Comments:
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N
Labels on container(s) Y N
Custody seals on container(s) Y N
Custody seals on cooler(s) Y N
Sample Hand Delivered Y N
by Sampler/Client Rep? Y N
by Courier? UPS DHL FedEx Lone Star
As Read Corrected
Temperature Upon Receipt 1.3 1.5 °C

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 880-18062-1

SDG Number: 12591378

Login Number: 18062

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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").	N/A	



Environment Testing America

ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3151-1

Laboratory Sample Delivery Group: 12591378

Client Project/Site: Delek LACT Earthstone Squeeze

For:

GHD Services Inc.
6121 Indian School Road NE
Suite 200
Albuquerque, New Mexico 87110

Attn: Christine Mathews

A handwritten signature in black ink that reads "Debbie Simmons".

Authorized for release by:

10/20/2022 9:18:57 AM

Debbie Simmons, Project Manager
(832)986-6768

Debbie.Simmons@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Laboratory Job ID: 890-3151-1
SDG: 12591378

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Eurofins Carlsbad

Case Narrative

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Job ID: 890-3151-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative 890-3151-1

Comments

No additional comments.

Receipt

The samples were received on 10/5/2022 2:37 PM. 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 was 17.8° C.

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36687 and analytical batch 880-36926 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-36926 recovered above the upper control limit for m-Xylene & p-Xylene and o-Xylene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-36926/33).

Method 8021B: Surrogate recovery for the following samples were outside control limits: LACT STAIN (890-3151-24) and LACT WALL 1 (890-3151-25). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH7 (890-3151-7). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: LACT WALL 2 (890-3151-26). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA

Method 8015B NM: The surrogate recovery for the blank associated with preparation batch 880-36385 and analytical batch 880-36313 was outside the upper control limits.

Method 8015B NM: The surrogate recovery for the blank associated with preparation batch 880-36387 and analytical batch 880-36315 was outside the upper control limits.

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

General Chemistry

Method 300.0: Spike compounds were inadvertently omitted during the extraction process for the matrix spike/matrix spike duplicate (MS/MSD); therefore, matrix spike recoveries are unavailable for preparation batch 880-36391 and analytical batch 880-36602. The associated laboratory control sample (LCS) met acceptance criteria.

Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36391 and analytical batch 880-36602 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Organic Prep

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

VOA Prep

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH1

Lab Sample ID: 890-3151-1

Date Collected: 10/05/22 10:30

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:33	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:33	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:33	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/14/22 22:33	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:33	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/14/22 22:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	10/11/22 14:22	10/14/22 22:33	1
1,4-Difluorobenzene (Surr)	86		70 - 130	10/11/22 14:22	10/14/22 22:33	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	55.2		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 11:01	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 11:01	1
Oil Range Organics (Over C28-C36)	55.2		50.0		mg/Kg		10/07/22 14:43	10/09/22 11:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	10/07/22 14:43	10/09/22 11:01	1
o-Terphenyl	119		70 - 130	10/07/22 14:43	10/09/22 11:01	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	489	F1	5.05		mg/Kg			10/11/22 11:20	1

Client Sample ID: BH2

Lab Sample ID: 890-3151-2

Date Collected: 10/05/22 10:35

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:54	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/14/22 22:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:54	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/14/22 22:54	1

Eurofins Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH2

Lab Sample ID: 890-3151-2

Date Collected: 10/05/22 10:35

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	10/11/22 14:22	10/14/22 22:54	1
1,4-Difluorobenzene (Surr)	99		70 - 130	10/11/22 14:22	10/14/22 22:54	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:03	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				10/07/22 14:43	10/09/22 12:03	1
o-Terphenyl	108		70 - 130				10/07/22 14:43	10/09/22 12:03	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	420		25.0		mg/Kg			10/11/22 11:37	5

Client Sample ID: BH3

Lab Sample ID: 890-3151-3

Date Collected: 10/05/22 10:40

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:15	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:15	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:15	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/14/22 23:15	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:15	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/14/22 23:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	10/11/22 14:22	10/14/22 23:15	1
1,4-Difluorobenzene (Surr)	98		70 - 130	10/11/22 14:22	10/14/22 23:15	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH3

Date Collected: 10/05/22 10:40

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-3

Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:24	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:24	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 12:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130				10/07/22 14:43	10/09/22 12:24	1
o-Terphenyl	107		70 - 130				10/07/22 14:43	10/09/22 12:24	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1010		25.0		mg/Kg			10/11/22 11:43	5

Client Sample ID: BH4

Date Collected: 10/05/22 10:45

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-4

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
Toluene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		10/11/22 14:22	10/14/22 23:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130				10/11/22 14:22	10/14/22 23:36	1
1,4-Difluorobenzene (Surr)	96		70 - 130				10/11/22 14:22	10/14/22 23:36	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 12:44	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 12:44	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 12:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				10/07/22 14:43	10/09/22 12:44	1
o-Terphenyl	113		70 - 130				10/07/22 14:43	10/09/22 12:44	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH4

Date Collected: 10/05/22 10:45

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-4

Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	610		24.9		mg/Kg			10/11/22 11:49	5

Client Sample ID: BH5

Date Collected: 10/05/22 10:50

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-5

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/14/22 23:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130				10/11/22 14:22	10/14/22 23:56	1
1,4-Difluorobenzene (Surr)	101		70 - 130				10/11/22 14:22	10/14/22 23:56	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:05	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:05	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130				10/07/22 14:43	10/09/22 13:05	1
o-Terphenyl	118		70 - 130				10/07/22 14:43	10/09/22 13:05	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	500		24.8		mg/Kg			10/11/22 11:55	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH6

Lab Sample ID: 890-3151-6

Date Collected: 10/05/22 10:55

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:17	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:17	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:17	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 00:17	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:17	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	10/11/22 14:22	10/15/22 00:17	1
1,4-Difluorobenzene (Surr)	97		70 - 130	10/11/22 14:22	10/15/22 00:17	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:26	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:26	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 13:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	10/07/22 14:43	10/09/22 13:26	1
o-Terphenyl	109		70 - 130	10/07/22 14:43	10/09/22 13:26	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43.7		5.02		mg/Kg			10/11/22 12:12	1

Client Sample ID: BH7

Lab Sample ID: 890-3151-7

Date Collected: 10/05/22 11:00

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:38	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:38	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:38	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 00:38	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 00:38	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 00:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	131	S1+	70 - 130	10/11/22 14:22	10/15/22 00:38	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH7

Lab Sample ID: 890-3151-7

Date Collected: 10/05/22 11:00

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	94		70 - 130	10/11/22 14:22	10/15/22 00:38	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 13:46	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 13:46	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130				10/07/22 14:43	10/09/22 13:46	1
o-Terphenyl	99		70 - 130				10/07/22 14:43	10/09/22 13:46	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1150		24.9		mg/Kg			10/11/22 12:18	5

Client Sample ID: BH8

Lab Sample ID: 890-3151-8

Date Collected: 10/05/22 11:05

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 00:58	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 00:58	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 00:58	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/11/22 14:22	10/15/22 00:58	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 00:58	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/11/22 14:22	10/15/22 00:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130	10/11/22 14:22	10/15/22 00:58	1
1,4-Difluorobenzene (Surr)	96		70 - 130	10/11/22 14:22	10/15/22 00:58	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH8

Lab Sample ID: 890-3151-8

Date Collected: 10/05/22 11:05

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 14:07	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 14:07	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 14:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130				10/07/22 14:43	10/09/22 14:07	1
o-Terphenyl	120		70 - 130				10/07/22 14:43	10/09/22 14:07	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1050		25.2		mg/Kg			10/11/22 12:24	5

Client Sample ID: BH9

Lab Sample ID: 890-3151-9

Date Collected: 10/05/22 11:10

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 01:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	124		70 - 130				10/11/22 14:22	10/15/22 01:19	1
1,4-Difluorobenzene (Surr)	101		70 - 130				10/11/22 14:22	10/15/22 01:19	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:28	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:28	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130				10/07/22 14:43	10/09/22 14:28	1
o-Terphenyl	117		70 - 130				10/07/22 14:43	10/09/22 14:28	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH9

Date Collected: 10/05/22 11:10

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-9

Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1300		24.9		mg/Kg			10/11/22 12:30	5

Client Sample ID: BH10

Date Collected: 10/05/22 11:15

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-10

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/15/22 01:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130				10/11/22 14:22	10/15/22 01:40	1
1,4-Difluorobenzene (Surr)	96		70 - 130				10/11/22 14:22	10/15/22 01:40	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:48	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:48	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 14:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130				10/07/22 14:43	10/09/22 14:48	1
o-Terphenyl	123		70 - 130				10/07/22 14:43	10/09/22 14:48	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1670		25.0		mg/Kg			10/11/22 12:36	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH11

Lab Sample ID: 890-3151-11

Date Collected: 10/05/22 11:20

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 03:03	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 03:03	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 03:03	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/15/22 03:03	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 03:03	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/15/22 03:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	10/11/22 14:22	10/15/22 03:03	1
1,4-Difluorobenzene (Surr)	84		70 - 130	10/11/22 14:22	10/15/22 03:03	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 15:33	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 15:33	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 15:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	117		70 - 130	10/07/22 14:43	10/09/22 15:33	1
o-Terphenyl	128		70 - 130	10/07/22 14:43	10/09/22 15:33	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1980	F1	24.9		mg/Kg			10/12/22 12:15	5

Client Sample ID: BH12

Lab Sample ID: 890-3151-12

Date Collected: 10/05/22 11:25

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:23	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:23	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:23	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 03:23	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:23	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 03:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130	10/11/22 14:22	10/15/22 03:23	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH12

Lab Sample ID: 890-3151-12

Date Collected: 10/05/22 11:25

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	103		70 - 130	10/11/22 14:22	10/15/22 03:23	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 15:53	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 15:53	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/09/22 15:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130				10/07/22 14:43	10/09/22 15:53	1
o-Terphenyl	126		70 - 130				10/07/22 14:43	10/09/22 15:53	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1170		25.0		mg/Kg			10/11/22 12:59	5

Client Sample ID: BH13

Lab Sample ID: 890-3151-13

Date Collected: 10/05/22 11:30

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:44	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:44	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/15/22 03:44	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 03:44	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/22 14:22	10/15/22 03:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	127		70 - 130	10/11/22 14:22	10/15/22 03:44	1
1,4-Difluorobenzene (Surr)	99		70 - 130	10/11/22 14:22	10/15/22 03:44	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH13

Date Collected: 10/05/22 11:30

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-13

Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:14	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:14	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130				10/07/22 14:43	10/09/22 16:14	1
o-Terphenyl	101		70 - 130				10/07/22 14:43	10/09/22 16:14	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1940		25.0		mg/Kg			10/11/22 13:05	5

Client Sample ID: BH14

Date Collected: 10/05/22 11:35

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-14

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/11/22 14:22	10/15/22 04:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	127		70 - 130				10/11/22 14:22	10/15/22 04:05	1
1,4-Difluorobenzene (Surr)	100		70 - 130				10/11/22 14:22	10/15/22 04:05	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	52.3		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:35	1
Oil Range Organics (Over C28-C36)	52.3		50.0		mg/Kg		10/07/22 14:43	10/09/22 16:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130				10/07/22 14:43	10/09/22 16:35	1
o-Terphenyl	99		70 - 130				10/07/22 14:43	10/09/22 16:35	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH14

Date Collected: 10/05/22 11:35

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-14

Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2780		49.5		mg/Kg			10/11/22 13:22	10

Client Sample ID: BH15

Date Collected: 10/05/22 11:40

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-15

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/11/22 14:22	10/15/22 04:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	124		70 - 130				10/11/22 14:22	10/15/22 04:26	1
1,4-Difluorobenzene (Surr)	101		70 - 130				10/11/22 14:22	10/15/22 04:26	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:55	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:55	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 16:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130				10/07/22 14:43	10/09/22 16:55	1
o-Terphenyl	105		70 - 130				10/07/22 14:43	10/09/22 16:55	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1030		25.1		mg/Kg			10/11/22 13:28	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH16

Lab Sample ID: 890-3151-16

Date Collected: 10/05/22 11:45

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:46	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:46	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:46	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/11/22 14:22	10/15/22 04:46	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/22 14:22	10/15/22 04:46	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/11/22 14:22	10/15/22 04:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	124		70 - 130	10/11/22 14:22	10/15/22 04:46	1
1,4-Difluorobenzene (Surr)	99		70 - 130	10/11/22 14:22	10/15/22 04:46	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:16	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:16	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130	10/07/22 14:43	10/09/22 17:16	1
o-Terphenyl	102		70 - 130	10/07/22 14:43	10/09/22 17:16	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	708		25.3		mg/Kg			10/11/22 13:34	5

Client Sample ID: BH17

Lab Sample ID: 890-3151-17

Date Collected: 10/05/22 11:50

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 05:07	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 05:07	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 05:07	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 05:07	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 05:07	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 05:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	10/11/22 14:22	10/15/22 05:07	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH17

Lab Sample ID: 890-3151-17

Date Collected: 10/05/22 11:50

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 7

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	94		70 - 130	10/11/22 14:22	10/15/22 05:07	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:36	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:36	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130				10/07/22 14:43	10/09/22 17:36	1
o-Terphenyl	114		70 - 130				10/07/22 14:43	10/09/22 17:36	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.9		4.97		mg/Kg			10/11/22 13:40	1

Client Sample ID: BH18

Lab Sample ID: 890-3151-18

Date Collected: 10/05/22 11:55

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/15/22 05:28	1
Toluene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/15/22 05:28	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/15/22 05:28	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		10/11/22 14:22	10/15/22 05:28	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		10/11/22 14:22	10/15/22 05:28	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		10/11/22 14:22	10/15/22 05:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	10/11/22 14:22	10/15/22 05:28	1
1,4-Difluorobenzene (Surr)	94		70 - 130	10/11/22 14:22	10/15/22 05:28	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	56.3		50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH18

Lab Sample ID: 890-3151-18

Date Collected: 10/05/22 11:55

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 8

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:57	1
Diesel Range Organics (Over C10-C28)	56.3		49.8		mg/Kg		10/07/22 14:43	10/09/22 17:57	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/07/22 14:43	10/09/22 17:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				10/07/22 14:43	10/09/22 17:57	1
o-Terphenyl	104		70 - 130				10/07/22 14:43	10/09/22 17:57	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1290		24.9		mg/Kg			10/11/22 13:46	5

Client Sample ID: BH19

Lab Sample ID: 890-3151-19

Date Collected: 10/05/22 12:00

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:22	10/15/22 05:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130				10/11/22 14:22	10/15/22 05:48	1
1,4-Difluorobenzene (Surr)	103		70 - 130				10/11/22 14:22	10/15/22 05:48	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	280		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 14:43	10/10/22 06:58	1
Diesel Range Organics (Over C10-C28)	108		49.9		mg/Kg		10/07/22 14:43	10/10/22 06:58	1
Oil Range Organics (Over C28-C36)	172		49.9		mg/Kg		10/07/22 14:43	10/10/22 06:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130				10/07/22 14:43	10/10/22 06:58	1
o-Terphenyl	105		70 - 130				10/07/22 14:43	10/10/22 06:58	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH19

Date Collected: 10/05/22 12:00

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-19

Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1540		25.0		mg/Kg			10/11/22 13:52	5

Client Sample ID: BH20

Date Collected: 10/05/22 12:05

Date Received: 10/05/22 14:37

Sample Depth: 7

Lab Sample ID: 890-3151-20

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:22	10/15/22 06:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130				10/11/22 14:22	10/15/22 06:09	1
1,4-Difluorobenzene (Surr)	93		70 - 130				10/11/22 14:22	10/15/22 06:09	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/10/22 07:18	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/10/22 07:18	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/10/22 07:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	83		70 - 130				10/07/22 14:43	10/10/22 07:18	1
o-Terphenyl	91		70 - 130				10/07/22 14:43	10/10/22 07:18	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	358		4.95		mg/Kg			10/11/22 13:57	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH21

Lab Sample ID: 890-3151-21

Date Collected: 10/05/22 12:10

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U F1 F2	0.00202		mg/Kg		10/11/22 14:39	10/14/22 22:10	1
Toluene	<0.00202	U F1	0.00202		mg/Kg		10/11/22 14:39	10/14/22 22:10	1
Ethylbenzene	<0.00202	U F1	0.00202		mg/Kg		10/11/22 14:39	10/14/22 22:10	1
m-Xylene & p-Xylene	<0.00403	U F1	0.00403		mg/Kg		10/11/22 14:39	10/14/22 22:10	1
o-Xylene	<0.00202	U F1	0.00202		mg/Kg		10/11/22 14:39	10/14/22 22:10	1
Xylenes, Total	<0.00403	U F1	0.00403		mg/Kg		10/11/22 14:39	10/14/22 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/11/22 14:39	10/14/22 22:10	1
1,4-Difluorobenzene (Surr)	85		70 - 130	10/11/22 14:39	10/14/22 22:10	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 21:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 21:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 21:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130	10/07/22 13:10	10/07/22 21:36	1
o-Terphenyl	90		70 - 130	10/07/22 13:10	10/07/22 21:36	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	919		24.9		mg/Kg			10/10/22 21:28	5

Client Sample ID: BH22

Lab Sample ID: 890-3151-22

Date Collected: 10/05/22 12:15

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 22:31	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 22:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 22:31	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:39	10/14/22 22:31	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 22:31	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:39	10/14/22 22:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	10/11/22 14:39	10/14/22 22:31	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH22

Lab Sample ID: 890-3151-22

Date Collected: 10/05/22 12:15

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	96		70 - 130	10/11/22 14:39	10/14/22 22:31	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 22:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 22:41	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 22:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				10/07/22 13:10	10/07/22 22:41	1
o-Terphenyl	104		70 - 130				10/07/22 13:10	10/07/22 22:41	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	504		5.05		mg/Kg			10/10/22 21:46	1

Client Sample ID: BH23

Lab Sample ID: 890-3151-23

Date Collected: 10/05/22 12:20

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/14/22 22:51	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/14/22 22:51	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/14/22 22:51	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/14/22 22:51	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/17/22 08:52	10/17/22 17:37	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/14/22 22:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	10/11/22 14:39	10/14/22 22:51	1
1,4-Difluorobenzene (Surr)	86		70 - 130	10/11/22 14:39	10/14/22 22:51	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	203		50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH23

Date Collected: 10/05/22 12:20

Date Received: 10/05/22 14:37

Sample Depth: 4

Lab Sample ID: 890-3151-23

Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 23:03	1
Diesel Range Organics (Over C10-C28)	203		50.0		mg/Kg		10/07/22 13:10	10/07/22 23:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 23:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130				10/07/22 13:10	10/07/22 23:03	1
o-Terphenyl	86		70 - 130				10/07/22 13:10	10/07/22 23:03	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	490		4.97		mg/Kg			10/10/22 21:52	1

Client Sample ID: LACT STAIN

Date Collected: 10/05/22 10:00

Date Received: 10/05/22 14:37

Sample Depth: 0

Lab Sample ID: 890-3151-24

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.114		0.00201		mg/Kg		10/11/22 14:39	10/14/22 23:11	1
Toluene	2.94		0.0202		mg/Kg		10/17/22 08:52	10/17/22 14:31	10
Ethylbenzene	0.238		0.00201		mg/Kg		10/11/22 14:39	10/14/22 23:11	1
m-Xylene & p-Xylene	4.36		0.0404		mg/Kg		10/17/22 08:52	10/17/22 14:31	10
o-Xylene	2.22		0.0202		mg/Kg		10/17/22 08:52	10/17/22 14:31	10
Xylenes, Total	0.558		0.00402		mg/Kg		10/11/22 14:39	10/14/22 23:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	236	S1+	70 - 130				10/11/22 14:39	10/14/22 23:11	1
1,4-Difluorobenzene (Surr)	125		70 - 130				10/11/22 14:39	10/14/22 23:11	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	9.87		0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	27100		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1090		250		mg/Kg		10/07/22 13:10	10/08/22 02:16	5
Diesel Range Organics (Over C10-C28)	26000		250		mg/Kg		10/07/22 13:10	10/08/22 02:16	5
Oil Range Organics (Over C28-C36)	<250	U	250		mg/Kg		10/07/22 13:10	10/08/22 02:16	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130				10/07/22 13:10	10/08/22 02:16	5
o-Terphenyl	118		70 - 130				10/07/22 13:10	10/08/22 02:16	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: LACT STAIN

Lab Sample ID: 890-3151-24

Date Collected: 10/05/22 10:00

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	148		4.95		mg/Kg			10/10/22 21:57	1

Client Sample ID: LACT WALL 1

Lab Sample ID: 890-3151-25

Date Collected: 10/05/22 13:00

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 23:32	1
Toluene	0.0398		0.00200		mg/Kg		10/11/22 14:39	10/14/22 23:32	1
Ethylbenzene	0.0118		0.00200		mg/Kg		10/11/22 14:39	10/14/22 23:32	1
m-Xylene & p-Xylene	0.0276		0.00401		mg/Kg		10/17/22 08:52	10/17/22 17:58	1
o-Xylene	0.0157		0.00200		mg/Kg		10/17/22 08:52	10/17/22 17:58	1
Xylenes, Total	0.0398		0.00399		mg/Kg		10/11/22 14:39	10/14/22 23:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	144	S1+	70 - 130				10/11/22 14:39	10/14/22 23:32	1
1,4-Difluorobenzene (Surr)	102		70 - 130				10/11/22 14:39	10/14/22 23:32	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0949		0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	2870		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 13:10	10/08/22 01:12	1
Diesel Range Organics (Over C10-C28)	2870		49.9		mg/Kg		10/07/22 13:10	10/08/22 01:12	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 13:10	10/08/22 01:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130				10/07/22 13:10	10/08/22 01:12	1
o-Terphenyl	86		70 - 130				10/07/22 13:10	10/08/22 01:12	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1080		25.1		mg/Kg			10/10/22 22:03	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: LACT WALL 2

Lab Sample ID: 890-3151-26

Date Collected: 10/05/22 13:05

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0124		0.00199		mg/Kg		10/11/22 14:39	10/14/22 23:52	1
Toluene	0.266		0.00199		mg/Kg		10/11/22 14:39	10/14/22 23:52	1
Ethylbenzene	0.153		0.00199		mg/Kg		10/11/22 14:39	10/14/22 23:52	1
m-Xylene & p-Xylene	0.238		0.00399		mg/Kg		10/17/22 08:52	10/17/22 18:18	1
o-Xylene	0.151		0.00200		mg/Kg		10/17/22 08:52	10/17/22 18:18	1
Xylenes, Total	0.326		0.00398		mg/Kg		10/11/22 14:39	10/14/22 23:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	189	S1+	70 - 130	10/11/22 14:39	10/14/22 23:52	1
1,4-Difluorobenzene (Surr)	101		70 - 130	10/11/22 14:39	10/14/22 23:52	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.820		0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	16900		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	643		250		mg/Kg		10/07/22 13:10	10/08/22 01:33	5
Diesel Range Organics (Over C10-C28)	16300		250		mg/Kg		10/07/22 13:10	10/08/22 01:33	5
Oil Range Organics (Over C28-C36)	<250	U	250		mg/Kg		10/07/22 13:10	10/08/22 01:33	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	83		70 - 130	10/07/22 13:10	10/08/22 01:33	5
o-Terphenyl	114		70 - 130	10/07/22 13:10	10/08/22 01:33	5

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	487		4.99		mg/Kg			10/10/22 22:21	1

Client Sample ID: SW1

Lab Sample ID: 890-3151-27

Date Collected: 10/05/22 13:10

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 00:13	1
Toluene	0.0140		0.00199		mg/Kg		10/11/22 14:39	10/15/22 00:13	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 00:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 08:52	10/17/22 18:38	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 18:38	1
Xylenes, Total	0.00477		0.00398		mg/Kg		10/11/22 14:39	10/15/22 00:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	10/11/22 14:39	10/15/22 00:13	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW1

Lab Sample ID: 890-3151-27

Date Collected: 10/05/22 13:10

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	99		70 - 130	10/11/22 14:39	10/15/22 00:13	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0140		0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 23:24	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 23:24	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 23:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130				10/07/22 13:10	10/07/22 23:24	1
o-Terphenyl	88		70 - 130				10/07/22 13:10	10/07/22 23:24	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4410		50.0		mg/Kg			10/10/22 22:27	10

Client Sample ID: SW2

Lab Sample ID: 890-3151-28

Date Collected: 10/05/22 13:15

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:39	10/15/22 00:33	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:39	10/15/22 00:33	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/11/22 14:39	10/15/22 00:33	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/11/22 14:39	10/15/22 00:33	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		10/17/22 08:52	10/17/22 18:59	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/11/22 14:39	10/15/22 00:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		70 - 130	10/11/22 14:39	10/15/22 00:33	1
1,4-Difluorobenzene (Surr)	80		70 - 130	10/11/22 14:39	10/15/22 00:33	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW2

Date Collected: 10/05/22 13:15

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

Lab Sample ID: 890-3151-28

Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/07/22 13:10	10/07/22 23:46	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 13:10	10/07/22 23:46	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 13:10	10/07/22 23:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130				10/07/22 13:10	10/07/22 23:46	1
o-Terphenyl	100		70 - 130				10/07/22 13:10	10/07/22 23:46	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	528		4.96		mg/Kg			10/10/22 22:32	1

Client Sample ID: SW3

Date Collected: 10/05/22 13:20

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

Lab Sample ID: 890-3151-29

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 00:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 00:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 00:54	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/11/22 14:39	10/15/22 00:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 19:19	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/11/22 14:39	10/15/22 00:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130				10/11/22 14:39	10/15/22 00:54	1
1,4-Difluorobenzene (Surr)	86		70 - 130				10/11/22 14:39	10/15/22 00:54	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:07	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:07	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130				10/07/22 13:10	10/08/22 00:07	1
o-Terphenyl	89		70 - 130				10/07/22 13:10	10/08/22 00:07	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW3

Date Collected: 10/05/22 13:20

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

Lab Sample ID: 890-3151-29

Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1130		4.97		mg/Kg			10/10/22 22:38	1

Client Sample ID: SW4

Date Collected: 10/05/22 13:25

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

Lab Sample ID: 890-3151-30

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 01:14	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 01:14	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 01:14	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/15/22 01:14	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 19:39	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/15/22 01:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130				10/11/22 14:39	10/15/22 01:14	1
1,4-Difluorobenzene (Surr)	88		70 - 130				10/11/22 14:39	10/15/22 01:14	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:29	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:29	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/08/22 00:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130				10/07/22 13:10	10/08/22 00:29	1
o-Terphenyl	88		70 - 130				10/07/22 13:10	10/08/22 00:29	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	790		25.0		mg/Kg			10/10/22 22:44	5

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW5

Lab Sample ID: 890-3151-31

Date Collected: 10/05/22 13:30

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 02:37	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 02:37	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 02:37	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/22 14:39	10/15/22 02:37	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/15/22 02:37	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/22 14:39	10/15/22 02:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	10/11/22 14:39	10/15/22 02:37	1
1,4-Difluorobenzene (Surr)	105		70 - 130	10/11/22 14:39	10/15/22 02:37	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	50.0		mg/Kg		10/07/22 13:17	10/08/22 00:07	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:17	10/08/22 00:07	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:17	10/08/22 00:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	10/07/22 13:17	10/08/22 00:07	1
o-Terphenyl	108		70 - 130	10/07/22 13:17	10/08/22 00:07	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	185		5.00		mg/Kg			10/10/22 22:50	1

Client Sample ID: SW6

Lab Sample ID: 890-3151-32

Date Collected: 10/05/22 13:35

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 02:58	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 02:58	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 02:58	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/15/22 02:58	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 14:39	10/15/22 02:58	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 14:39	10/15/22 02:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	10/11/22 14:39	10/15/22 02:58	1

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW6

Lab Sample ID: 890-3151-32

Date Collected: 10/05/22 13:35

Matrix: Solid

Date Received: 10/05/22 14:37

Sample Depth: 0 - 4

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	78		70 - 130	10/11/22 14:39	10/15/22 02:58	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			10/17/22 10:10	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	50.1		50.0		mg/Kg			10/10/22 09:51	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *1	49.9		mg/Kg		10/07/22 13:17	10/08/22 00:29	1
Diesel Range Organics (Over C10-C28)	50.1		49.9		mg/Kg		10/07/22 13:17	10/08/22 00:29	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 13:17	10/08/22 00:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	80		70 - 130				10/07/22 13:17	10/08/22 00:29	1
o-Terphenyl	89		70 - 130				10/07/22 13:17	10/08/22 00:29	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1570		24.8		mg/Kg			10/10/22 23:08	5

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Surrogate Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB1 (70-130)	DFBZ1 (70-130)
890-3151-1	BH1	112	86
890-3151-1 MS	BH1	98	97
890-3151-1 MSD	BH1	91	88
890-3151-2	BH2	120	99
890-3151-3	BH3	114	98
890-3151-4	BH4	120	96
890-3151-5	BH5	126	101
890-3151-6	BH6	123	97
890-3151-7	BH7	131 S1+	94
890-3151-8	BH8	119	96
890-3151-9	BH9	124	101
890-3151-10	BH10	121	96
890-3151-11	BH11	112	84
890-3151-12	BH12	126	103
890-3151-13	BH13	127	99
890-3151-14	BH14	127	100
890-3151-15	BH15	124	101
890-3151-16	BH16	124	99
890-3151-17	BH17	121	94
890-3151-18	BH18	121	94
890-3151-19	BH19	113	103
890-3151-20	BH20	111	93
890-3151-21	BH21	108	85
890-3151-21 MS	BH21	109	86
890-3151-21 MSD	BH21	97	108
890-3151-22	BH22	99	96
890-3151-23	BH23	108	86
890-3151-24	LACT STAIN	236 S1+	125
890-3151-25	LACT WALL 1	144 S1+	102
890-3151-26	LACT WALL 2	189 S1+	101
890-3151-27	SW1	120	99
890-3151-28	SW2	77	80
890-3151-29	SW3	93	86
890-3151-30	SW4	95	88
890-3151-31	SW5	98	105
890-3151-32	SW6	89	78
LCS 880-36684/1-A	Lab Control Sample	90	91
LCS 880-36687/1-A	Lab Control Sample	108	109
LCS 880-37048/1-A	Lab Control Sample	94	107
LCSD 880-36684/2-A	Lab Control Sample Dup	90	93
LCSD 880-36687/2-A	Lab Control Sample Dup	110	99
LCSD 880-37048/2-A	Lab Control Sample Dup	87	106
MB 880-36684/5-A	Method Blank	103	84
MB 880-36687/5-A	Method Blank	86	96
MB 880-36926/8	Method Blank	85	98
MB 880-36936/5-A	Method Blank	102	82
MB 880-37048/5-A	Method Blank	91	110

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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Surrogate Summary

Client: GHD Services Inc.
 Project/Site: Delek LACT Earthstone Squeeze
 DFBZ = 1,4-Difluorobenzene (Surr)

Job ID: 890-3151-1
 SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
890-3151-1	BH1	106	119
890-3151-1 MS	BH1	93	91
890-3151-1 MSD	BH1	93	92
890-3151-2	BH2	97	108
890-3151-3	BH3	95	107
890-3151-4	BH4	103	113
890-3151-5	BH5	108	118
890-3151-6	BH6	99	109
890-3151-7	BH7	90	99
890-3151-8	BH8	112	120
890-3151-9	BH9	107	117
890-3151-10	BH10	114	123
890-3151-11	BH11	117	128
890-3151-12	BH12	119	126
890-3151-13	BH13	93	101
890-3151-14	BH14	93	99
890-3151-15	BH15	98	105
890-3151-16	BH16	95	102
890-3151-17	BH17	105	114
890-3151-18	BH18	97	104
890-3151-19	BH19	89	105
890-3151-20	BH20	83	91
890-3151-21	BH21	92	90
890-3151-21 MS	BH21	94	87
890-3151-21 MSD	BH21	108	88
890-3151-22	BH22	103	104
890-3151-23	BH23	91	86
890-3151-24	LACT STAIN	89	118
890-3151-25	LACT WALL 1	91	86
890-3151-26	LACT WALL 2	83	114
890-3151-27	SW1	91	88
890-3151-28	SW2	104	100
890-3151-29	SW3	90	89
890-3151-30	SW4	89	88
890-3151-31	SW5	100	108
890-3151-32	SW6	80	89
LCS 880-36385/2-A	Lab Control Sample	90	97
LCS 880-36387/2-A	Lab Control Sample	110	119
LCS 880-36390/2-A	Lab Control Sample	105	121
LCSD 880-36385/3-A	Lab Control Sample Dup	100	102
LCSD 880-36387/3-A	Lab Control Sample Dup	95	108
LCSD 880-36390/3-A	Lab Control Sample Dup	113	128
MB 880-36385/1-A	Method Blank	8 S1-	8 S1-
MB 880-36387/1-A	Method Blank	7 S1-	7 S1-
MB 880-36390/1-A	Method Blank	101	115

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36684/5-A

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36684

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/22 14:22	10/14/22 22:12	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/22 14:22	10/14/22 22:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	10/11/22 14:22	10/14/22 22:12	1
1,4-Difluorobenzene (Surr)	84		70 - 130	10/11/22 14:22	10/14/22 22:12	1

Lab Sample ID: LCS 880-36684/1-A

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36684

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1035		mg/Kg		104	70 - 130
Toluene	0.100	0.1047		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.09800		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	0.200	0.2019		mg/Kg		101	70 - 130
o-Xylene	0.100	0.1019		mg/Kg		102	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-36684/2-A

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36684

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.1017		mg/Kg		102	70 - 130	2	35
Toluene	0.100	0.1030		mg/Kg		103	70 - 130	2	35
Ethylbenzene	0.100	0.09564		mg/Kg		96	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.1962		mg/Kg		98	70 - 130	3	35
o-Xylene	0.100	0.1000		mg/Kg		100	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 890-3151-1 MS

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: BH1

Prep Type: Total/NA

Prep Batch: 36684

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0998	0.1014		mg/Kg		102	70 - 130
Toluene	<0.00200	U	0.0998	0.1009		mg/Kg		101	70 - 130

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

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

Lab Sample ID: 890-3151-1 MS

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: BH1

Prep Type: Total/NA

Prep Batch: 36684

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.0998	0.09207		mg/Kg		92	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1917		mg/Kg		96	70 - 130
o-Xylene	<0.00200	U	0.0998	0.09863		mg/Kg		99	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 890-3151-1 MSD

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: BH1

Prep Type: Total/NA

Prep Batch: 36684

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00200	U	0.0996	0.08832		mg/Kg		89	70 - 130	14	35
Toluene	<0.00200	U	0.0996	0.09212		mg/Kg		92	70 - 130	9	35
Ethylbenzene	<0.00200	U	0.0996	0.08242		mg/Kg		83	70 - 130	11	35
m-Xylene & p-Xylene	<0.00401	U	0.199	0.1698		mg/Kg		85	70 - 130	12	35
o-Xylene	<0.00200	U	0.0996	0.08737		mg/Kg		88	70 - 130	12	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		70 - 130
1,4-Difluorobenzene (Surr)	88		70 - 130

Lab Sample ID: MB 880-36687/5-A

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36687

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 21:49	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 21:49	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 21:49	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/22 14:39	10/14/22 21:49	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 14:39	10/14/22 21:49	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/22 14:39	10/14/22 21:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130	10/11/22 14:39	10/14/22 21:49	1
1,4-Difluorobenzene (Surr)	96		70 - 130	10/11/22 14:39	10/14/22 21:49	1

Lab Sample ID: LCS 880-36687/1-A

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36687

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1156		mg/Kg		116	70 - 130
Toluene	0.100	0.1061		mg/Kg		106	70 - 130
Ethylbenzene	0.100	0.1095		mg/Kg		109	70 - 130
m-Xylene & p-Xylene	0.200	0.2219		mg/Kg		111	70 - 130

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

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

Lab Sample ID: LCS 880-36687/1-A

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36687

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	0.100	0.1093		mg/Kg		109	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: LCSD 880-36687/2-A

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36687

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.1073		mg/Kg		107	70 - 130	7	35
Toluene	0.100	0.09933		mg/Kg		99	70 - 130	7	35
Ethylbenzene	0.100	0.1022		mg/Kg		102	70 - 130	7	35
m-Xylene & p-Xylene	0.200	0.2179		mg/Kg		109	70 - 130	2	35
o-Xylene	0.100	0.1081		mg/Kg		108	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: 890-3151-21 MS

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: BH21

Prep Type: Total/NA

Prep Batch: 36687

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00202	U F1 F2	0.101	0.05102	F1	mg/Kg		51	70 - 130
Toluene	<0.00202	U F1	0.101	0.05844	F1	mg/Kg		58	70 - 130
Ethylbenzene	<0.00202	U F1	0.101	0.06664	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.201	0.1336	F1	mg/Kg		66	70 - 130
o-Xylene	<0.00202	U F1	0.101	0.06708	F1	mg/Kg		67	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	86		70 - 130

Lab Sample ID: 890-3151-21 MSD

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: BH21

Prep Type: Total/NA

Prep Batch: 36687

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	<0.00202	U F1 F2	0.0990	0.08190	F2	mg/Kg		83	70 - 130	46	35
Toluene	<0.00202	U F1	0.0990	0.07289		mg/Kg		74	70 - 130	22	35
Ethylbenzene	<0.00202	U F1	0.0990	0.07137		mg/Kg		72	70 - 130	7	35
m-Xylene & p-Xylene	<0.00403	U F1	0.198	0.1444		mg/Kg		73	70 - 130	8	35
o-Xylene	<0.00202	U F1	0.0990	0.07130		mg/Kg		72	70 - 130	6	35

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

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

Lab Sample ID: 890-3151-21 MSD

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: BH21

Prep Type: Total/NA

Prep Batch: 36687

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Lab Sample ID: MB 880-36926/8

Matrix: Solid

Analysis Batch: 36926

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB							
	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg			10/14/22 11:01	1
Toluene	<0.00200	U	0.00200		mg/Kg			10/14/22 11:01	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg			10/14/22 11:01	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg			10/14/22 11:01	1
o-Xylene	<0.00200	U	0.00200		mg/Kg			10/14/22 11:01	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg			10/14/22 11:01	1

	MB	MB	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	85		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

	Prepared	Analyzed	Dil Fac
		10/14/22 11:01	1
		10/14/22 11:01	1

Lab Sample ID: MB 880-36936/5-A

Matrix: Solid

Analysis Batch: 36928

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36936

Analyte	MB	MB							
	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/14/22 08:57	10/14/22 11:21	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 08:57	10/14/22 11:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 08:57	10/14/22 11:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/14/22 08:57	10/14/22 11:21	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 08:57	10/14/22 11:21	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/14/22 08:57	10/14/22 11:21	1

	MB	MB	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	82		70 - 130

	Prepared	Analyzed	Dil Fac
	10/14/22 08:57	10/14/22 11:21	1
	10/14/22 08:57	10/14/22 11:21	1

Lab Sample ID: MB 880-37048/5-A

Matrix: Solid

Analysis Batch: 37045

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37048

Analyte	MB	MB							
	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 12:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 12:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 12:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 08:52	10/17/22 12:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 08:52	10/17/22 12:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 08:52	10/17/22 12:00	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

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

Lab Sample ID: MB 880-37048/5-A

Matrix: Solid

Analysis Batch: 37045

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 37048

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130	10/17/22 08:52	10/17/22 12:00	1
1,4-Difluorobenzene (Surr)	110		70 - 130	10/17/22 08:52	10/17/22 12:00	1

Lab Sample ID: LCS 880-37048/1-A

Matrix: Solid

Analysis Batch: 37045

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 37048

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1049		mg/Kg		105	70 - 130
Toluene	0.100	0.1048		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.09253		mg/Kg		93	70 - 130
m-Xylene & p-Xylene	0.200	0.1869		mg/Kg		93	70 - 130
o-Xylene	0.100	0.09065		mg/Kg		91	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Lab Sample ID: LCSD 880-37048/2-A

Matrix: Solid

Analysis Batch: 37045

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 37048

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.09963		mg/Kg		100	70 - 130	5	35
Toluene	0.100	0.09719		mg/Kg		97	70 - 130	7	35
Ethylbenzene	0.100	0.08715		mg/Kg		87	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1751		mg/Kg		88	70 - 130	7	35
o-Xylene	0.100	0.08443		mg/Kg		84	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-36385/1-A

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36385

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 19:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 19:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:10	10/07/22 19:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	8	S1-	70 - 130	10/07/22 13:10	10/07/22 19:44	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-36385/1-A

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36385

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	8	S1-	70 - 130	10/07/22 13:10	10/07/22 19:44	1

Lab Sample ID: LCS 880-36385/2-A

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36385

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	825.6		mg/Kg		83	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1036		mg/Kg		104	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
1-Chlorooctane	90		70 - 130						
o-Terphenyl	97		70 - 130						

Lab Sample ID: LCSD 880-36385/3-A

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36385

			Spike	LCSD	LCSD				%Rec	RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10			1000	835.3		mg/Kg		84	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1142		mg/Kg		114	70 - 130	10	20

Lab Sample ID: 890-3151-21 MS

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: BH21

Prep Type: Total/NA

Prep Batch: 36385

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier			Limits	Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	777.0		mg/Kg		78	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	998	900.2		mg/Kg		90	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
1-Chlorooctane	94		70 - 130								
o-Terphenyl	87		70 - 130								

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-3151-21 MSD

Matrix: Solid

Analysis Batch: 36313

Client Sample ID: BH21

Prep Type: Total/NA

Prep Batch: 36385

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	753.0		mg/Kg		75	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	913.2		mg/Kg		91	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	108		70 - 130								
o-Terphenyl	88		70 - 130								

Lab Sample ID: MB 880-36387/1-A

Matrix: Solid

Analysis Batch: 36315

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 13:17	10/07/22 19:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 13:17	10/07/22 19:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 13:17	10/07/22 19:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	7	S1-	70 - 130				10/07/22 13:17	10/07/22 19:44	1
o-Terphenyl	7	S1-	70 - 130				10/07/22 13:17	10/07/22 19:44	1

Lab Sample ID: LCS 880-36387/2-A

Matrix: Solid

Analysis Batch: 36315

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	1166		mg/Kg		117	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1038		mg/Kg		104	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
1-Chlorooctane	110		70 - 130						
o-Terphenyl	119		70 - 130						

Lab Sample ID: LCSD 880-36387/3-A

Matrix: Solid

Analysis Batch: 36315

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36387

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	913.9	*1	mg/Kg		91	70 - 130	24	20
Diesel Range Organics (Over C10-C28)	1000	907.1		mg/Kg		91	70 - 130	13	20

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-36387/3-A

Matrix: Solid

Analysis Batch: 36315

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36387

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	108		70 - 130

Lab Sample ID: MB 880-36390/1-A

Matrix: Solid

Analysis Batch: 36421

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 36390

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 10:00	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 10:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 14:43	10/09/22 10:00	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130	10/07/22 14:43	10/09/22 10:00	1
o-Terphenyl	115		70 - 130	10/07/22 14:43	10/09/22 10:00	1

Lab Sample ID: LCS 880-36390/2-A

Matrix: Solid

Analysis Batch: 36421

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 36390

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1017		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	1000	954.9		mg/Kg		95	70 - 130

Surrogate	LCS	LCS	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	121		70 - 130

Lab Sample ID: LCSD 880-36390/3-A

Matrix: Solid

Analysis Batch: 36421

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 36390

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1058		mg/Kg		106	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	1067		mg/Kg		107	70 - 130	11	20

Surrogate	LCSD	LCSD	Limits
1-Chlorooctane	113		70 - 130
o-Terphenyl	128		70 - 130

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 890-3151-1 MS

Matrix: Solid

Analysis Batch: 36421

Client Sample ID: BH1

Prep Type: Total/NA

Prep Batch: 36390

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	898.5		mg/Kg		88	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	998	806.7		mg/Kg		79	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	93		70 - 130						
o-Terphenyl	91		70 - 130						

Lab Sample ID: 890-3151-1 MSD

Matrix: Solid

Analysis Batch: 36421

Client Sample ID: BH1

Prep Type: Total/NA

Prep Batch: 36390

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	999	897.7		mg/Kg		88	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	<50.0	U	999	819.7		mg/Kg		81	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	93		70 - 130								
o-Terphenyl	92		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36392/1-A

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/10/22 21:11	1

Lab Sample ID: LCS 880-36392/2-A

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	243.6		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-36392/3-A

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	258.4		mg/Kg		103	90 - 110	6	20

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3151-21 MS

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: BH21

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Chloride	919		1250	2234		mg/Kg		106	90 - 110	

Lab Sample ID: 890-3151-21 MSD

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: BH21

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	919		1250	2105		mg/Kg		95	90 - 110	6	20

Lab Sample ID: 890-3151-31 MS

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: SW5

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Chloride	185		250	458.5		mg/Kg		110	90 - 110	

Lab Sample ID: 890-3151-31 MSD

Matrix: Solid

Analysis Batch: 36601

Client Sample ID: SW5

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	185		250	432.4		mg/Kg		99	90 - 110	6	20

Lab Sample ID: MB 880-36391/1-A

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/22 11:02	1

Lab Sample ID: LCS 880-36391/2-A

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Chloride	250	239.3		mg/Kg		96	90 - 110	

Lab Sample ID: LCSD 880-36391/3-A

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	257.9		mg/Kg		103	90 - 110	7	20

Lab Sample ID: 890-3151-1 MS

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: BH1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Chloride	489	F1	253	553.1	F1	mg/Kg		26	90 - 110	

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-3151-1 MSD

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: BH1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	489	F1	253	502.7	F1	mg/Kg		6	90 - 110	10	20

Lab Sample ID: 890-3151-11 MS

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: BH11

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1980	F1	1240	3129		mg/Kg		93	90 - 110		

Lab Sample ID: 890-3151-11 MSD

Matrix: Solid

Analysis Batch: 36602

Client Sample ID: BH11

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1980	F1	1240	3378	F1	mg/Kg		113	90 - 110	8	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC VOA

Prep Batch: 36684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	5035	
890-3151-2	BH2	Total/NA	Solid	5035	
890-3151-3	BH3	Total/NA	Solid	5035	
890-3151-4	BH4	Total/NA	Solid	5035	
890-3151-5	BH5	Total/NA	Solid	5035	
890-3151-6	BH6	Total/NA	Solid	5035	
890-3151-7	BH7	Total/NA	Solid	5035	
890-3151-8	BH8	Total/NA	Solid	5035	
890-3151-9	BH9	Total/NA	Solid	5035	
890-3151-10	BH10	Total/NA	Solid	5035	
890-3151-11	BH11	Total/NA	Solid	5035	
890-3151-12	BH12	Total/NA	Solid	5035	
890-3151-13	BH13	Total/NA	Solid	5035	
890-3151-14	BH14	Total/NA	Solid	5035	
890-3151-15	BH15	Total/NA	Solid	5035	
890-3151-16	BH16	Total/NA	Solid	5035	
890-3151-17	BH17	Total/NA	Solid	5035	
890-3151-18	BH18	Total/NA	Solid	5035	
890-3151-19	BH19	Total/NA	Solid	5035	
890-3151-20	BH20	Total/NA	Solid	5035	
MB 880-36684/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36684/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36684/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3151-1 MS	BH1	Total/NA	Solid	5035	
890-3151-1 MSD	BH1	Total/NA	Solid	5035	

Prep Batch: 36687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Total/NA	Solid	5035	
890-3151-22	BH22	Total/NA	Solid	5035	
890-3151-23	BH23	Total/NA	Solid	5035	
890-3151-24	LACT STAIN	Total/NA	Solid	5035	
890-3151-25	LACT WALL 1	Total/NA	Solid	5035	
890-3151-26	LACT WALL 2	Total/NA	Solid	5035	
890-3151-27	SW1	Total/NA	Solid	5035	
890-3151-28	SW2	Total/NA	Solid	5035	
890-3151-29	SW3	Total/NA	Solid	5035	
890-3151-30	SW4	Total/NA	Solid	5035	
890-3151-31	SW5	Total/NA	Solid	5035	
890-3151-32	SW6	Total/NA	Solid	5035	
MB 880-36687/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36687/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36687/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3151-21 MS	BH21	Total/NA	Solid	5035	
890-3151-21 MSD	BH21	Total/NA	Solid	5035	

Analysis Batch: 36926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Total/NA	Solid	8021B	36687
890-3151-22	BH22	Total/NA	Solid	8021B	36687
890-3151-23	BH23	Total/NA	Solid	8021B	36687

Eurofins Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC VOA (Continued)

Analysis Batch: 36926 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-24	LACT STAIN	Total/NA	Solid	8021B	36687
890-3151-25	LACT WALL 1	Total/NA	Solid	8021B	36687
890-3151-26	LACT WALL 2	Total/NA	Solid	8021B	36687
890-3151-27	SW1	Total/NA	Solid	8021B	36687
890-3151-28	SW2	Total/NA	Solid	8021B	36687
890-3151-29	SW3	Total/NA	Solid	8021B	36687
890-3151-30	SW4	Total/NA	Solid	8021B	36687
890-3151-31	SW5	Total/NA	Solid	8021B	36687
890-3151-32	SW6	Total/NA	Solid	8021B	36687
MB 880-36687/5-A	Method Blank	Total/NA	Solid	8021B	36687
MB 880-36926/8	Method Blank	Total/NA	Solid	8021B	
LCS 880-36687/1-A	Lab Control Sample	Total/NA	Solid	8021B	36687
LCSD 880-36687/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36687
890-3151-21 MS	BH21	Total/NA	Solid	8021B	36687
890-3151-21 MSD	BH21	Total/NA	Solid	8021B	36687

Analysis Batch: 36928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	8021B	36684
890-3151-2	BH2	Total/NA	Solid	8021B	36684
890-3151-3	BH3	Total/NA	Solid	8021B	36684
890-3151-4	BH4	Total/NA	Solid	8021B	36684
890-3151-5	BH5	Total/NA	Solid	8021B	36684
890-3151-6	BH6	Total/NA	Solid	8021B	36684
890-3151-7	BH7	Total/NA	Solid	8021B	36684
890-3151-8	BH8	Total/NA	Solid	8021B	36684
890-3151-9	BH9	Total/NA	Solid	8021B	36684
890-3151-10	BH10	Total/NA	Solid	8021B	36684
890-3151-11	BH11	Total/NA	Solid	8021B	36684
890-3151-12	BH12	Total/NA	Solid	8021B	36684
890-3151-13	BH13	Total/NA	Solid	8021B	36684
890-3151-14	BH14	Total/NA	Solid	8021B	36684
890-3151-15	BH15	Total/NA	Solid	8021B	36684
890-3151-16	BH16	Total/NA	Solid	8021B	36684
890-3151-17	BH17	Total/NA	Solid	8021B	36684
890-3151-18	BH18	Total/NA	Solid	8021B	36684
890-3151-19	BH19	Total/NA	Solid	8021B	36684
890-3151-20	BH20	Total/NA	Solid	8021B	36684
MB 880-36684/5-A	Method Blank	Total/NA	Solid	8021B	36684
MB 880-36936/5-A	Method Blank	Total/NA	Solid	8021B	36936
LCS 880-36684/1-A	Lab Control Sample	Total/NA	Solid	8021B	36684
LCSD 880-36684/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36684
890-3151-1 MS	BH1	Total/NA	Solid	8021B	36684
890-3151-1 MSD	BH1	Total/NA	Solid	8021B	36684

Prep Batch: 36936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36936/5-A	Method Blank	Total/NA	Solid	5035	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC VOA

Analysis Batch: 37045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-23	BH23	Total/NA	Solid	8021B	37048
890-3151-24	LACT STAIN	Total/NA	Solid	8021B	37048
890-3151-25	LACT WALL 1	Total/NA	Solid	8021B	37048
890-3151-26	LACT WALL 2	Total/NA	Solid	8021B	37048
890-3151-27	SW1	Total/NA	Solid	8021B	37048
890-3151-28	SW2	Total/NA	Solid	8021B	37048
890-3151-29	SW3	Total/NA	Solid	8021B	37048
890-3151-30	SW4	Total/NA	Solid	8021B	37048
MB 880-37048/5-A	Method Blank	Total/NA	Solid	8021B	37048
LCS 880-37048/1-A	Lab Control Sample	Total/NA	Solid	8021B	37048
LCSD 880-37048/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37048

Prep Batch: 37048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-23	BH23	Total/NA	Solid	5035	
890-3151-24	LACT STAIN	Total/NA	Solid	5035	
890-3151-25	LACT WALL 1	Total/NA	Solid	5035	
890-3151-26	LACT WALL 2	Total/NA	Solid	5035	
890-3151-27	SW1	Total/NA	Solid	5035	
890-3151-28	SW2	Total/NA	Solid	5035	
890-3151-29	SW3	Total/NA	Solid	5035	
890-3151-30	SW4	Total/NA	Solid	5035	
MB 880-37048/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37048/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37048/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 37118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	Total BTEX	
890-3151-2	BH2	Total/NA	Solid	Total BTEX	
890-3151-3	BH3	Total/NA	Solid	Total BTEX	
890-3151-4	BH4	Total/NA	Solid	Total BTEX	
890-3151-5	BH5	Total/NA	Solid	Total BTEX	
890-3151-6	BH6	Total/NA	Solid	Total BTEX	
890-3151-7	BH7	Total/NA	Solid	Total BTEX	
890-3151-8	BH8	Total/NA	Solid	Total BTEX	
890-3151-9	BH9	Total/NA	Solid	Total BTEX	
890-3151-10	BH10	Total/NA	Solid	Total BTEX	
890-3151-11	BH11	Total/NA	Solid	Total BTEX	
890-3151-12	BH12	Total/NA	Solid	Total BTEX	
890-3151-13	BH13	Total/NA	Solid	Total BTEX	
890-3151-14	BH14	Total/NA	Solid	Total BTEX	
890-3151-15	BH15	Total/NA	Solid	Total BTEX	
890-3151-16	BH16	Total/NA	Solid	Total BTEX	
890-3151-17	BH17	Total/NA	Solid	Total BTEX	
890-3151-18	BH18	Total/NA	Solid	Total BTEX	
890-3151-19	BH19	Total/NA	Solid	Total BTEX	
890-3151-20	BH20	Total/NA	Solid	Total BTEX	
890-3151-21	BH21	Total/NA	Solid	Total BTEX	
890-3151-22	BH22	Total/NA	Solid	Total BTEX	
890-3151-23	BH23	Total/NA	Solid	Total BTEX	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC VOA (Continued)

Analysis Batch: 37118 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-24	LACT STAIN	Total/NA	Solid	Total BTEX	
890-3151-25	LACT WALL 1	Total/NA	Solid	Total BTEX	
890-3151-26	LACT WALL 2	Total/NA	Solid	Total BTEX	
890-3151-27	SW1	Total/NA	Solid	Total BTEX	
890-3151-28	SW2	Total/NA	Solid	Total BTEX	
890-3151-29	SW3	Total/NA	Solid	Total BTEX	
890-3151-30	SW4	Total/NA	Solid	Total BTEX	
890-3151-31	SW5	Total/NA	Solid	Total BTEX	
890-3151-32	SW6	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 36313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Total/NA	Solid	8015B NM	36385
890-3151-22	BH22	Total/NA	Solid	8015B NM	36385
890-3151-23	BH23	Total/NA	Solid	8015B NM	36385
890-3151-24	LACT STAIN	Total/NA	Solid	8015B NM	36385
890-3151-25	LACT WALL 1	Total/NA	Solid	8015B NM	36385
890-3151-26	LACT WALL 2	Total/NA	Solid	8015B NM	36385
890-3151-27	SW1	Total/NA	Solid	8015B NM	36385
890-3151-28	SW2	Total/NA	Solid	8015B NM	36385
890-3151-29	SW3	Total/NA	Solid	8015B NM	36385
890-3151-30	SW4	Total/NA	Solid	8015B NM	36385
MB 880-36385/1-A	Method Blank	Total/NA	Solid	8015B NM	36385
LCS 880-36385/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36385
LCSD 880-36385/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36385
890-3151-21 MS	BH21	Total/NA	Solid	8015B NM	36385
890-3151-21 MSD	BH21	Total/NA	Solid	8015B NM	36385

Analysis Batch: 36315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-31	SW5	Total/NA	Solid	8015B NM	36387
890-3151-32	SW6	Total/NA	Solid	8015B NM	36387
MB 880-36387/1-A	Method Blank	Total/NA	Solid	8015B NM	36387
LCS 880-36387/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36387
LCSD 880-36387/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36387

Prep Batch: 36385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Total/NA	Solid	8015NM Prep	
890-3151-22	BH22	Total/NA	Solid	8015NM Prep	
890-3151-23	BH23	Total/NA	Solid	8015NM Prep	
890-3151-24	LACT STAIN	Total/NA	Solid	8015NM Prep	
890-3151-25	LACT WALL 1	Total/NA	Solid	8015NM Prep	
890-3151-26	LACT WALL 2	Total/NA	Solid	8015NM Prep	
890-3151-27	SW1	Total/NA	Solid	8015NM Prep	
890-3151-28	SW2	Total/NA	Solid	8015NM Prep	
890-3151-29	SW3	Total/NA	Solid	8015NM Prep	
890-3151-30	SW4	Total/NA	Solid	8015NM Prep	
MB 880-36385/1-A	Method Blank	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC Semi VOA (Continued)

Prep Batch: 36385 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-36385/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36385/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3151-21 MS	BH21	Total/NA	Solid	8015NM Prep	
890-3151-21 MSD	BH21	Total/NA	Solid	8015NM Prep	

Prep Batch: 36387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-31	SW5	Total/NA	Solid	8015NM Prep	
890-3151-32	SW6	Total/NA	Solid	8015NM Prep	
MB 880-36387/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36387/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36387/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Prep Batch: 36390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	8015NM Prep	
890-3151-2	BH2	Total/NA	Solid	8015NM Prep	
890-3151-3	BH3	Total/NA	Solid	8015NM Prep	
890-3151-4	BH4	Total/NA	Solid	8015NM Prep	
890-3151-5	BH5	Total/NA	Solid	8015NM Prep	
890-3151-6	BH6	Total/NA	Solid	8015NM Prep	
890-3151-7	BH7	Total/NA	Solid	8015NM Prep	
890-3151-8	BH8	Total/NA	Solid	8015NM Prep	
890-3151-9	BH9	Total/NA	Solid	8015NM Prep	
890-3151-10	BH10	Total/NA	Solid	8015NM Prep	
890-3151-11	BH11	Total/NA	Solid	8015NM Prep	
890-3151-12	BH12	Total/NA	Solid	8015NM Prep	
890-3151-13	BH13	Total/NA	Solid	8015NM Prep	
890-3151-14	BH14	Total/NA	Solid	8015NM Prep	
890-3151-15	BH15	Total/NA	Solid	8015NM Prep	
890-3151-16	BH16	Total/NA	Solid	8015NM Prep	
890-3151-17	BH17	Total/NA	Solid	8015NM Prep	
890-3151-18	BH18	Total/NA	Solid	8015NM Prep	
890-3151-19	BH19	Total/NA	Solid	8015NM Prep	
890-3151-20	BH20	Total/NA	Solid	8015NM Prep	
MB 880-36390/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36390/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36390/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3151-1 MS	BH1	Total/NA	Solid	8015NM Prep	
890-3151-1 MSD	BH1	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	8015B NM	36390
890-3151-2	BH2	Total/NA	Solid	8015B NM	36390
890-3151-3	BH3	Total/NA	Solid	8015B NM	36390
890-3151-4	BH4	Total/NA	Solid	8015B NM	36390
890-3151-5	BH5	Total/NA	Solid	8015B NM	36390
890-3151-6	BH6	Total/NA	Solid	8015B NM	36390
890-3151-7	BH7	Total/NA	Solid	8015B NM	36390
890-3151-8	BH8	Total/NA	Solid	8015B NM	36390

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC Semi VOA (Continued)

Analysis Batch: 36421 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-9	BH9	Total/NA	Solid	8015B NM	36390
890-3151-10	BH10	Total/NA	Solid	8015B NM	36390
890-3151-11	BH11	Total/NA	Solid	8015B NM	36390
890-3151-12	BH12	Total/NA	Solid	8015B NM	36390
890-3151-13	BH13	Total/NA	Solid	8015B NM	36390
890-3151-14	BH14	Total/NA	Solid	8015B NM	36390
890-3151-15	BH15	Total/NA	Solid	8015B NM	36390
890-3151-16	BH16	Total/NA	Solid	8015B NM	36390
890-3151-17	BH17	Total/NA	Solid	8015B NM	36390
890-3151-18	BH18	Total/NA	Solid	8015B NM	36390
890-3151-19	BH19	Total/NA	Solid	8015B NM	36390
890-3151-20	BH20	Total/NA	Solid	8015B NM	36390
MB 880-36390/1-A	Method Blank	Total/NA	Solid	8015B NM	36390
LCS 880-36390/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36390
LCSD 880-36390/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36390
890-3151-1 MS	BH1	Total/NA	Solid	8015B NM	36390
890-3151-1 MSD	BH1	Total/NA	Solid	8015B NM	36390

Analysis Batch: 36518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Total/NA	Solid	8015 NM	
890-3151-2	BH2	Total/NA	Solid	8015 NM	
890-3151-3	BH3	Total/NA	Solid	8015 NM	
890-3151-4	BH4	Total/NA	Solid	8015 NM	
890-3151-5	BH5	Total/NA	Solid	8015 NM	
890-3151-6	BH6	Total/NA	Solid	8015 NM	
890-3151-7	BH7	Total/NA	Solid	8015 NM	
890-3151-8	BH8	Total/NA	Solid	8015 NM	
890-3151-9	BH9	Total/NA	Solid	8015 NM	
890-3151-10	BH10	Total/NA	Solid	8015 NM	
890-3151-11	BH11	Total/NA	Solid	8015 NM	
890-3151-12	BH12	Total/NA	Solid	8015 NM	
890-3151-13	BH13	Total/NA	Solid	8015 NM	
890-3151-14	BH14	Total/NA	Solid	8015 NM	
890-3151-15	BH15	Total/NA	Solid	8015 NM	
890-3151-16	BH16	Total/NA	Solid	8015 NM	
890-3151-17	BH17	Total/NA	Solid	8015 NM	
890-3151-18	BH18	Total/NA	Solid	8015 NM	
890-3151-19	BH19	Total/NA	Solid	8015 NM	
890-3151-20	BH20	Total/NA	Solid	8015 NM	
890-3151-21	BH21	Total/NA	Solid	8015 NM	
890-3151-22	BH22	Total/NA	Solid	8015 NM	
890-3151-23	BH23	Total/NA	Solid	8015 NM	
890-3151-24	LACT STAIN	Total/NA	Solid	8015 NM	
890-3151-25	LACT WALL 1	Total/NA	Solid	8015 NM	
890-3151-26	LACT WALL 2	Total/NA	Solid	8015 NM	
890-3151-27	SW1	Total/NA	Solid	8015 NM	
890-3151-28	SW2	Total/NA	Solid	8015 NM	
890-3151-29	SW3	Total/NA	Solid	8015 NM	
890-3151-30	SW4	Total/NA	Solid	8015 NM	
890-3151-31	SW5	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

GC Semi VOA (Continued)

Analysis Batch: 36518 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-32	SW6	Total/NA	Solid	8015 NM	

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Leach Batch: 36391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Soluble	Solid	DI Leach	
890-3151-2	BH2	Soluble	Solid	DI Leach	
890-3151-3	BH3	Soluble	Solid	DI Leach	
890-3151-4	BH4	Soluble	Solid	DI Leach	
890-3151-5	BH5	Soluble	Solid	DI Leach	
890-3151-6	BH6	Soluble	Solid	DI Leach	
890-3151-7	BH7	Soluble	Solid	DI Leach	
890-3151-8	BH8	Soluble	Solid	DI Leach	
890-3151-9	BH9	Soluble	Solid	DI Leach	
890-3151-10	BH10	Soluble	Solid	DI Leach	
890-3151-11	BH11	Soluble	Solid	DI Leach	
890-3151-12	BH12	Soluble	Solid	DI Leach	
890-3151-13	BH13	Soluble	Solid	DI Leach	
890-3151-14	BH14	Soluble	Solid	DI Leach	
890-3151-15	BH15	Soluble	Solid	DI Leach	
890-3151-16	BH16	Soluble	Solid	DI Leach	
890-3151-17	BH17	Soluble	Solid	DI Leach	
890-3151-18	BH18	Soluble	Solid	DI Leach	
890-3151-19	BH19	Soluble	Solid	DI Leach	
890-3151-20	BH20	Soluble	Solid	DI Leach	
MB 880-36391/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36391/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36391/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3151-1 MS	BH1	Soluble	Solid	DI Leach	
890-3151-1 MSD	BH1	Soluble	Solid	DI Leach	
890-3151-11 MS	BH11	Soluble	Solid	DI Leach	
890-3151-11 MSD	BH11	Soluble	Solid	DI Leach	

Leach Batch: 36392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Soluble	Solid	DI Leach	
890-3151-22	BH22	Soluble	Solid	DI Leach	
890-3151-23	BH23	Soluble	Solid	DI Leach	
890-3151-24	LACT STAIN	Soluble	Solid	DI Leach	
890-3151-25	LACT WALL 1	Soluble	Solid	DI Leach	
890-3151-26	LACT WALL 2	Soluble	Solid	DI Leach	
890-3151-27	SW1	Soluble	Solid	DI Leach	
890-3151-28	SW2	Soluble	Solid	DI Leach	
890-3151-29	SW3	Soluble	Solid	DI Leach	
890-3151-30	SW4	Soluble	Solid	DI Leach	
890-3151-31	SW5	Soluble	Solid	DI Leach	
890-3151-32	SW6	Soluble	Solid	DI Leach	
MB 880-36392/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36392/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36392/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

HPLC/IC (Continued)

Leach Batch: 36392 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21 MS	BH21	Soluble	Solid	DI Leach	
890-3151-21 MSD	BH21	Soluble	Solid	DI Leach	
890-3151-31 MS	SW5	Soluble	Solid	DI Leach	
890-3151-31 MSD	SW5	Soluble	Solid	DI Leach	

Analysis Batch: 36601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-21	BH21	Soluble	Solid	300.0	36392
890-3151-22	BH22	Soluble	Solid	300.0	36392
890-3151-23	BH23	Soluble	Solid	300.0	36392
890-3151-24	LACT STAIN	Soluble	Solid	300.0	36392
890-3151-25	LACT WALL 1	Soluble	Solid	300.0	36392
890-3151-26	LACT WALL 2	Soluble	Solid	300.0	36392
890-3151-27	SW1	Soluble	Solid	300.0	36392
890-3151-28	SW2	Soluble	Solid	300.0	36392
890-3151-29	SW3	Soluble	Solid	300.0	36392
890-3151-30	SW4	Soluble	Solid	300.0	36392
890-3151-31	SW5	Soluble	Solid	300.0	36392
890-3151-32	SW6	Soluble	Solid	300.0	36392
MB 880-36392/1-A	Method Blank	Soluble	Solid	300.0	36392
LCS 880-36392/2-A	Lab Control Sample	Soluble	Solid	300.0	36392
LCSD 880-36392/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36392
890-3151-21 MS	BH21	Soluble	Solid	300.0	36392
890-3151-21 MSD	BH21	Soluble	Solid	300.0	36392
890-3151-31 MS	SW5	Soluble	Solid	300.0	36392
890-3151-31 MSD	SW5	Soluble	Solid	300.0	36392

Analysis Batch: 36602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3151-1	BH1	Soluble	Solid	300.0	36391
890-3151-2	BH2	Soluble	Solid	300.0	36391
890-3151-3	BH3	Soluble	Solid	300.0	36391
890-3151-4	BH4	Soluble	Solid	300.0	36391
890-3151-5	BH5	Soluble	Solid	300.0	36391
890-3151-6	BH6	Soluble	Solid	300.0	36391
890-3151-7	BH7	Soluble	Solid	300.0	36391
890-3151-8	BH8	Soluble	Solid	300.0	36391
890-3151-9	BH9	Soluble	Solid	300.0	36391
890-3151-10	BH10	Soluble	Solid	300.0	36391
890-3151-11	BH11	Soluble	Solid	300.0	36391
890-3151-12	BH12	Soluble	Solid	300.0	36391
890-3151-13	BH13	Soluble	Solid	300.0	36391
890-3151-14	BH14	Soluble	Solid	300.0	36391
890-3151-15	BH15	Soluble	Solid	300.0	36391
890-3151-16	BH16	Soluble	Solid	300.0	36391
890-3151-17	BH17	Soluble	Solid	300.0	36391
890-3151-18	BH18	Soluble	Solid	300.0	36391
890-3151-19	BH19	Soluble	Solid	300.0	36391
890-3151-20	BH20	Soluble	Solid	300.0	36391
MB 880-36391/1-A	Method Blank	Soluble	Solid	300.0	36391
LCS 880-36391/2-A	Lab Control Sample	Soluble	Solid	300.0	36391

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

HPLC/IC (Continued)

Analysis Batch: 36602 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-36391/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36391
890-3151-1 MS	BH1	Soluble	Solid	300.0	36391
890-3151-1 MSD	BH1	Soluble	Solid	300.0	36391
890-3151-11 MS	BH11	Soluble	Solid	300.0	36391
890-3151-11 MSD	BH11	Soluble	Solid	300.0	36391

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH1

Lab Sample ID: 890-3151-1

Date Collected: 10/05/22 10:30

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/14/22 22:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 11:01	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		1			36602	10/11/22 11:20	CH	EET MID

Client Sample ID: BH2

Lab Sample ID: 890-3151-2

Date Collected: 10/05/22 10:35

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/14/22 22:54	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 12:03	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 11:37	CH	EET MID

Client Sample ID: BH3

Lab Sample ID: 890-3151-3

Date Collected: 10/05/22 10:40

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/14/22 23:15	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 12:24	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 11:43	CH	EET MID

Client Sample ID: BH4

Lab Sample ID: 890-3151-4

Date Collected: 10/05/22 10:45

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/14/22 23:36	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH4

Date Collected: 10/05/22 10:45

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 12:44	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 11:49	CH	EET MID

Client Sample ID: BH5

Date Collected: 10/05/22 10:50

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/14/22 23:56	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 13:05	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 11:55	CH	EET MID

Client Sample ID: BH6

Date Collected: 10/05/22 10:55

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 00:17	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 13:26	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		1			36602	10/11/22 12:12	CH	EET MID

Client Sample ID: BH7

Date Collected: 10/05/22 11:00

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 00:38	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 13:46	SM	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH7

Date Collected: 10/05/22 11:00

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.02 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 12:18	CH	EET MID

Client Sample ID: BH8

Date Collected: 10/05/22 11:05

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 00:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 14:07	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 12:24	CH	EET MID

Client Sample ID: BH9

Date Collected: 10/05/22 11:10

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 01:19	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 14:28	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 12:30	CH	EET MID

Client Sample ID: BH10

Date Collected: 10/05/22 11:15

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 01:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 14:48	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 12:36	CH	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH11

Lab Sample ID: 890-3151-11

Date Collected: 10/05/22 11:20

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 03:03	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 15:33	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/12/22 12:15	CH	EET MID

Client Sample ID: BH12

Lab Sample ID: 890-3151-12

Date Collected: 10/05/22 11:25

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 03:23	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 15:53	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 12:59	CH	EET MID

Client Sample ID: BH13

Lab Sample ID: 890-3151-13

Date Collected: 10/05/22 11:30

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 03:44	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 16:14	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 13:05	CH	EET MID

Client Sample ID: BH14

Lab Sample ID: 890-3151-14

Date Collected: 10/05/22 11:35

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 04:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH14

Lab Sample ID: 890-3151-14

Date Collected: 10/05/22 11:35

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 16:35	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		10			36602	10/11/22 13:22	CH	EET MID

Client Sample ID: BH15

Lab Sample ID: 890-3151-15

Date Collected: 10/05/22 11:40

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 04:26	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 16:55	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 13:28	CH	EET MID

Client Sample ID: BH16

Lab Sample ID: 890-3151-16

Date Collected: 10/05/22 11:45

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 04:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 17:16	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 13:34	CH	EET MID

Client Sample ID: BH17

Lab Sample ID: 890-3151-17

Date Collected: 10/05/22 11:50

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 05:07	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 17:36	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH17

Date Collected: 10/05/22 11:50

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-17

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.03 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		1			36602	10/11/22 13:40	CH	EET MID

Client Sample ID: BH18

Date Collected: 10/05/22 11:55

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 05:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/09/22 17:57	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 13:46	CH	EET MID

Client Sample ID: BH19

Date Collected: 10/05/22 12:00

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-19

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 05:48	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/10/22 06:58	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		5			36602	10/11/22 13:52	CH	EET MID

Client Sample ID: BH20

Date Collected: 10/05/22 12:05

Date Received: 10/05/22 14:37

Lab Sample ID: 890-3151-20

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36684	10/11/22 14:22	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 06:09	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36390	10/07/22 14:43	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36421	10/10/22 07:18	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36391	10/07/22 15:06	CH	EET MID
Soluble	Analysis	300.0		1			36602	10/11/22 13:57	CH	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: BH21

Lab Sample ID: 890-3151-21

Date Collected: 10/05/22 12:10

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 22:10	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/07/22 21:36	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		5			36601	10/10/22 21:28	CH	EET MID

Client Sample ID: BH22

Lab Sample ID: 890-3151-22

Date Collected: 10/05/22 12:15

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 22:31	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/07/22 22:41	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 21:46	CH	EET MID

Client Sample ID: BH23

Lab Sample ID: 890-3151-23

Date Collected: 10/05/22 12:20

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 17:37	MNR	EET MID
Total/NA	Prep	5035			5.02 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 22:51	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/07/22 23:03	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 21:52	CH	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: LACT STAIN

Lab Sample ID: 890-3151-24

Date Collected: 10/05/22 10:00

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		10	5 mL	5 mL	37045	10/17/22 14:31	MNR	EET MID
Total/NA	Prep	5035			4.97 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 23:11	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	36313	10/08/22 02:16	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 21:57	CH	EET MID

Client Sample ID: LACT WALL 1

Lab Sample ID: 890-3151-25

Date Collected: 10/05/22 13:00

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 17:58	MNR	EET MID
Total/NA	Prep	5035			5.01 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 23:32	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/08/22 01:12	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		5			36601	10/10/22 22:03	CH	EET MID

Client Sample ID: LACT WALL 2

Lab Sample ID: 890-3151-26

Date Collected: 10/05/22 13:05

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 18:18	MNR	EET MID
Total/NA	Prep	5035			5.02 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/14/22 23:52	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		5	1 uL	1 uL	36313	10/08/22 01:33	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 22:21	CH	EET MID

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW1

Lab Sample ID: 890-3151-27

Date Collected: 10/05/22 13:10

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 18:38	MNR	EET MID
Total/NA	Prep	5035			5.03 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 00:13	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/07/22 23:24	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		10			36601	10/10/22 22:27	CH	EET MID

Client Sample ID: SW2

Lab Sample ID: 890-3151-28

Date Collected: 10/05/22 13:15

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 18:59	MNR	EET MID
Total/NA	Prep	5035			4.97 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 00:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/07/22 23:46	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 22:32	CH	EET MID

Client Sample ID: SW3

Lab Sample ID: 890-3151-29

Date Collected: 10/05/22 13:20

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 19:19	MNR	EET MID
Total/NA	Prep	5035			5.01 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 00:54	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/08/22 00:07	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 22:38	CH	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Client Sample ID: SW4

Lab Sample ID: 890-3151-30

Date Collected: 10/05/22 13:25

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37048	10/17/22 08:52	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37045	10/17/22 19:39	MNR	EET MID
Total/NA	Prep	5035			5.02 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 01:14	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36385	10/07/22 13:10	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36313	10/08/22 00:29	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		5			36601	10/10/22 22:44	CH	EET MID

Client Sample ID: SW5

Lab Sample ID: 890-3151-31

Date Collected: 10/05/22 13:30

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 02:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36387	10/07/22 13:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36315	10/08/22 00:07	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		1			36601	10/10/22 22:50	CH	EET MID

Client Sample ID: SW6

Lab Sample ID: 890-3151-32

Date Collected: 10/05/22 13:35

Matrix: Solid

Date Received: 10/05/22 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	36687	10/11/22 14:39	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36926	10/15/22 02:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37118	10/17/22 10:10	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36518	10/10/22 09:51	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36387	10/07/22 13:17	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36315	10/08/22 00:29	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36392	10/07/22 15:09	CH	EET MID
Soluble	Analysis	300.0		5			36601	10/10/22 23:08	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Carlsbad

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze

Job ID: 890-3151-1
SDG: 12591378

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3151-1	BH1	Solid	10/05/22 10:30	10/05/22 14:37	4
890-3151-2	BH2	Solid	10/05/22 10:35	10/05/22 14:37	4
890-3151-3	BH3	Solid	10/05/22 10:40	10/05/22 14:37	4
890-3151-4	BH4	Solid	10/05/22 10:45	10/05/22 14:37	4
890-3151-5	BH5	Solid	10/05/22 10:50	10/05/22 14:37	4
890-3151-6	BH6	Solid	10/05/22 10:55	10/05/22 14:37	4
890-3151-7	BH7	Solid	10/05/22 11:00	10/05/22 14:37	4
890-3151-8	BH8	Solid	10/05/22 11:05	10/05/22 14:37	4
890-3151-9	BH9	Solid	10/05/22 11:10	10/05/22 14:37	4
890-3151-10	BH10	Solid	10/05/22 11:15	10/05/22 14:37	4
890-3151-11	BH11	Solid	10/05/22 11:20	10/05/22 14:37	4
890-3151-12	BH12	Solid	10/05/22 11:25	10/05/22 14:37	4
890-3151-13	BH13	Solid	10/05/22 11:30	10/05/22 14:37	4
890-3151-14	BH14	Solid	10/05/22 11:35	10/05/22 14:37	4
890-3151-15	BH15	Solid	10/05/22 11:40	10/05/22 14:37	4
890-3151-16	BH16	Solid	10/05/22 11:45	10/05/22 14:37	4
890-3151-17	BH17	Solid	10/05/22 11:50	10/05/22 14:37	7
890-3151-18	BH18	Solid	10/05/22 11:55	10/05/22 14:37	8
890-3151-19	BH19	Solid	10/05/22 12:00	10/05/22 14:37	4
890-3151-20	BH20	Solid	10/05/22 12:05	10/05/22 14:37	7
890-3151-21	BH21	Solid	10/05/22 12:10	10/05/22 14:37	4
890-3151-22	BH22	Solid	10/05/22 12:15	10/05/22 14:37	4
890-3151-23	BH23	Solid	10/05/22 12:20	10/05/22 14:37	4
890-3151-24	LACT STAIN	Solid	10/05/22 10:00	10/05/22 14:37	0
890-3151-25	LACT WALL 1	Solid	10/05/22 13:00	10/05/22 14:37	0 - 4
890-3151-26	LACT WALL 2	Solid	10/05/22 13:05	10/05/22 14:37	0 - 4
890-3151-27	SW1	Solid	10/05/22 13:10	10/05/22 14:37	0 - 4
890-3151-28	SW2	Solid	10/05/22 13:15	10/05/22 14:37	0 - 4
890-3151-29	SW3	Solid	10/05/22 13:20	10/05/22 14:37	0 - 4
890-3151-30	SW4	Solid	10/05/22 13:25	10/05/22 14:37	0 - 4
890-3151-31	SW5	Solid	10/05/22 13:30	10/05/22 14:37	0 - 4
890-3151-32	SW6	Solid	10/05/22 13:35	10/05/22 14:37	0 - 4



Environment Testing
Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

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Page 1 of 4

Project Manager:	Christine Mathews	Bill to: (if different)	GHD Services Inc.
Company Name:	GHD Services Inc.	Company Name:	
Address:	6121 Indian School Rd NE Ste 200	Address:	6121 Indian School Rd NE Ste 200
City, State ZIP:	Albuquerque, NM 87110	City, State ZIP:	Albuquerque, NM 87110
Phone:	505.269.0088	Email:	christine.mathews@ghd.com

Work Order Comments	
Program:	UST/PST ☐ PRF ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:	
Reporting:	Level II ☐ Level III ☐ PST/UST ☐ TRRF ☐ Level I ☐
Deliverables:	EDD ☒ ADaPT ☐ Other: _____

Project Name:	Delek Eearthstone Squeeze		Turn Around		ANALYSIS REQUEST										Preservative Codes					
Project Number:	12591357		☒ Routine ☐ Rush		Pres. Code													None: NO	DI Water: H ₂ O	
Project Location:	Lea County NM		Due Date:		Parameters													Cool: Cool	MeOH: Me	
Sampler's Name:	Liam Giersdorf		TAT starts the day received by the lab, if received by 4:30pm															HCL: HC	HNO ₃ : HN	
PO #:																		H ₂ SO ₄ : H ₂	NaOH: Na	
SAMPLE RECEIPT			Temp Blank:	Yes ☐ No ☒		Wet Ice:	Yes ☐ No ☒												H ₃ PO ₄ : HP	
Samples Received Intact:	Yes ☒ No ☐	Thermometer ID:	712003																NaHSO ₄ : NABIS	
Cooler Custody Seals:	Yes ☐ No ☒ N/A	Correction Factor:	-0.2															Na ₂ S ₂ O ₃ : NaSO ₃		
Sample Custody Seals:	Yes ☐ No ☒ N/A	Temperature Reading:	18.0															Zn Acetate+NaOH: Zn		
Total Containers:		Corrected Temperature:	17.8															NaOH+Ascorbic Acid: SAPC		
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	BTEX	TPH	Cl-									Sample Comments		
BH1	Soil	1005	1030	4'			X	X	X											
BH2			1035																	
BH3			1040																	
BH4			1045																	
BH5			1050																	
BH6			1055																	
BH7			1100																	
BH8			1105																	
BH9			1110																	
BH10			1115																	

Total 200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas	11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn	
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP		6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U	Hg: 1631 / 245.1 / 7470 / 7471											

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Released by: Liam Giersdorf 100522 1940 Due 10:5:22 1437

Released by: Liam Gersdorf 100522 1440 [Signature] 10-5-22



Environment Testing
Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 3 of 4

Project Manager:	Christine Mathews	Bill to: (if different)	GHD Services Inc.
Company Name:	GHD Services Inc.	Company Name:	
Address:	6121 Indian School Rd NE Ste 200	Address:	6121 Indian School Rd NE Ste 200
City, State ZIP:	Albuquerque, NM 87110	City, State ZIP:	Albuquerque, NM 87110
Phone:	505.269.0088	Email:	christine.mathews@ghd.com

Work Order Comments	
Program:	UST/PST ☐ PRF ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:	
Reporting:	Level II ☐ Level III ☐ PST/UST ☐ TRRF ☐ Level I ☐
Deliverables:	EDD ☒ ADaPT ☐ Other: _____

Project Name:		Turn Around		ANALYSIS REQUEST																Preservative Codes								
Delek Eearthstone Squeeze		☒ Routine ☐ Rush																		None: NO DI Water: H ₂ O								
Project Number: 12591357		☒ Routine ☐ Rush																		Cool: Cool MeOH: Me								
Project Location: Lea County NM		Due Date:																		HCL: HC HNO ₃ : HN								
Sampler's Name: Liam Giersdorf		TAT starts the day received by the lab, if received by 4:30pm																		H ₂ SO ₄ : H ₂ NaOH: Na								
PO #:																				H ₃ PO ₄ : HP								
SAMPLE RECEIPT		Temp Blank: Yes No		Wet Ice: Yes No																		NaHSO ₄ : NABIS						
Samples Received Intact: Yes No		Thermometer ID: _____																		Na ₂ S ₂ O ₃ : NaSO ₃								
Cooler Custody Seals: Yes No N/A		Correction Factor: _____																		Zn Acetate+NaOH: Zn								
Sample Custody Seals: Yes No N/A		Temperature Reading: _____																		NaOH+Ascorbic Acid: SAPC								
Total Containers:		Corrected Temperature: _____																										
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont																	Sample Comments				
BH21		Soil	1005	1210	4'			X	X	X																		
BH22				1215																								
BH23				1220																								
LACT stain				1000	0'																							
LACT Wall 1				1300	0-u'																							
LACT Wall 2				1305																								
SW1				1310																								
SW2				1315																								
SW3				1320																								
SW4				1325																								

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

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Released by: Liam Giersdorf *[Signature]* 100522 1440 CUEASB 10-5-22



Environment Testing
Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
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Work Order No: _____

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Project Manager:	Christine Mathews	Bill to: (if different)	GHD Services Inc.
Company Name:	GHD Services Inc.	Company Name:	
Address:	6121 Indian School Rd NE Ste 200	Address:	6121 Indian School Rd NE Ste 200
City, State ZIP:	Albuquerque, NM 87110	City, State ZIP:	Albuquerque, NM 87110
Phone:	505.269.0088	Email:	christine.mathews@ghd.com

Work Order Comments			
Program:	UST/PST ☐	PRF ☐	Brownfields ☐ RR ☐ Superfund ☐
State of Project:			
Reporting:	Level II ☐	Level III ☐	PST/UST ☐ TRRF ☐ Level I ☐
Deliverables:	EDD ☒	ADaPT ☐	Other: ☐

[illegible]

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U			Hg:	1631	245.1	7470	7471				

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Dobasod by Lian Gerdort ~~PC~~ 100522 1440 Pina Mo 10.5.22

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-3151-1

SDG Number: 12591378

Login Number: 3151**List Number: 1****Creator: Clifton, Cloe****List Source: Eurofins Carlsbad**

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	Received same day of collection; chilling process has begun.
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.	N/A	Refer to Job Narrative for details.
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").	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-3151-1

SDG Number: 12591378

Login Number: 3151**List Number: 2****Creator: Rodriguez, Leticia****List Source: Eurofins Midland****List Creation: 10/07/22 10:56 AM**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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").	N/A	



Environment Testing

ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-21167-1

Laboratory Sample Delivery Group: 12591378

Client Project/Site: Delek LACT Earthstone Squeeze Release
(N)

For:

GHD Services Inc.
6121 Indian School Road NE
Suite 200
Albuquerque, New Mexico 87110

Attn: Christine Mathews

A handwritten signature in black ink that reads "Debbie Simmons".

Authorized for release by:

11/8/2022 3:08:57 PM

Debbie Simmons, Project Manager
(832)986-6768

Debbie.Simmons@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N

Laboratory Job ID: 880-21167-1
SDG: 12591378

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

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.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Job ID: 880-21167-1

Laboratory: Eurofins Midland

Narrative

Job Narrative 880-21167-1

Comments

No additional comments.

Receipt

The sample was received on 11/4/2022 3:53 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4° C.

Receipt Exceptions

The following sample was received and analyzed from an unpreserved bulk soil jar: BH19A (880-21167-1).

GC VOA

Method 8021B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-38736 and analytical batch 880-38705 recovered outside control limits for the following analytes: Benzene, Toluene, Ethylbenzene, m-Xylene & p-Xylene and o-Xylene.

Method 8021B: LCSD biased low. Since only an acceptable LCS is required per the method, the data has been qualified and reported.

(LCSD 880-38821/2-A)

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

GC Semi VOA

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

General Chemistry

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

Organic Prep

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

VOA Prep

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Client Sample ID: BH19A

Lab Sample ID: 880-21167-1

Date Collected: 11/04/22 09:30

Matrix: Solid

Date Received: 11/04/22 15:53

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000811	J	0.00199	0.000383	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1
Ethylbenzene	<0.000562	U *- *1	0.00199	0.000562	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1
m-Xylene & p-Xylene	<0.00100	U *-	0.00398	0.00100	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1
Xylenes, Total	<0.00100	U *-	0.00398	0.00100	mg/Kg	-	11/07/22 09:43	11/07/22 14:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	129		70 - 130	11/04/22 17:00	11/05/22 20:45	1
1,4-Difluorobenzene (Surr)	101		70 - 130	11/04/22 17:00	11/05/22 20:45	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00100	U	0.00398	0.00100	mg/Kg	-		11/07/22 15:29	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	16.5	J	50.0	15.0	mg/Kg	-		11/08/22 11:48	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	16.5	J	50.0	15.0	mg/Kg	-	11/07/22 09:04	11/07/22 11:28	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg	-	11/07/22 09:04	11/07/22 11:28	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg	-	11/07/22 09:04	11/07/22 11:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	11/07/22 09:04	11/07/22 11:28	1
o-Terphenyl	100		70 - 130	11/07/22 09:04	11/07/22 11:28	1

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2450		24.8	1.96	mg/Kg	-		11/07/22 16:45	5

Eurofins Midland

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-21167-1	BH19A	129	101
LCS 880-38736/1-A	Lab Control Sample	112	103
LCS 880-38821/1-A	Lab Control Sample	82	103
LCSD 880-38736/2-A	Lab Control Sample Dup	114	96
LCSD 880-38821/2-A	Lab Control Sample Dup	90	105
MB 880-38707/5-A	Method Blank	90	103
MB 880-38736/5-A	Method Blank	88	99
MB 880-38821/5-A	Method Blank	100	97
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-21167-1	BH19A	100	100
880-21167-1 MS	BH19A	97	77
880-21167-1 MSD	BH19A	81	74
LCS 880-38817/2-A	Lab Control Sample	100	97
LCSD 880-38817/3-A	Lab Control Sample Dup	100	100
MB 880-38817/1-A	Method Blank	99	102
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-38707/5-A

Matrix: Solid

Analysis Batch: 38705

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		11/04/22 10:12	11/05/22 01:23	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		11/04/22 10:12	11/05/22 01:23	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		11/04/22 10:12	11/05/22 01:23	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		11/04/22 10:12	11/05/22 01:23	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		11/04/22 10:12	11/05/22 01:23	1
Xylenes, Total	<0.00101	U	0.00400	0.00101	mg/Kg		11/04/22 10:12	11/05/22 01:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	11/04/22 10:12	11/05/22 01:23	1
1,4-Difluorobenzene (Surr)	103		70 - 130	11/04/22 10:12	11/05/22 01:23	1

Lab Sample ID: MB 880-38736/5-A

Matrix: Solid

Analysis Batch: 38705

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38736

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		11/04/22 11:40	11/05/22 13:00	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		11/04/22 11:40	11/05/22 13:00	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		11/04/22 11:40	11/05/22 13:00	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		11/04/22 11:40	11/05/22 13:00	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		11/04/22 11:40	11/05/22 13:00	1
Xylenes, Total	<0.00101	U	0.00400	0.00101	mg/Kg		11/04/22 11:40	11/05/22 13:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130	11/04/22 11:40	11/05/22 13:00	1
1,4-Difluorobenzene (Surr)	99		70 - 130	11/04/22 11:40	11/05/22 13:00	1

Lab Sample ID: LCS 880-38736/1-A

Matrix: Solid

Analysis Batch: 38705

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38736

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1063		mg/Kg		106	70 - 130
Toluene	0.100	0.1077		mg/Kg		108	70 - 130
Ethylbenzene	0.100	0.1031		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	0.200	0.1793		mg/Kg		90	70 - 130
o-Xylene	0.100	0.09022		mg/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: LCSD 880-38736/2-A

Matrix: Solid

Analysis Batch: 38705

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38736

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.05092	*- *1	mg/Kg		51	70 - 130	70	35

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

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

Lab Sample ID: LCSD 880-38736/2-A

Matrix: Solid

Analysis Batch: 38705

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38736

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.05572	*- *1	mg/Kg		56	70 - 130	64	35
Ethylbenzene	0.100	0.04401	*- *1	mg/Kg		44	70 - 130	80	35
m-Xylene & p-Xylene	0.200	0.08214	*- *1	mg/Kg		41	70 - 130	74	35
o-Xylene	0.100	0.04541	*- *1	mg/Kg		45	70 - 130	66	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: MB 880-38821/5-A

Matrix: Solid

Analysis Batch: 38809

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38821

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		11/07/22 09:43	11/07/22 12:58	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		11/07/22 09:43	11/07/22 12:58	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		11/07/22 09:43	11/07/22 12:58	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		11/07/22 09:43	11/07/22 12:58	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		11/07/22 09:43	11/07/22 12:58	1
Xylenes, Total	<0.00101	U	0.00400	0.00101	mg/Kg		11/07/22 09:43	11/07/22 12:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	11/07/22 09:43	11/07/22 12:58	1
1,4-Difluorobenzene (Surr)	97		70 - 130	11/07/22 09:43	11/07/22 12:58	1

Lab Sample ID: LCS 880-38821/1-A

Matrix: Solid

Analysis Batch: 38809

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38821

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1034		mg/Kg		103	70 - 130
Toluene	0.100	0.1041		mg/Kg		104	70 - 130
Ethylbenzene	0.100	0.1012		mg/Kg		101	70 - 130
m-Xylene & p-Xylene	0.200	0.1828		mg/Kg		91	70 - 130
o-Xylene	0.100	0.1023		mg/Kg		102	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	82		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: LCSD 880-38821/2-A

Matrix: Solid

Analysis Batch: 38809

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38821

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08261		mg/Kg		83	70 - 130	22	35
Toluene	0.100	0.07512		mg/Kg		75	70 - 130	32	35
Ethylbenzene	0.100	0.06727	*- *1	mg/Kg		67	70 - 130	40	35

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

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

Lab Sample ID: LCSD 880-38821/2-A

Matrix: Solid

Analysis Batch: 38809

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38821

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	0.200	0.1279	*	mg/Kg		64	70 - 130	35	35
o-Xylene	0.100	0.07467		mg/Kg		75	70 - 130	31	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-38817/1-A

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 38817

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		11/07/22 08:44	11/07/22 08:46	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		11/07/22 08:44	11/07/22 08:46	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		11/07/22 08:44	11/07/22 08:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	11/07/22 08:44	11/07/22 08:46	1
o-Terphenyl	102		70 - 130	11/07/22 08:44	11/07/22 08:46	1

Lab Sample ID: LCS 880-38817/2-A

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 38817

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	815.6		mg/Kg		82	70 - 130
Diesel Range Organics (Over C10-C28)	1000	952.9		mg/Kg		95	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	97		70 - 130

Lab Sample ID: LCSD 880-38817/3-A

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38817

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	787.9		mg/Kg		79	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	973.0		mg/Kg		97	70 - 130	2	20

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-38817/3-A

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 38817

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	100		70 - 130

Lab Sample ID: 880-21167-1 MS

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: BH19A

Prep Type: Total/NA

Prep Batch: 38817

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	16.5	J	997	868.4		mg/Kg		85	70 - 130
Diesel Range Organics (Over C10-C28)	<15.0	U	997	916.7		mg/Kg		92	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	77		70 - 130

Lab Sample ID: 880-21167-1 MSD

Matrix: Solid

Analysis Batch: 38798

Client Sample ID: BH19A

Prep Type: Total/NA

Prep Batch: 38817

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	16.5	J	999	895.3		mg/Kg		88	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<15.0	U	999	900.5		mg/Kg		90	70 - 130	2	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	81		70 - 130
o-Terphenyl	74		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-38763/1-A

Matrix: Solid

Analysis Batch: 38785

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			11/07/22 13:08	1

Lab Sample ID: LCS 880-38763/2-A

Matrix: Solid

Analysis Batch: 38785

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	253.7		mg/Kg		101	90 - 110

Eurofins Midland

QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-38763/3-A				Client Sample ID: Lab Control Sample Dup							
Matrix: Solid				Prep Type: Soluble							
Analysis Batch: 38785											
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	250	253.2		mg/Kg		101	90 - 110	0	20		

QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

GC VOA

Analysis Batch: 38705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	8021B	38736
MB 880-38707/5-A	Method Blank	Total/NA	Solid	8021B	38707
MB 880-38736/5-A	Method Blank	Total/NA	Solid	8021B	38736
LCS 880-38736/1-A	Lab Control Sample	Total/NA	Solid	8021B	38736
LCSD 880-38736/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	38736

Prep Batch: 38707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-38707/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 38736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	5035	
MB 880-38736/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-38736/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-38736/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 38809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	8021B	38821
MB 880-38821/5-A	Method Blank	Total/NA	Solid	8021B	38821
LCS 880-38821/1-A	Lab Control Sample	Total/NA	Solid	8021B	38821
LCSD 880-38821/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	38821

Prep Batch: 38821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	5035	
MB 880-38821/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-38821/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-38821/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 38905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 38798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	8015B NM	38817
MB 880-38817/1-A	Method Blank	Total/NA	Solid	8015B NM	38817
LCS 880-38817/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	38817
LCSD 880-38817/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	38817
880-21167-1 MS	BH19A	Total/NA	Solid	8015B NM	38817
880-21167-1 MSD	BH19A	Total/NA	Solid	8015B NM	38817

Prep Batch: 38817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	8015NM Prep	
MB 880-38817/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-38817/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

Eurofins Midland

QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

GC Semi VOA (Continued)

Prep Batch: 38817 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-38817/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-21167-1 MS	BH19A	Total/NA	Solid	8015NM Prep	
880-21167-1 MSD	BH19A	Total/NA	Solid	8015NM Prep	

Analysis Batch: 38986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 38763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Soluble	Solid	DI Leach	
MB 880-38763/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-38763/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-38763/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 38785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21167-1	BH19A	Soluble	Solid	300.0	38763
MB 880-38763/1-A	Method Blank	Soluble	Solid	300.0	38763
LCS 880-38763/2-A	Lab Control Sample	Soluble	Solid	300.0	38763
LCSD 880-38763/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	38763

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Client Sample ID: BH19A

Lab Sample ID: 880-21167-1

Date Collected: 11/04/22 09:30

Matrix: Solid

Date Received: 11/04/22 15:53

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	38821	11/07/22 09:43	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38809	11/07/22 14:23	MNR	EET MID
Total/NA	Prep	5035			5.03 g	5 mL	38736	11/04/22 17:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	38705	11/05/22 20:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			38905	11/07/22 15:29	AJ	EET MID
Total/NA	Analysis	8015 NM		1			38986	11/08/22 11:48	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	38817	11/07/22 09:04	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	38798	11/07/22 11:28	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	38763	11/04/22 16:47	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	38785	11/07/22 16:45	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N)

Job ID: 880-21167-1
SDG: 12591378

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Midland

Sample Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release (N

Job ID: 880-21167-1
SDG: 12591378

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-21167-1	BH19A	Solid	11/04/22 09:30	11/04/22 15:53

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 880-21167-1

SDG Number: 12591378

Login Number: 21167

List Number: 1

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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").	N/A	



Environment Testing

ANALYTICAL REPORT

Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-21166-1

Laboratory Sample Delivery Group: 13591378

Client Project/Site: Delek LACT Earthstone Squeeze Release

For:

GHD Services Inc.
6121 Indian School Road NE
Suite 200
Albuquerque, New Mexico 87110

Attn: Christine Mathews

A handwritten signature in black ink that reads "Debbie Simmons".

Authorized for release by:

11/8/2022 3:00:46 PM

Debbie Simmons, Project Manager
(832)986-6768

Debbie.Simmons@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Laboratory Job ID: 880-21166-1
SDG: 13591378

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Job ID: 880-21166-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-21166-1

Comments

No additional comments.

Receipt

The sample was received on 11/4/2022 3:53 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4° C.

General Chemistry

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

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Client Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Client Sample ID: Product Sample
Date Collected: 11/04/22 09:15
Date Received: 11/04/22 15:53

Lab Sample ID: 880-21166-1
Matrix: Product

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	219		4.95	0.391	mg/Kg			11/07/22 16:38	1

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QC Sample Results

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-38763/1-A

Matrix: Solid

Analysis Batch: 38785

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			11/07/22 13:08	1

Lab Sample ID: LCS 880-38763/2-A

Matrix: Solid

Analysis Batch: 38785

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	253.7		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-38763/3-A

Matrix: Solid

Analysis Batch: 38785

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	253.2		mg/Kg		101	90 - 110	0	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

HPLC/IC

Leach Batch: 38763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21166-1	Product Sample	Soluble	Product	DI Leach	
MB 880-38763/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-38763/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-38763/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 38785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-21166-1	Product Sample	Soluble	Product	300.0	38763
MB 880-38763/1-A	Method Blank	Soluble	Solid	300.0	38763
LCS 880-38763/2-A	Lab Control Sample	Soluble	Solid	300.0	38763
LCSD 880-38763/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	38763

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Client Sample ID: Product Sample
Date Collected: 11/04/22 09:15
Date Received: 11/04/22 15:53

Lab Sample ID: 880-21166-1
Matrix: Product

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	38763	11/04/22 16:47	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	38785	11/07/22 16:38	CH	EET MID

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

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Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Laboratory: Eurofins Midland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

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Method Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:
ASTM = ASTM International
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: GHD Services Inc.
Project/Site: Delek LACT Earthstone Squeeze Release

Job ID: 880-21166-1
SDG: 13591378

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-21166-1	Product Sample	Product	11/04/22 09:15	11/04/22 15:53

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Chain of Custody Record

SSOW 12591378-2022-002



Environment Today
America

11/8/2022

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

2166

Eurofins Environment Testing Amer

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 880-21166-1

SDG Number: 13591378

Login Number: 21166**List Number: 1****Creator: Rodriguez, Leticia****List Source: Eurofins Midland**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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").	N/A	

Attachment C Photographic Log

Site Photographs



Photo 1 View to the east-northeast of the release area.



Photo 2 View to the south at the remedial excavation.



Photo 3 View of the LACT Units following remedial excavation activities.



Photo 4 View of the northern portion of the remedial excavation adjacent to the Earthstone tank battery.



Photo 5 View to the north at the backfilled remedial excavation.



Photo 6 View to the east-northeast at the backfilled remedial excavation.



Photo 7 View to the southwest at Earthstone pad operations, which is not related to the Delek Release.



Photo 8 View of a damaged and impacted lined area within the Earthstone pad, which is not related to the Delek Release..



Photo 9 View to the west at Earthstone operations with apparent surface impacts that are not related to the Delek Release.



Photo 10 View to the west at apparent surface impacts on the Earthstone pad not related to the Delek Release.

Appendix D

Sampling Notifications

From: [Christine Mathews](#)
To: [Bratcher, Mike, EMNRD](#); [Enviro, OCD, EMNRD](#)
Cc: [Cassie Whitefield](#)
Subject: Confirmation Sampling Notification - Delek Earthstone Squeeze and Queso Blanco
Date: Sunday, October 2, 2022 4:08:36 PM

After excavation and delineation, GHD Services, Inc., is notifying OCD on behalf of Delek Logistics Companies, (2) business days prior to conducting Confirmation Sampling on the following sites.

Sampling will begin at approximately 9:00 AM, Wednesday, October 5 2022 and continue through Thursday October 6, 2022 or until completed.

Site Name: Earthstone Squeeze

Surface Location: Unit N, Section 2, T22S, R34E, Lea County, NM

Lat/Long: 32.41427, -103.444 NAD83

NMOCD Incident Number: nAPP2223528506

Well Name: Queso Blanco

Surface Location: Unit M, Section 13, T22S R34E, Lea County, NM

Lat/Long: 32.3879056, -103.4300418 NAD83

NMOCD Incident Number: nAPP2223530289

If you have any questions or concerns please let me know.

Thank you,

Christine Mathews (she/her)
Project Manager

GHD

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6121 Indian School Rd NE Ste 200 Albuquerque NM 87110 USA

D 1 505 269 0088 E christine.mathews@ghd.com

The Power of Commitment

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This communication and any accompanying document(s) are confidential and are intended for the sole use of the addressee. If you are not the intended recipient, please notify me at the telephone number shown above or by return e-mail and delete this e-mail and any copies. You are advised that any disclosure, copying, distribution, or the taking of any action in reliance upon the communication without consent is strictly prohibited

From: [J.T. Murrey](#)
To: ocd.enviro@state.nm.us
Cc: [Cassie Whitefield](#)
Subject: Rush Sample Notification
Date: Thursday, November 3, 2022 10:10:02 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
Importance: High

To Whom it May Concern,

GHD on behalf of Delek Logistics, respectfully submits a variance of the 48-hour notification of sampling to be conducted at the below location:.

LACT Earthstone Squeeze
N-2-22S-34E
Lea County, NM
nAPP2223528506

Sampling will be conducted at 9:00 a.m. on Friday, November 4, 2022. This variance is requested to allow for backfilling activities to be conducted in order for operation of the facility to be re-started.

Thanks

J.T. Murrey

GHD

Proudly employee-owned | ghd.com

2135 S. Loop 250 West, Midland, TX 79703 USA

M 361 252 6136 | **E** jt.murrey@ghd.com

GHD FIRST 24 Hour Emergency Response

US: 866 812 9565

Canada: 800 679 9082

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Connect



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District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 198181

CONDITIONS

Operator: DKL Energy - Cottonwood, LLC 7102 Commerce Way Brentwood, TN 37027	OGRID: 330291
	Action Number: 198181
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Deferral of the remediation of crude oil impacted soils immediately surrounding the two (2) LACT Units represented by soil samples BH23, LACT STAIN, LACT WALL 1, and LACT WALL 2 due to equipment structural stability concerns is approved. Deferral and closure can not be simultaneously approved; therefore, the remaining areas meeting the applicable closure standards are acknowledged by OCD and remediation of these areas do not require further action.	6/30/2023