

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

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

NM OIL CONSERVATION

ARTESIA DISTRICT

AUG 26 2016

Form C-141
Revised August 8, 2011Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

RECEIVED

FAB1623951305 Release Notification and Corrective Action

NAB1623951503

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Yates Petroleum Corporation	Contact Chase Settle
Address 104 S. 4 th Street, Artesia, NM 88210	Telephone No. 575-748-4171
Facility Name Livingston Ridge SWD System	Facility Type Pipeline

Surface Owner Federal	Mineral Owner Federal	API No.
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LOCATION OF RELEASE

Unit Letter H	Section 35	Township 22S	Range 31E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude 32.35518 Longitude -103.74062

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 30	Volume Recovered 5
Source of Release 6 inch poly produced water line	Date and Hour of Occurrence 8/10/2016; 12:00 p.m.	Date and Hour of Discovery 8/10/2016; 12:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, Shelly Tucker	
By Whom? Bob Asher	Date and Hour 8/11/2016; 8:19 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

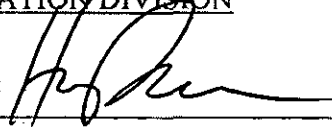
If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*

Vacuum truck was called to the release site to retrieve standing fluid, and a roustabout crew was dispatched to repair the poly line.

Describe Area Affected and Cleanup Action Taken.* An approximate area of 40' X 50' was affected around the 6" poly produced water line. Impacted soils will be excavated and hauled to a NMOCD approved facility. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). If initial analytical results for TPH & BTEX are under RRAL's (site ranking is 0) a Final Report, C-141 will be submitted to the OCD requesting closure. If the analytical results are above the RRAL's a work plan will be submitted to the OCD. Depth to Ground Water: >100' (approximately 120', Section 35, T22S-R31E, per Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Chase Settle	Approved by Environmental Specialist: 	
Title: NM Environmental Regulatory Agent	Approval Date: 8/26/16	Expiration Date: N/A
E-mail Address: csettle@yatespetroleum.com	Conditions of Approval:	
Date: 08/25/2016	Remediation per O.C.D. Rules & Guidelines	
Phone: 575-748-4171	SUBMIT REMEDIATION PROPOSAL NO	

LATER THAN: 9/29/16

2RP-3846

Incident ID	
District RP	2RP-3846
Facility ID	
Application ID	

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?	>100 (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.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	2RP-3846
Facility ID	
Application ID	

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: James Kennedy Title: Environmental Specialist
Signature: James F Kennedy Date: 01/20/2023
email: james_kennedy@eogresources.com Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon Date: 06/07/2023

Incident ID	NAB1816337739
District RP	2RP-3846
Facility ID	
Application ID	

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: James Kennedy Title: Environmental Specialist
Signature: James F Kennedy Date: 01/20/2023
email: james_kennedy@eogresources.com Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon Date: 06/07/2023

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

Signature: _____ Date: _____

Incident ID	NAB1816337739
District RP	2RP-3846
Facility ID	
Application ID	

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 ODC 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: James Kennedy

Title: Environmental Specialist

Signature: James F Kennedy

Date: 01/20/2023

email: james_kennedy@eogresources.com

Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon

Date: 06/07/2023

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: _____

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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

JUN 06 2018

Form C-141
Revised April 3, 2017

Oil Conservation Division DISTRICT I ARTESIA, N.M.
1220 South St. Francis Dr.
Santa Fe, NM 87505
appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR ☒ Initial Report ☐ Final Report

Name of Company EOG Resources, Inc. **25575** Contact Jamon Hohensee
Address 5509 Champions Drive, Midland, TX 79706 Telephone No. (432) 686-3667 **432-686-3760**
Facility Name Livingston Ridge SWD System Facility Type flow line

Surface Owner Federal Mineral Federal API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from	North/South Line	Feet from the	East/West Line	County
H	35	22S	31E					Eddy

Latitude 32.35501 Longitude -103.74051 NAD83

NATURE OF RELEASE

Type of Release Produced Water and oil	Volume of Release 1.5 bbs Oil / 148.5 bbls produced water	Volume Recovered 1 bbl oil / 130 bbls produced water
Source of Release pipeline leak	Date and Hour of Occurrence unknown	Date and Hour of Discovery 6/4/18 10:00 am
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom? Reported to Mike Bratcher w/ NMOCD via telephone message	
By Whom? Jamon Hohensee	Date and Hour 6/6/18 0730	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A flow line ruptured spilling produced water/oil. The transfer pump at the SWD was turned off and vacuum trucks were called. The release ran into a large puddle of rainwater and all of the water was pumped out. Impacted soil in the area of the release will be excavated and soil samples will be collected for laboratory analysis. Vertical and horizontal delineation of the impacted soil will be performed and a work plan for remediation will be prepared for approval by NMOCD.

Describe Area Affected and Cleanup Action Taken.*

Area affected is just east of Red road within the pipeline right-of-way. Impacted soils to be excavated and disposed of at a licensed facility. Confirmation samples will be collected for laboratory analysis.

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OIL CONSERVATION DIVISION	
Signature: <i>A. K. Bratcher</i> as agent for	Approved by Environmental Specialist: <i>[Signature]</i>
Printed Name: Jamon Hohensee	Approval Date: <u>6/7/18</u> Expiration Date: <u>NIA</u>
Title: Environmental Rep., EOG Resources	Conditions of Approval: <u>See Attached</u> Attached ☒
E-mail Address: jamon_hohensee@eogresources.com	
Date: 6/6/2018 Phone: <u>432-686-3760</u>	<u>ARP-4798</u>

* Attach Additional Sheets If Necessary

Incident ID	NAB1816337739
District RP	2RP-4798
Facility ID	
Application ID	

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?	>100 (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.

State of New Mexico
Oil Conservation Division

Page 4

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Printed Name: James Kennedy Title: Environmental Specialist
Signature: James F Kennedy Date: 01/20/2023
email: james_kennedy@eogresources.com Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon Date: 06/23/2023

Incident ID	NAB1816337739
District RP	2RP-4798
Facility ID	
Application ID	

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.

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Printed Name: James Kennedy Title: Environmental Specialist
Signature: James F Kennedy Date: 01/20/2023
email: james_kennedy@eogresources.com Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon Date: 06/23/2023
☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: [Signature] Date: 06/23/2023

Incident ID	NAB1816337739
District RP	2RP-4798
Facility ID	
Application ID	

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 ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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Printed Name: James Kennedy

Title: Environmental Specialist

Signature: James F Kennedy

Date: 01/20/2023

email: james_kennedy@eogresources.com

Telephone: 432-848-9146

OCD Only

Received by: Jocelyn Harimon

Date: 06/23/2023

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: Jocelyn Harimon

Date: 06/23/2023

Printed Name: Jocelyn Harimon

Title: Environmental Specialist

2135 S. Loop 250 W,
Midland, Texas 79703
United States
www.ghd.com

Our ref: 11224133

January 20, 2023

New Mexico Oil Conservation Division
District 1
1625 N. French Drive
Hobbs, New Mexico 88240

Re: **Site Assessment and Closure Report**
Livingston Ridge SWD System Release Site
EOG Resources Inc.
Incident ID: 2RP-3486/4798
H-35-22S-31E, Eddy County, New Mexico

To Whom It May Concern:

1. Introduction

GHD Services, Inc. (GHD), on behalf of EOG Resources (EOG), submits this Site Assessment and Closure Report to the New Mexico Oil Conservation Division (NMOCD) District 1 Office. This Report provides documentation of assessment, remedial activities, and analyses conducted at the EOG Livingston Ridge SWD System Release Site (Site). The Site is located in Unit Letter H Section 35 of Township 22 South and Range 31 East in Eddy County, New Mexico. The GPS coordinates for the release site are 32.35501 N latitude and 103.74051 W longitude. The release occurred on public land owned by the U.S. Bureau of Land Management (BLM). Figure 1 depicts the Site location. The former EOG production facility and other site details are depicted on Figure 2 and Figure 3.

2. Background Information

2.1 2RP-3846

On August 16, 2016, a six (6) inch poly water line ruptured causing the release of thirty (30) barrels (bbls) of produced water. Five (5) bbls were recovered via vacuum truck. An Initial Form C-141 reporting the release was submitted to the New Mexico Oil Conservation Division (NMOCD) August 25, 2016. The NMOCD assigned remediation number 2RP-3846. The Release Notification, Site Assessment/Characterization, Remediation, and Closure portions of Form C-141 are attached to the front of this report.

2.2 2RP-4798

On June 4, 2018, a release of one and one-half (1.5) bbls of oil and 148.5 bbls of produced water was discovered on the Site. One (1) bbl of oil and 130 bbls produced water were recovered after discovery of the release. The exact date and time of the release are unknown, but the cause was an apparent flow line rupture.

The NMOCD assigned remediation number 2RP-4798. The released liquids comingled with an existing pool of rainwater and all water was recovered via vacuum truck. The Release Notification, Site Assessment/Characterization, Remediation, and Closure portions of Form C-141 are attached to the front of this report.

3. Groundwater and Site Characterization

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).

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 could be located within one-half mile of the Site. No receptors (water wells, playas, wetlands, waterways, lakebeds or ordinance boundaries) were located within each specific boundaries or distance from the Site. The Site characterization documentation (Karst Potential, Point of Diversion, Well Log, Significant Watercourse, Wetlands, and FEMA maps) are provided in Attachment A.

To determine depth to water (DTW) at the Site, GHD and Harrison and Cooper, Inc. (HCI) installed a DTW boring in May 2022; SB-1. The boring was installed to a total depth of approximately 106.6 feet bgs. The boring was left open for seventy-two (72) hours and gauged with a DTW meter on May 25, 2022, no water was detected in the boring. The boring log is included as Attachment B. The soil and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (feet)
No Receptors Found	>100

Table 3.1 Closure Criteria for Soils Impacted by a Release (NMAC 19.15.29.12)

Regulatory Standard	Chloride (mg/kg)	TPH (GRO+DRO+MRO) (mg/kg)	TPH (GRO+MRO) (mg/kg)	BTEX (mg/kg)	Benzene (mg/kg)
19.15.29.13 Restoration, Reclamation and Re-Vegetation (Impacted Area 0-4 Feet)	600	100	---	50	10
19.15.29.12 NMAC Table I Closure Criteria for Soils Impacted by a Release	20,000	2,500	1,000	50	10
Notes: --- = not defined					

4. Further Soil Delineation Assessment Summary and Findings

From March 22 through March 24, 2021, GHD and EOG's contractor SDR Enterprises, LLC (SDR), installed thirty-three (33) test pits, TP1 through TP33, and one hand auger boring, HA1, within the suspected impacted

area. Soil samples were collected at depths ranging from ground surface (0 feet) to twelve (12) feet bgs. All soil samples were analyzed for BTEX by EPA Method 8021B, TPH by Method 8015B Modified, and chloride by EPA Method 300 by Eurofins Environment Testing America (Eurofins) in Carlsbad, New Mexico.

Analytical results indicated none of the samples exhibited BTEX or TPH constituents above Table I Closure Criteria. Three (3) of the thirty-three (33) test pit samples contained chloride concentrations that were above the Table I Restoration, Reclamation, and Re-Vegetation Closure Criteria of 600 mg/kg in the top four (4) feet: TP1, TP5, and TP6. Sample locations and analytical results are summarized on Figure 2, in Table 1, and in the laboratory analytical reports included in Attachment C.

5. Remedial Excavation, Waste Management, and Confirmation Soil Sampling

Remedial excavation activities were conducted by SDR with oversight being provided by GHD from November 7 through December 16, 2022.

On November 7, 2022, GHD collected eighteen (18) bottom hole (BH-1 through BH-18) and eight (8) sidewall (SW-1 through SW-8) composite confirmation samples. Bottom hole and sidewall confirmation samples collected represented areas no greater than two hundred (200) square feet. A test pit (TP) was also advanced north of the previous TP-1 location to confirm affected soil extents had been horizontally delineated, and three (3) samples were collected at surface (0), two (2), and four (4) feet depth intervals. All soil samples were analyzed for BTEX by EPA Method 8021B, TPH by Method 8015B Modified, and chloride by EPA Method 300 by Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico.

Analytical results indicated four (4) of the confirmation samples contained chloride concentrations that were above the Table I Restoration, Reclamation, and Re-Vegetation Closure Criteria of 600 mg/kg in the top four (4) feet: SW-1, SW-4, SW-5, and SW-8. None of the other confirmation or test pit samples exhibited benzene, BTEX, TPH, or chloride concentrations above Table I Closure Criteria.

Due to sidewall samples exhibiting chloride concentrations above Table I Closure Criteria, GHD and SDR returned to the site on December 16, 2022, to further excavate the affected areas and resample. The sidewalls where samples SW-1, SW-4, SW-5, and SW-8 were collected were further excavated and resampled; SW-1A, SW-4A, SW-5A, and SW-8A. Sidewall confirmation samples collected represented areas no greater than two hundred (200) square feet. All soil samples were analyzed for BTEX by EPA Method 8021B, TPH by Method 8015B Modified, and chloride by EPA Method 300 by HEAL in Albuquerque, New Mexico.

Analytical results indicated none of the confirmation samples contained BTEX, TPH, or chloride concentrations above Table I Closure Criteria. Figure 3 depicts the locations of the composite confirmation samples. Analytical results are provided in Table 1 and in the Laboratory Analytical Reports provided in Attachment C.

Waste management activities were performed in coordination with EOG directives. GHD 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 (WM-1-035), Lea Land, LLC facility located at MM64, Highway 62/180 East, Carlsbad, NM, 88220. Approximately 515 tons 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 is included in Table 2. A photographic log is included as Attachment D. Sampling notifications are included as Attachment E.

6. 2RP-3486/4798 Closure Request

The excavation was backfilled with non-impacted soil, with the upper four (4) feet consisting entirely of soils imported to the Site from a locally sourced topsoil pit. Site characterization, soil delineation, and remediation activities for Incidents 2RP-3486/4798 have been performed in accordance with applicable NMOCD guidance and regulations. Based upon supporting documentation provided in this report, GHD, on behalf of EOG, respectfully requests closure of 2RP-3486/4798.

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



Nate Reece
Environmental Scientist



JT Murrey
Senior Project Manager

NR/jt/1

Encl. Figure 1 – Site Location Map
 Figure 2 – Assessment Sampling Locations Map
 Figure 3 – Confirmation Sampling Locations Map
 Table 1 – Summary of Soil Analytical Data
 Table 2 – Soil Disposal Summary
 Attachment A – Site Characterization Documentation
 Attachment B – Soil Boring Log
 Attachment C – Laboratory Analytical Reports and Chain-of-Custody Documentation
 Attachment D – Photographic Log
 Attachment E – Sampling Notifications

cc: James Kennedy

Tables

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride	
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	Total GRO/DRO/MRO		
			Table I Closure Criteria for Soils >100 feet Depth to Groundwater 19.15.29 NMAC										
			10	---	---	---	50	1,000		---	2,500		20,000
			19.15.29.13 NMAC - Restoration and Reclamation Criteria (0 to 4 feet)										
10	---	---	---	50	---	---	---	100	600				
Initial Assessment Samples													
TP1-S	3/24/21	S	<0.000388	<0.000460	0.000580	<0.00101	<0.00101	<14.9	<14.9	<14.9	<14.9	165	
TP1-2	3/24/21	2	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	<15.0	<15.0	<15.0	<15.0	825	
TP1-4	3/24/21	4	<0.000382	<0.000452	<0.000561	<0.000992	<0.000992	<14.9	<14.9	<14.9	<14.9	1,140	
TP1-6	3/24/21	6	<0.000382	<0.000452	<0.000561	<0.000992	<0.000992	15.1	<15.0	<15.0	15.1	2,950	
TP1-8	3/24/21	8	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<14.9	<14.9	<14.9	<14.9	7,470	
TP1-10	3/24/21	10	<0.000388	<0.000460	<0.000570	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	13,700	
TP2-S	3/24/21	S	<0.000385	<0.000456	<0.000565	<0.00100	<0.00100	<14.9	<14.9	<14.9	<14.9	147	
TP2-2	3/24/21	2	<0.000382	<0.000452	<0.000561	<0.000992	<0.000992	<15.0	<15.0	<15.0	<15.0	268	
TP2-4	3/24/21	4	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	16.5	<15.0	16.5	534	
TP3-S	3/24/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	73.7	
TP3-2	3/24/21	2	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	<15.0	<15.0	<15.0	<15.0	7.02	
TP3-4	3/24/21	4	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	<15.0	<15.0	<15.0	<15.0	11.8	
TP4-S	3/24/21	S	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	37.1	19	<14.9	56.1	55.3	
TP4-2	3/24/21	2	<0.000385	<0.000456	<0.000565	<0.00100	<0.00100	16.6	<15.0	<15.0	16.6	12.1	
TP4-4	3/24/21	4	<0.000381	<0.000451	<0.000559	<0.000990	<0.000990	<15.0	17.4	<15.0	17.4	111	
TP5-S	3/24/21	S	<0.000382	<0.000425	0.000725	<0.000992	<0.000992	50.5	<15.0	<15.0	50.5	3,720	
TP5-2	3/24/21	2	<0.000385	<0.000456	<0.000565	<0.00100	<0.00100	53.2	<15.0	<15.0	53.2	820	
TP5-4	3/24/21	4	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	67.9	<15.0	<15.0	67.9	468	
TP5-6	3/24/21	6	<0.000387	<0.000459	<0.000568	<0.00101	<0.00101	47.2	<15.0	<15.0	47.2	44.9	
TP6-S	3/24/21	S	<0.000386	<0.000457	<0.000566	<0.00100	<0.00100	45.5	<14.9	<14.9	45.5	106	
TP6-2	3/24/21	2	<0.000384	<0.000455	0.000764	<0.000998	<0.000998	21.0	<15.0	<15.0	21.0	396	
TP6-4	3/24/21	4	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	55.0	<15.0	<15.0	55.0	3,390	
TP6-6	3/24/21	6	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	45.2	19.4	<14.9	64.6	4,040	
TP6-8	3/24/21	8	<0.000381	<0.000451	<0.000559	<0.000990	<0.000990	49.8	<15.0	<15.0	49.8	4,500	
TP6-10	3/24/21	10	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	44.1	32.8	<15.0	76.9	5,740	
TP6-12	3/24/21	12	<0.000387	<0.000459	<0.000568	<0.00101	<0.00101	47.5	20.5	<14.9	68.0	5,170	
TP7-S	3/23/21	S	<0.000386	<0.000457	<0.000566	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	58.1	
TP7-2	3/23/21	2	<0.000387	<0.000459	0.000621	<0.00101	<0.00101	<14.9	<14.9	<14.9	<14.9	13.5	
TP7-4	3/23/21	4	0.000490	<0.000460	<0.000570	<0.00101	<0.00101	15.6	<15.0	<15.0	15.6	14.6	

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	Total GRO/DRO/MRO	
			Table I Closure Criteria for Soils >100 feet Depth to Groundwater 19.15.29 NMAC									
			10	---	---	---	50	1,000	---	2,500	20,000	
TP8-S	3/23/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<14.9	<14.9	<14.9	<14.9	13.2
TP8-2	3/23/21	2	<0.000388	<0.000460	0.000645	0.00156	0.00221	<15.0	<15.0	<15.0	<15.0	11.3
TP9-S	3/24/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<14.9	<14.9	<14.9	<14.9	54.2
TP9-2	3/24/21	2	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<15.0	15.0	<15.0	15.0	15.3
TP9-4	3/24/21	4	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	<15.0	15.7	<15.0	15.7	3.63
TP10-S	3/24/21	S	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	55.3	<15.0	<15.0	55.3	25.2
TP10-2	3/24/21	2	<0.000388	<0.000460	<0.000570	<0.00101	<0.00101	27.0	<15.0	<15.0	27.0	44.3
TP10-4	3/24/21	4	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	34.7	<15.0	<15.0	34.7	10.9
TP11-S	3/23/21	S	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	<15.0	<15.0	<15.0	<15.0	33.3
TP11-2	3/23/21	2	<0.000381	<0.000451	0.00200	<0.000990	0.00200	<15.0	<15.0	<15.0	<15.0	12.7
TP11-4	3/23/21	4	<0.000387	<0.000458	0.000651	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	19.5
TP12-S	3/23/21	S	0.000482	<0.000457	<0.000566	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	11.9
TP12-2	3/23/21	2	<0.000387	<0.000458	0.00176	<0.00100	0.00176	<15.0	<15.0	<15.0	<15.0	5.13
TP12-4	3/23/21	4	<0.000389	<0.000461	0.00117	<0.00101	0.00117	<14.9	<14.9	<14.9	<14.9	15.5
TP14-S	3/24/21	S	<0.000387	<0.000458	0.00104	<0.00100	0.00104	20.0	<15.0	<15.0	20.0	30.1
TP14-2	3/24/21	2	<0.000383	<0.000454	0.000576	<0.000996	<0.000996	31.7	<15.0	<15.0	31.7	12.9
TP14-4	3/24/21	4	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	55.4	<15.0	<15.0	55.4	10.9
TP-15-S	3/22/21	S	<0.000386	<0.000457	<0.000566	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	45.5
TP-15-2	3/22/21	2	<0.000386	<0.000457	<0.00056	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	173
TP-15-4	3/22/21	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP-16-S	3/22/21	S	0.000443	0.000547	0.00122	<0.000996	0.00283	<15.0	<15.0	<15.0	<15.0	8.1
TP-16-2	3/22/21	2	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<14.9	<14.9	<14.9	<14.9	3.25
TP-17-S	3/22/21	S	<0.000386	0.000531	<0.000566	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	4.56
TP-17-2	3/22/21	2	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	7.60
TP-18-S	3/22/21	S	<0.000381	<0.000451	<0.000559	<0.000990	<0.000990	<14.9	<14.9	<14.9	<14.9	17.9
TP-18-2	3/22/21	2	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	19.0	17.5	<14.9	36.5	10.1
TP-19-S	3/22/21	S	<0.000384	<0.000455	0.00115	<0.000998	0.00179	30.7	<15.0	<15.0	30.7	7.27
TP-19-2	3/22/21	2	<0.000386	<0.000457	<0.000566	<0.00100	<0.00100	20.5	<15.0	<15.0	20.5	30.1
TP-20-S	3/22/21	S	<0.000383	<0.000453	0.00116	<0.000994	0.00116	<15.0	<15.0	<15.0	<15.0	123
TP-20-2	3/22/21	2	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<15.0	<15.0	<15.0	<15.0	50.6

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Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	Total GRO/DRO/MRO	
			Table I Closure Criteria for Soils >100 feet Depth to Groundwater 19.15.29 NMAC									
			10	---	---	---	50	1,000		---	2,500	20,000
TP-21-S	3/22/21	S	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	23.5	<15.0	<15.0	23.5	78.2
TP-21-2	3/22/21	2	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	26.6	<14.9	<14.9	26.6	40.2
TP-22-S	3/22/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	24.2	<15.0	<15.0	24.2	9.09
TP-22-2	3/22/21	2	<0.000388	<0.000460	<0.000570	<0.00101	<0.00101	44.5	<15.0	<15.0	44.5	1.28
TP-23-S	3/22/21	S	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	41.50
TP-23-2	3/22/21	2	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<15.0	<15.0	<15.0	<15.0	22.3
TP-24-S	3/22/21	S	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	30.3	<15.0	<15.0	30.3	2.65
TP-24-2	3/22/21	2	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	22.6	<15.0	<15.0	22.6	3.62
TP-24-4	3/22/21	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP25-S	3/24/21	S	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	<15.0	16.1	<15.0	16.1	9.88
TP25-2	3/24/21	2	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	7.37
TP25-4	3/24/21	4	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	13.1
TP-26-S	3/22/21	S	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP-26-2	3/22/21	2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP-27-S	3/22/21	S	<0.000382	<0.000452	<0.000561	<0.000992	<0.000992	29.9	<15.0	<15.0	29.9	546
TP-27-2	3/22/21	2	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	27.5	<15.0	<15.0	27.5	127
TP28-S	3/23/21	S	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	<15.0	<15.0	<15.0	<15.0	11.6
TP28-2	3/23/21	2	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	16.1	<15.0	<15.0	16.1	26.3
TP-29-S	3/22/21	S	<0.000383	<0.000453	<0.000562	<0.000994	<0.000994	26.7	<15.0	<15.0	26.7	10.5
TP-29-2	3/22/21	2	<0.000381	<0.000451	<0.000559	<0.000990	<0.000990	23.8	38.1	<15.0	61.9	1.03
TP30-S	3/23/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	11.9
TP30-2	3/23/21	2	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	6.65
TP30-4	3/23/21	4	<0.000384	<0.000455	<0.000564	<0.000998	<0.000998	<15.0	<15.0	<15.0	<15.0	10.4
TP-31-S	3/22/21	S	<0.000387	<0.000458	<0.000567	<0.00100	<0.00100	21.8	<14.9	<14.9	21.8	0.937
TP-31-2	3/22/21	2	<0.000387	<0.000459	0.000650	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	<0.855
TP-32-S	3/22/21	S	<0.000389	<0.000461	0.000708	<0.00101	<0.00101	<15.0	15.3	<15.0	15.3	24.4
TP-32-2	3/22/21	2	<0.000386	<0.000457	<0.000566	<0.00100	<0.00100	<15.0	17.1	<15.0	17.1	37.8
TP33-S	3/23/21	S	<0.000387	<0.000458	0.000924	<0.00100	<0.00100	<15.0	<15.0	<15.0	<15.0	16.0
TP33-2	3/23/21	2	<0.000384	0.000632	0.000822	<0.000998	0.00145	<14.9	<14.9	<14.9	<14.9	52.3
TP33-4	3/23/21	4	<0.000383	<0.000454	<0.000563	<0.000996	<0.000996	<15.0	<15.0	<15.0	<15.0	51.6

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Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
			10	---	---	---	50	1,000	---	2,500	20,000	
HA1-S	3/24/21	S	<0.000389	<0.000461	<0.000571	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	12.9
HA1-2	3/24/21	2	<0.000388	<0.000460	<0.000570	<0.00101	<0.00101	<15.0	<15.0	<15.0	<15.0	4.22
HA1-4	3/24/21	4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TP00	11/7/22	S	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<14	<48	<48	<60
TP02	11/7/22	2	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<15	<50	<50	<60
TP04	11/7/22	4	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	<14	<47	<47	<60
Bottom Hole Confirmation Samples												
BH-1	11/7/22	4	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	<15	<48	<48	750
BH-2	11/7/22	4	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<15	<50	<50	730
BH-3	11/7/22	4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<14	<47	<47	750
BH-4	11/7/22	4	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<14	<48	<48	1,400
BH-5	11/7/22	4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<15	<50	<50	970
BH-6	11/7/22	4	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<15	<49	<49	4,500
BH-7	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<14	<48	<48	1,300
BH-8	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<13	<45	<45	1,600
BH-9	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<14	<47	<47	360
BH-10	11/7/22	4	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<15	<48	<48	4,800
BH-11	11/7/22	4	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<15	<50	<50	230
BH-12	11/7/22	4	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<15	<48	<48	2,700
BH-13	11/7/22	4	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<15	<49	<49	140
BH-14	11/7/22	4	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<15	<50	<50	620
BH-15	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<14	<48	<48	230
BH-16	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<12	<41	<41	65
BH-17	11/7/22	4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<14	<47	<47	<60
BH-18	11/7/22	4	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<14	<48	<48	90
Sidewall Confirmation Samples												
SW-1	11/7/22	0-4	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<15	<49	<49	1,100
SW-1A	12/16/22	0-4	<0.016	<0.033	<0.033	<0.066	<0.066	<3.3	<14	<47	<47	200
SW-2	11/7/22	0-4	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<14	<48	<48	180
SW-3	11/7/22	0-4	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<14	<48	<48	77
SW-4	11/7/22	0-4	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<15	<50	<50	2,700
SW-4A	12/16/22	0-4	<0.015	<0.030	<0.030	<0.060	<0.060	<3.0	<14	<46	<46	500
SW-5	11/7/22	0-4	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<15	<49	<49	4,300
SW-5A	12/16/22	0-4	<0.014	<0.028	<0.028	<0.056	<0.056	<2.8	<13	<44	<44	170
SW-6	11/7/22	0-4	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<14	<46	<46	63

Table 1
Summary of Soil Analytical Data
Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
								GRO (C6-C10)	DRO (C10-C28)	MRO (C28-C35)	Total GRO/DRO/MRO	
			Table I Closure Criteria for Soils >100 feet Depth to Groundwater 19.15.29 NMAC									
			10	---	---	---	50	1,000		---	2,500	20,000
SW-7	11/7/22	0-4	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<13	<43	<43	66
SW-8	11/7/22	0-4	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<13	<45	<45	960
SW-8A	12/14/22	0-4	<0.016	<0.031	<0.031	<0.062	<0.062	<3.1	<15	<49	<49	190

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 SW 8021B.

5. TPH analyses by EPA Method SW 8015 Mod.
6. GRO/DRO/MRO = Gasoline/Diesel/Motor Oil

7. Yellow shaded cells indicate analytical samples that exceed the NMAC 19.15.29.12 Table 1 Closure Criteria for the site.

8. Peach shaded cells indicate analytical samples that exceed the NMAC 19.15.29.13 Table 1 Closure Criteria for the site (Surface to 4 Feet Below Grade).

9. J - the target analytes was positively identified below the quantitation limit and above the detection limit.

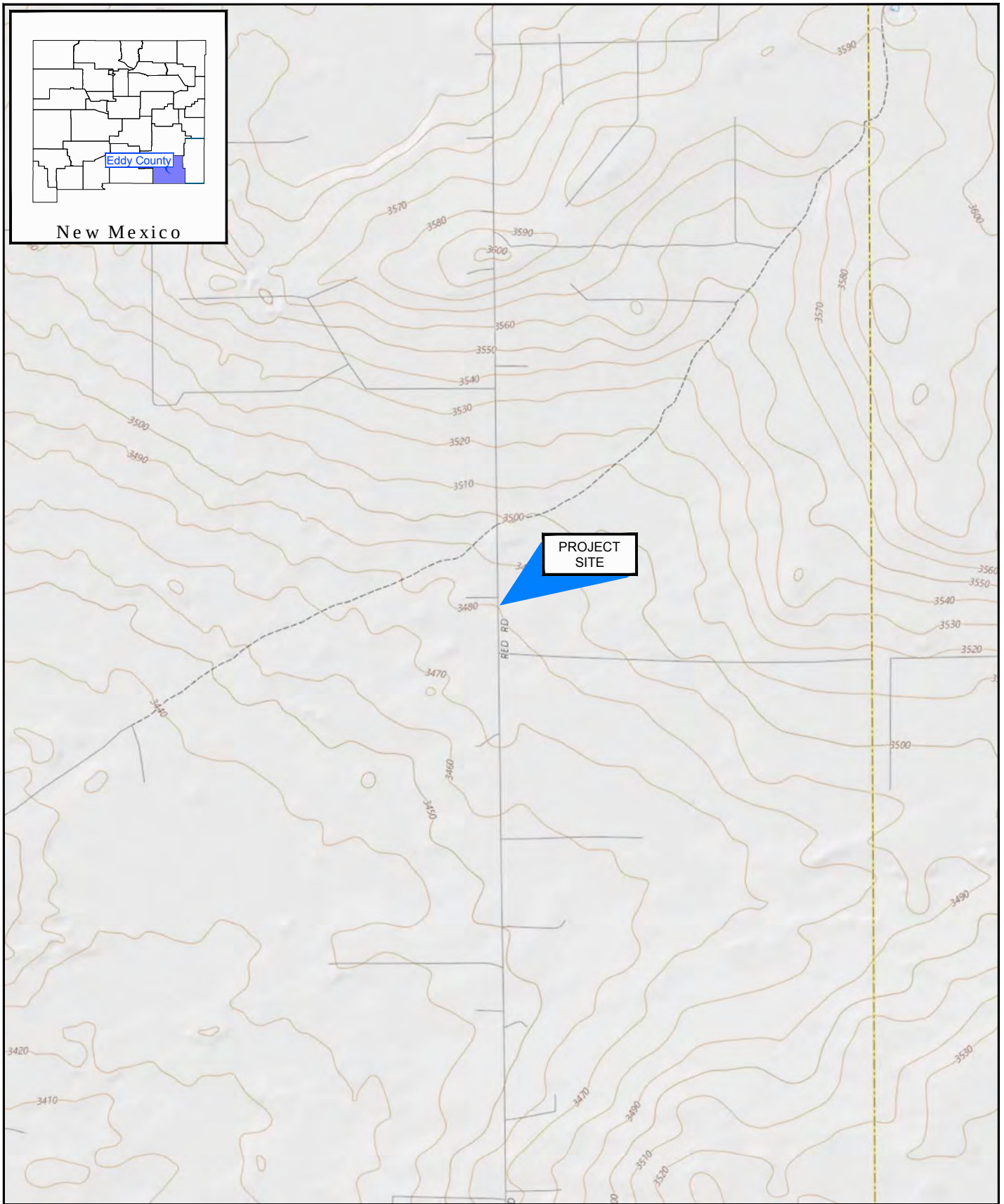
10. NT = Not tested for listed constituent.

~~B-BH-2~~ Sample Point Excavated

Table 2
Daily Disposal Summary
Livingston Ridge SWD System
EOG Resources
Eddy County, New Mexico

Date of Disposal	Total Pounds Disposed	Total Tons Disposed
11/4/2022	539,320	269.66
11/7/2022	431,180	215.59
1/12/2023	58,960	29.48
Project Total	1,029,460	514.73

Figures



Source: USGS 7.5 Minute Quad "Bootleg Ridge, Los Mendanos, Livingston Ridge, and The Divide, New Mexico"

Lat/Long: 32.355228° North, 103.740625° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

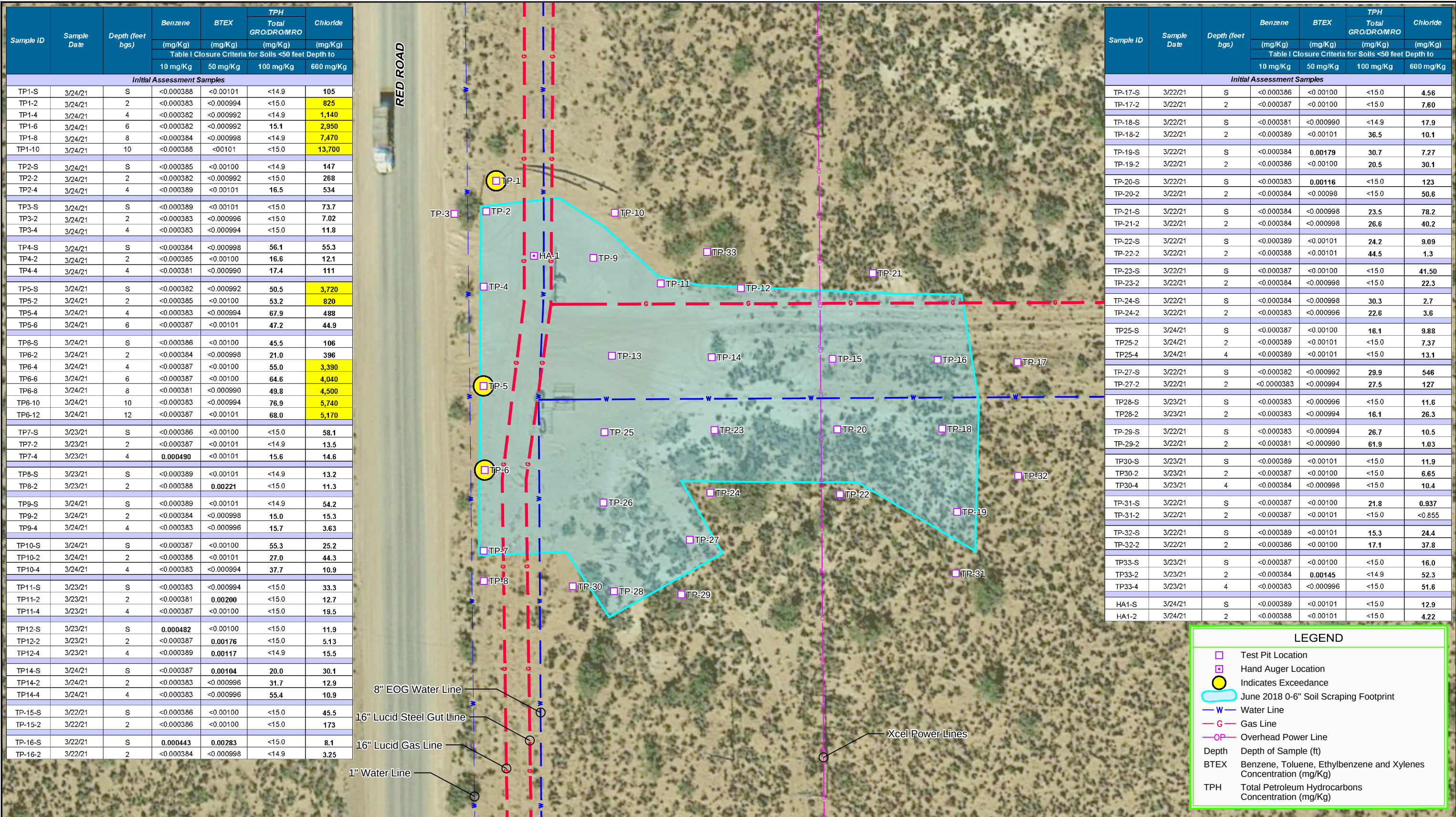


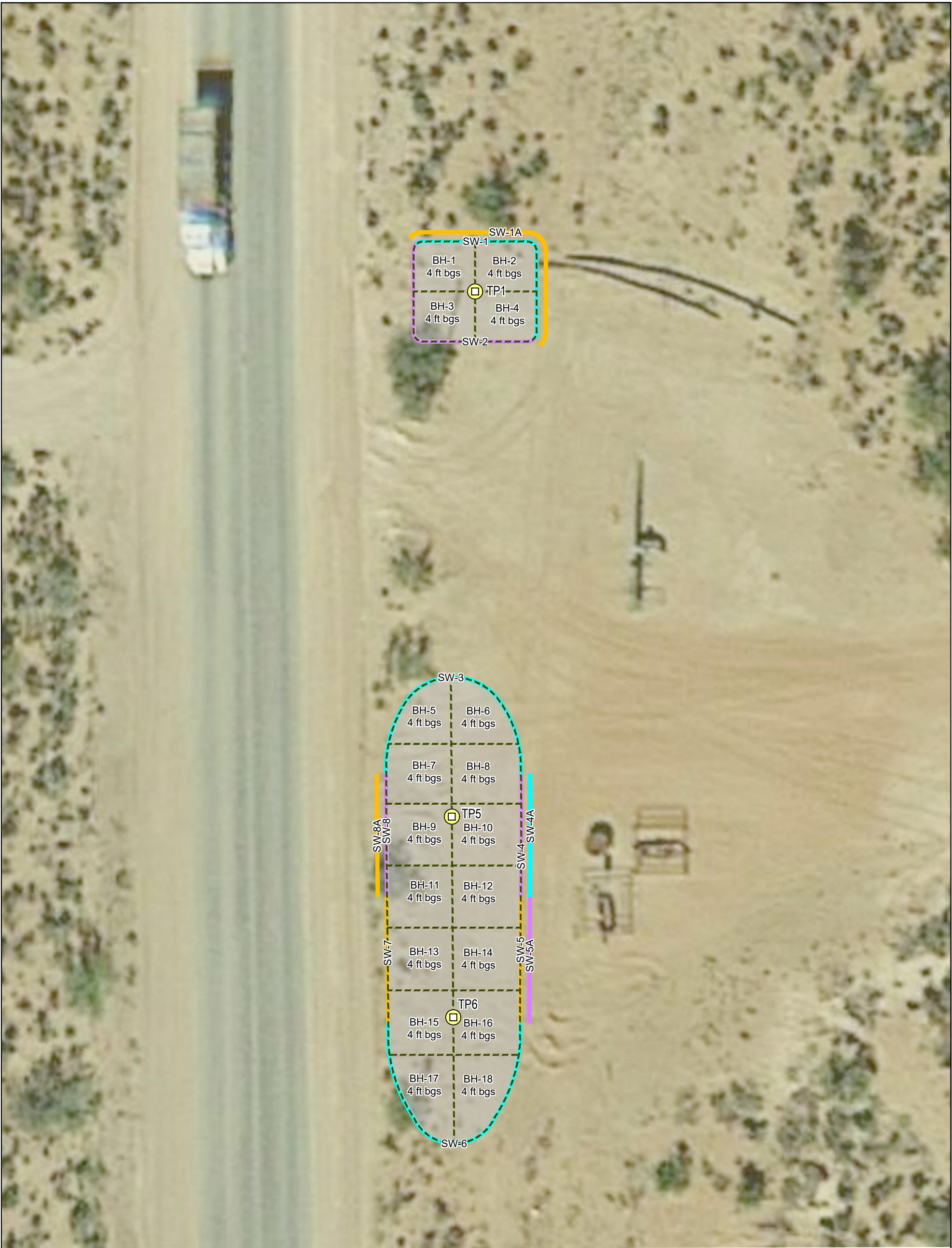
EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD SYSTEM

088210-72
Aug 1, 2018

SITE LOCATION MAP

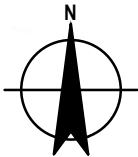
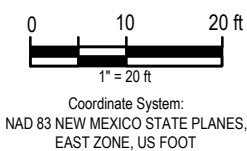
FIGURE 1





LEGEND

- TEST PIT LOCATION - REMOVED DURING EXCAVATION ACTIVITIES
- EXCAVATED AREA
- BH-1 BOTTOM OF EXCAVATION
- 4 ft bgs DEPTH OF SAMPLE
- SW-4 SIDEWALL
- SW-2A RESAMPLE
- INDICATES SIDE WALL COMPOSITE SAMPLE
- INDICATES SIDE WALL COMPOSITE SAMPLE
- INDICATES SIDE WALL COMPOSITE SAMPLE



EOG RESOURCES
EDDY COUNTY, NEW MEXICO
LIVINGSTON RIDGE SWD SYSTEM

Project No. 11224133
Date January 2023

CONFIRMATION SAMPLING
LOCATIONS MAP

FIGURE 3

Attachment A

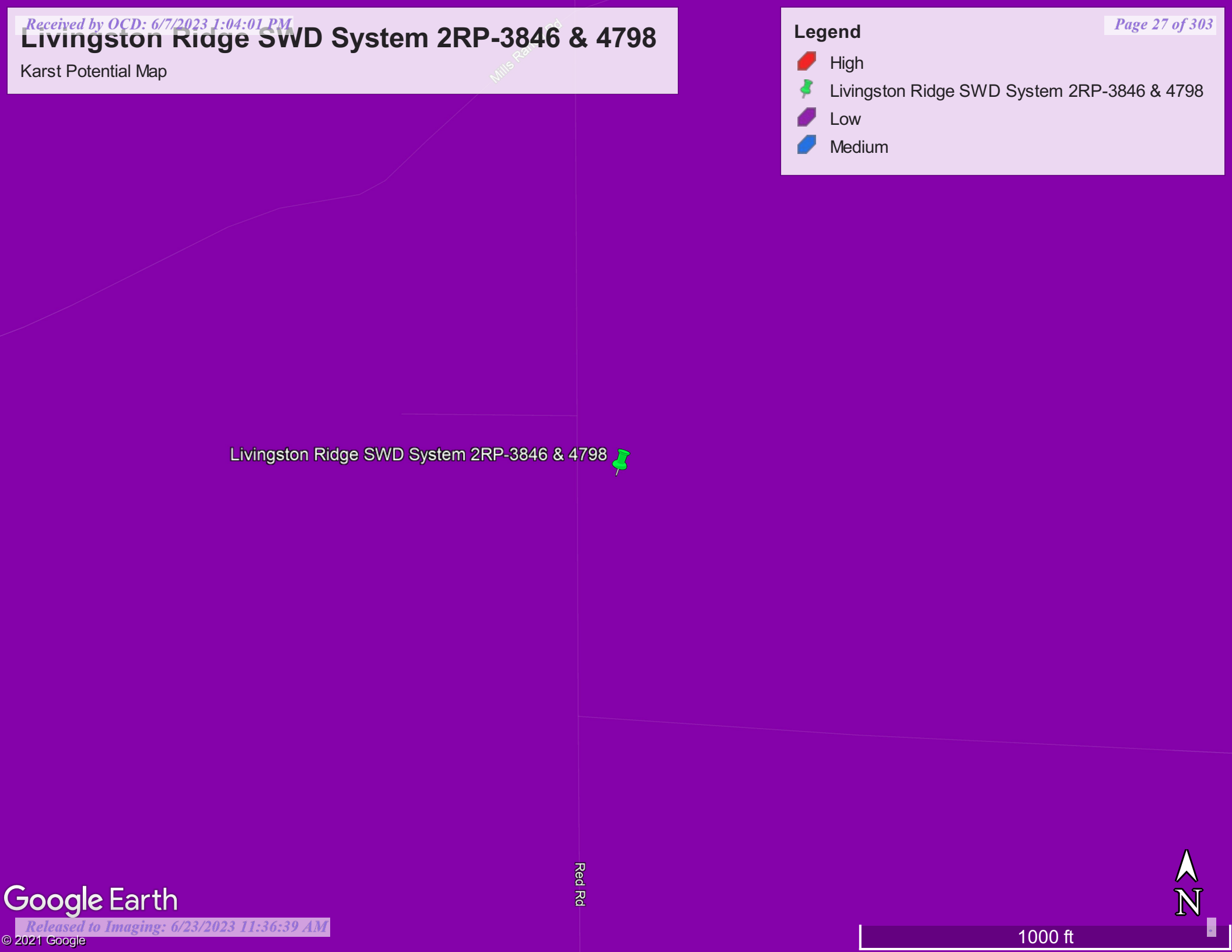
Site Characterization Documentation

Livingston Ridge SWD System 2RP-3846 & 4798

Karst Potential Map

Legend

-  High
-  Livingston Ridge SWD System 2RP-3846 & 4798
-  Low
-  Medium



Livingston Ridge SWD System 2RP-3846 & 4798

Livingston Ridge SWD System 2RP-3846 & 4798

USGS Well Location Map

Legend

- 0.5 Mile Radius
- Livingston Ridge SWD System 2RP-3846 & 4798
- USGS 322046103460301

Livingston Ridge SWD System 2RP-3846 & 4798

USGS 322046103460301



Groundwater levels for the Nation

* IMPORTANT: [Next Generation Station Page](#)

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 322046103460301

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 322046103460301 22S.31E.34.321

Eddy County, New Mexico
Latitude 32°20'46", Longitude 103°46'03" NAD27
Land-surface elevation 3,448 feet above NGVD29
This well is completed in the Other aquifers (N99990THER) national aquifer.
This well is completed in the Delaware Mountain Group (313DLRM) local aquifer.

Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)

[Reselect period](#)

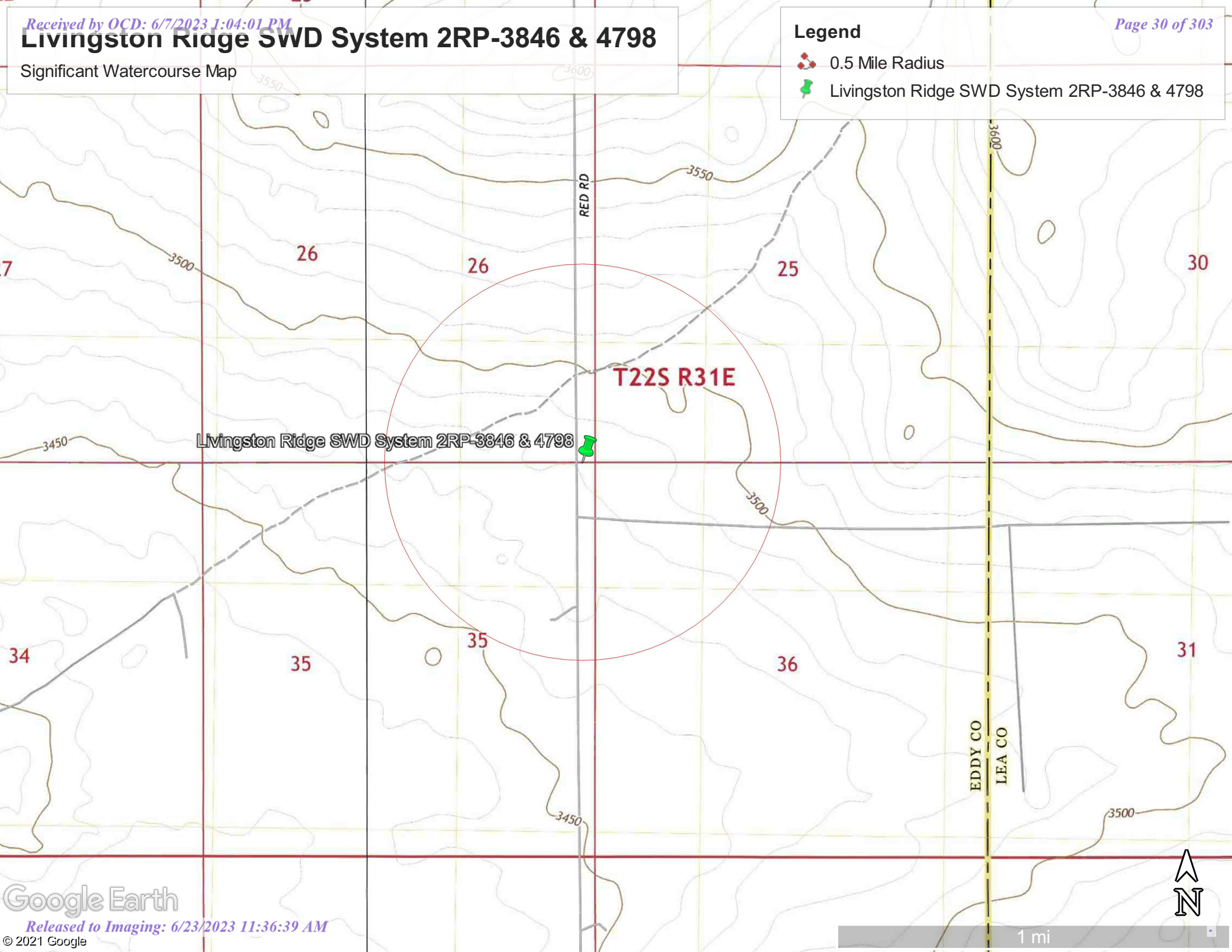
Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source of measurement	Water-level approval status
1975-12-18		D	62610		2954.80	NGVD29	1	O	USGS	S	A
1975-12-18		D	62611		2956.44	NAVD88	1	O	USGS	S	A
1975-12-18		D	72019	493.20			1	O	USGS	S	A

Livingston Ridge SWD System 2RP-3846 & 4798

Significant Watercourse Map

Legend

- 0.5 Mile Radius
- Livingston Ridge SWD System 2RP-3846 & 4798





EOG Livingston Ridge 2RP-2846 & 4798



February 25, 2021

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 FIRMMette



103°44'45"W 32°21'33"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000 103°44'7"W 32°21'3"N

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		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 2/25/2021 at 5:42 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 Soil Boring Log



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: Livingston SWD System 2RP-3846

HOLE DESIGNATION: SB-1

PROJECT NUMBER: 11224133

DATE COMPLETED: 10 May 2022

CLIENT: EOG Resources

DRILLING METHOD: Air Rotary

LOCATION: New Mexico

FIELD PERSONNEL: L. Mullins

DRILLING CONTRACTOR: HCI Drilling

DRILLER: K. Cooper

File: \\GHDNET\GHD\USMIDLAND\PROJECTS\56211224133\TECH\GINT LOG\11224133 LOG.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 17/1/23

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	CHLORIDE (mg/kg)	
5	SP-SAND, fine to medium grained, brown to light brown, dry							
10	- light brown, consolidated sandstone with gypsum from 6.00 to 8.00ft BGS - reddish brown, dry from 8.00 to 31.00ft BGS							
15								
20								
25								
30								
	SANDSTONE, consolidated, light brown to reddish, dry	31.00						
35	SP-SAND, fine to medium grained, reddish to brown, dry	34.00						
40								
45								
50	SANDSTONE, consolidated, reddish brown, dry	50.00						
55								
	SP-SAND, fine to medium grained, reddish brown, dry	57.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 2

PROJECT NAME: Livingston SWD System 2RP-3846

HOLE DESIGNATION: SB-1

PROJECT NUMBER: 11224133

DATE COMPLETED: 10 May 2022

CLIENT: EOG Resources

DRILLING METHOD: Air Rotary

LOCATION: New Mexico

FIELD PERSONNEL: L. Mullins

DRILLING CONTRACTOR: HCI Drilling

DRILLER: K. Cooper

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	CHLORIDE (mg/kg)	
65	- with rock interbedded from 69.00 to 83.00ft BGS							
70								
75								
80								
83.00	SANDSTONE, partially consolidated	83.00						
85.00	ROCK	85.00						
86.00	SP-SAND, reddish to brown, dry	86.00						
90								
95								
100								
105								
106.60	END OF BOREHOLE @ 106.60ft BGS	106.60						
110								
115								

WELL DETAILS

Screened interval:
 94.60 to 106.60ft BGS
 Length: 12ft
 Diameter: 2in
 Slot Size: 0.010
 Material: 8/16 Sand
 Seal:
 0.00 to 94.60ft BGS
 Material: Bentonite
 Sand Pack:
 94.60 to 106.60ft BGS
 Material: Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

File: \\GHDNET\GHD\USMIDLAND\PROJECTS\56211224133\TECH\GINT LOG\11224133 LOG.GPJ Library File: GHD_ENVIRO_V06.GLB Report: OVERBURDEN LOG Date: 17/1/23

Attachment C

Laboratory Analytical Reports and Chain-of-Custody Documentation



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-406-1

Laboratory Sample Delivery Group: I11224133

Client Project/Site: Livingston Ridge SWD System

For:

GHD Services Inc.
2135 South Loop 250 West
Midland, Texas 79703

Attn: Becky Haskell

A handwritten signature in cursive script, reading "Debbie Simmons".

Authorized for release by:
4/8/2021 5:15:35 PM

Debbie Simmons, Project Manager
(281)240-4200
debbie.simmons@eurofinset.com

LINKS

Review your project
results through

TotalAccess

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: Livingston Ridge SWD System

Laboratory Job ID: 890-406-1
SDG: I11224133

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	5
Client Sample Results	6
Surrogate Summary	25
QC Sample Results	27
QC Association Summary	35
Lab Chronicle	41
Certification Summary	48
Method Summary	49
Sample Summary	50
Chain of Custody	51
Receipt Checklists	57

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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.
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.

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)

Eurofins Xenco, Carlsbad

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Case Narrative

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Job ID: 890-406-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-406-1

Receipt

The samples were received on 3/22/2021 4:00 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 time was 7.8°C

Receipt Exceptions

The following samples analyzed for method BTEX 8021 were received and analyzed from an unpreserved bulk soil jar: TP-17-S (890-406-1), TP-17-2 (890-406-2), TP-16-S (890-406-3), TP-16-2 (890-406-4), TP-15-S (890-406-5), TP-15-2 (890-406-6), TP-23-S (890-406-7), TP-23-2 (890-406-8), TP-20-S (890-406-9), TP-20-2 (890-406-10), TP-18-S (890-406-11), TP-18-2 (890-406-12), TP-32-S (890-406-13), TP-32-2 (890-406-14), TP-19-S (890-406-15), TP-19-2 (890-406-16), TP-31-S (890-406-17), TP-31-2 (890-406-18), TP-22-S (890-406-19), TP-22-2 (890-406-20), TP-24-S (890-406-21), TP-24-2 (890-406-22), TP-29-S (890-406-23), TP-29-2 (890-406-24), TP-27-S (890-406-25), TP-27-2 (890-406-26), TP-21-S (890-406-27) and TP-21-2 (890-406-28).

GC VOA

Method 8021B: Internal standard responses were outside of acceptance limits for the following samples: TP-17-S (890-406-1), TP-16-S (890-406-3), TP-16-2 (890-406-4), TP-20-S (890-406-9), TP-18-S (890-406-11), TP-32-S (890-406-13), TP-32-2 (890-406-14) and TP-19-S (890-406-15). The sample(s) shows evidence of matrix interference.

Method 8021B: Surrogate recovery for the following samples were outside control limits: 4-Bromofluorobenzene (Surr)TP-16-S (890-406-3) and TP-19-S (890-406-15). 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

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

HPLC/IC

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-17-S

Lab Sample ID: 890-406-1

Date Collected: 03/22/21 09:00

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
Toluene	0.000531	J	0.00200	0.000457	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		03/31/21 10:45	04/01/21 22:02	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/31/21 10:45	04/01/21 22:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	03/31/21 10:45	04/01/21 22:02	1
1,4-Difluorobenzene (Surr)	82		70 - 130	03/31/21 10:45	04/01/21 22:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 12:38	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 12:38	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 12:38	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 12:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130	04/02/21 11:35	04/03/21 12:38	1
o-Terphenyl	85		70 - 130	04/02/21 11:35	04/03/21 12:38	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.56	J	4.96	0.851	mg/Kg			04/02/21 00:35	1

Client Sample ID: TP-17-2

Lab Sample ID: 890-406-2

Date Collected: 03/22/21 09:15

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/31/21 10:45	04/01/21 22:23	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/31/21 10:45	04/01/21 22:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	03/31/21 10:45	04/01/21 22:23	1
1,4-Difluorobenzene (Surr)	102		70 - 130	03/31/21 10:45	04/01/21 22:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 13:41	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 13:41	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-17-2

Lab Sample ID: 890-406-2

Date Collected: 03/22/21 09:15

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 13:41	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 13:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130				04/02/21 11:35	04/03/21 13:41	1
o-Terphenyl	92		70 - 130				04/02/21 11:35	04/03/21 13:41	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.60		5.04	0.865	mg/Kg			04/02/21 00:40	1

Client Sample ID: TP-16-S

Lab Sample ID: 890-406-3

Date Collected: 03/22/21 09:20

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000443	J	0.00199	0.000383	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
Ethylbenzene	0.00122	J	0.00199	0.000563	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
Toluene	0.000547	J	0.00199	0.000454	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
Total BTEX	0.00283		0.00199	0.000996	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
o-Xylene	0.000622	J	0.00199	0.000343	mg/Kg		03/31/21 10:45	04/01/21 22:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	140	S1+	70 - 130				03/31/21 10:45	04/01/21 22:43	1
1,4-Difluorobenzene (Surr)	97		70 - 130				03/31/21 10:45	04/01/21 22:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:02	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:02	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:02	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130				04/02/21 11:35	04/03/21 14:02	1
o-Terphenyl	85		70 - 130				04/02/21 11:35	04/03/21 14:02	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.10		5.03	0.863	mg/Kg			04/02/21 00:45	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-16-2

Lab Sample ID: 890-406-4

Date Collected: 03/22/21 09:30

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 10:45	04/01/21 23:03	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 10:45	04/01/21 23:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130	03/31/21 10:45	04/01/21 23:03	1
1,4-Difluorobenzene (Surr)	100		70 - 130	03/31/21 10:45	04/01/21 23:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 14:23	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 14:23	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 14:23	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 14:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130	04/02/21 11:35	04/03/21 14:23	1
o-Terphenyl	91		70 - 130	04/02/21 11:35	04/03/21 14:23	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.25	J	4.97	0.853	mg/Kg			04/02/21 00:50	1

Client Sample ID: TP-15-S

Lab Sample ID: 890-406-5

Date Collected: 03/22/21 09:35

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
Toluene	<0.000457	U	0.00200	0.000457	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		03/31/21 10:45	04/01/21 23:24	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/31/21 10:45	04/01/21 23:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	03/31/21 10:45	04/01/21 23:24	1
1,4-Difluorobenzene (Surr)	99		70 - 130	03/31/21 10:45	04/01/21 23:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:44	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:44	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-15-S

Lab Sample ID: 890-406-5

Date Collected: 03/22/21 09:35

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:44	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130				04/02/21 11:35	04/03/21 14:44	1
o-Terphenyl	83		70 - 130				04/02/21 11:35	04/03/21 14:44	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.5		4.99	0.857	mg/Kg			04/02/21 00:55	1

Client Sample ID: TP-15-2

Lab Sample ID: 890-406-6

Date Collected: 03/22/21 09:40

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
Toluene	<0.000457	U	0.00200	0.000457	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/31/21 10:45	04/02/21 01:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130				03/31/21 10:45	04/02/21 01:14	1
1,4-Difluorobenzene (Surr)	101		70 - 130				03/31/21 10:45	04/02/21 01:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:05	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:05	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:05	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130				04/02/21 11:35	04/03/21 15:05	1
o-Terphenyl	92		70 - 130				04/02/21 11:35	04/03/21 15:05	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	173		5.01	0.860	mg/Kg			04/02/21 01:10	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-23-S

Lab Sample ID: 890-406-7

Date Collected: 03/22/21 10:10

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/31/21 10:45	04/02/21 01:34	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/31/21 10:45	04/02/21 01:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	03/31/21 10:45	04/02/21 01:34	1
1,4-Difluorobenzene (Surr)	99		70 - 130	03/31/21 10:45	04/02/21 01:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:27	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:27	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:27	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130	04/02/21 11:35	04/03/21 15:27	1
o-Terphenyl	82		70 - 130	04/02/21 11:35	04/03/21 15:27	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	41.5		5.00	0.858	mg/Kg			04/02/21 01:15	1

Client Sample ID: TP-23-2

Lab Sample ID: 890-406-8

Date Collected: 03/22/21 10:25

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 10:45	04/02/21 01:55	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 10:45	04/02/21 01:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	03/31/21 10:45	04/02/21 01:55	1
1,4-Difluorobenzene (Surr)	100		70 - 130	03/31/21 10:45	04/02/21 01:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:48	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:48	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-23-2

Lab Sample ID: 890-406-8

Date Collected: 03/22/21 10:25

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:48	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 15:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				04/02/21 11:35	04/03/21 15:48	1
o-Terphenyl	91		70 - 130				04/02/21 11:35	04/03/21 15:48	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.3		4.95	0.850	mg/Kg			04/02/21 01:30	1

Client Sample ID: TP-20-S

Lab Sample ID: 890-406-9

Date Collected: 03/22/21 10:30

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
Ethylbenzene	0.00116	J	0.00199	0.000562	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
Total BTEX	0.00116	J	0.00199	0.000994	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		03/31/21 10:45	04/02/21 02:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		70 - 130				03/31/21 10:45	04/02/21 02:15	1
1,4-Difluorobenzene (Surr)	93		70 - 130				03/31/21 10:45	04/02/21 02:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:09	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:09	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:09	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130				04/02/21 11:35	04/03/21 16:09	1
o-Terphenyl	79		70 - 130				04/02/21 11:35	04/03/21 16:09	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	123		5.04	0.865	mg/Kg			04/02/21 01:35	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-20-2

Lab Sample ID: 890-406-10

Date Collected: 03/22/21 10:40

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 10:45	04/02/21 02:35	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 10:45	04/02/21 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	03/31/21 10:45	04/02/21 02:35	1
1,4-Difluorobenzene (Surr)	99		70 - 130	03/31/21 10:45	04/02/21 02:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:30	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:30	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:30	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130	04/02/21 11:35	04/03/21 16:30	1
o-Terphenyl	91		70 - 130	04/02/21 11:35	04/03/21 16:30	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.6		5.02	0.862	mg/Kg			04/02/21 01:40	1

Client Sample ID: TP-18-S

Lab Sample ID: 890-406-11

Date Collected: 03/22/21 10:50

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000381	U	0.00198	0.000381	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
Ethylbenzene	<0.000559	U	0.00198	0.000559	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
Toluene	<0.000451	U	0.00198	0.000451	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
Total BTEX	<0.000990	U	0.00198	0.000990	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
Xylenes, Total	<0.000990	U	0.00396	0.000990	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
m-Xylene & p-Xylene	<0.00100	U	0.00396	0.00100	mg/Kg		03/31/21 10:45	04/02/21 02:56	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		03/31/21 10:45	04/02/21 02:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130	03/31/21 10:45	04/02/21 02:56	1
1,4-Difluorobenzene (Surr)	99		70 - 130	03/31/21 10:45	04/02/21 02:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:29	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:29	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-18-S

Lab Sample ID: 890-406-11

Date Collected: 03/22/21 10:50

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:29	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130				04/02/21 11:35	04/03/21 17:29	1
o-Terphenyl	89		70 - 130				04/02/21 11:35	04/03/21 17:29	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	17.9		5.02	0.862	mg/Kg			04/02/21 01:45	1

Client Sample ID: TP-18-2

Lab Sample ID: 890-406-12

Date Collected: 03/22/21 11:00

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/31/21 10:45	04/02/21 03:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130				03/31/21 10:45	04/02/21 03:16	1
1,4-Difluorobenzene (Surr)	101		70 - 130				03/31/21 10:45	04/02/21 03:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	19.0	J B	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:50	1
Total TPH	36.5	J B	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:50	1
Diesel Range Organics (Over C10-C28)	17.5	J	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:50	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 17:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				04/02/21 11:35	04/03/21 17:50	1
o-Terphenyl	83		70 - 130				04/02/21 11:35	04/03/21 17:50	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.1		4.99	0.857	mg/Kg			04/02/21 01:50	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-32-S

Lab Sample ID: 890-406-13

Date Collected: 03/22/21 11:10

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
Ethylbenzene	0.000708	J	0.00202	0.000571	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/31/21 10:45	04/02/21 03:37	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/31/21 10:45	04/02/21 03:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	03/31/21 10:45	04/02/21 03:37	1
1,4-Difluorobenzene (Surr)	92		70 - 130	03/31/21 10:45	04/02/21 03:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:11	1
Total TPH	15.3	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:11	1
Diesel Range Organics (Over C10-C28)	15.3	J	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:11	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	04/02/21 11:35	04/03/21 18:11	1
o-Terphenyl	88		70 - 130	04/02/21 11:35	04/03/21 18:11	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.4		4.98	0.855	mg/Kg			04/02/21 01:55	1

Client Sample ID: TP-32-2

Lab Sample ID: 890-406-14

Date Collected: 03/22/21 11:15

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
Toluene	<0.000457	U	0.00200	0.000457	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		03/31/21 10:45	04/02/21 03:57	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/31/21 10:45	04/02/21 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	03/31/21 10:45	04/02/21 03:57	1
1,4-Difluorobenzene (Surr)	96		70 - 130	03/31/21 10:45	04/02/21 03:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:32	1
Total TPH	17.1	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:32	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-32-2

Lab Sample ID: 890-406-14

Date Collected: 03/22/21 11:15

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	17.1	J	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:32	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130				04/02/21 11:35	04/03/21 18:32	1
o-Terphenyl	89		70 - 130				04/02/21 11:35	04/03/21 18:32	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.8		5.05	0.867	mg/Kg			04/02/21 02:00	1

Client Sample ID: TP-19-S

Lab Sample ID: 890-406-15

Date Collected: 03/22/21 11:20

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
Ethylbenzene	0.00115	J	0.00200	0.000564	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
Total BTEX	0.00179	J	0.00200	0.000998	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
o-Xylene	0.000644	J	0.00200	0.000343	mg/Kg		03/31/21 10:45	04/02/21 04:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	131	S1+	70 - 130				03/31/21 10:45	04/02/21 04:17	1
1,4-Difluorobenzene (Surr)	93		70 - 130				03/31/21 10:45	04/02/21 04:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	30.7	J B	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:53	1
Total TPH	30.7	J B	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:53	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:53	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130				04/02/21 11:35	04/03/21 18:53	1
o-Terphenyl	86		70 - 130				04/02/21 11:35	04/03/21 18:53	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.27	F1	5.00	0.858	mg/Kg			04/07/21 12:05	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-19-2

Lab Sample ID: 890-406-16

Date Collected: 03/22/21 11:30

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U F1 F2	0.00200	0.000386	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
Ethylbenzene	<0.000566	U F1 F2	0.00200	0.000566	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
Toluene	<0.000457	U F1 F2	0.00200	0.000457	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
Total BTEX	<0.00100	U F1 F2	0.00200	0.00100	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
Xylenes, Total	<0.00100	U F1	0.00401	0.00100	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
m-Xylene & p-Xylene	<0.00101	U F1	0.00401	0.00101	mg/Kg		03/31/21 11:41	04/02/21 07:55	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/31/21 11:41	04/02/21 07:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	03/31/21 11:41	04/02/21 07:55	1
1,4-Difluorobenzene (Surr)	101		70 - 130	03/31/21 11:41	04/02/21 07:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	20.5	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:14	1
Total TPH	20.5	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:14	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:14	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	98		70 - 130	04/02/21 11:35	04/03/21 19:14	1
o-Terphenyl	84		70 - 130	04/02/21 11:35	04/03/21 19:14	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.1		5.04	0.865	mg/Kg			04/07/21 12:27	1

Client Sample ID: TP-31-S

Lab Sample ID: 890-406-17

Date Collected: 03/22/21 11:40

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/31/21 11:41	04/02/21 08:16	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/31/21 11:41	04/02/21 08:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130	03/31/21 11:41	04/02/21 08:16	1
1,4-Difluorobenzene (Surr)	92		70 - 130	03/31/21 11:41	04/02/21 08:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	21.8	J B	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 19:36	1
Total TPH	21.8	J B	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 19:36	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-31-S

Lab Sample ID: 890-406-17

Date Collected: 03/22/21 11:40

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 19:36	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:35	04/03/21 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				04/02/21 11:35	04/03/21 19:36	1
o-Terphenyl	87		70 - 130				04/02/21 11:35	04/03/21 19:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.937	J	5.02	0.862	mg/Kg			04/07/21 12:33	1

Client Sample ID: TP-31-2

Lab Sample ID: 890-406-18

Date Collected: 03/22/21 11:50

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
Ethylbenzene	0.000650	J	0.00201	0.000568	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
Toluene	<0.000459	U	0.00201	0.000459	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
Total BTEX	<0.00101	U	0.00201	0.00101	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
Xylenes, Total	<0.00101	U	0.00402	0.00101	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
m-Xylene & p-Xylene	<0.00102	U	0.00402	0.00102	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
o-Xylene	<0.000346	U	0.00201	0.000346	mg/Kg		03/31/21 11:41	04/02/21 08:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	134	S1+	70 - 130				03/31/21 11:41	04/02/21 08:36	1
1,4-Difluorobenzene (Surr)	90		70 - 130				03/31/21 11:41	04/02/21 08:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:57	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:57	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:57	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:35	04/03/21 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130				04/02/21 11:35	04/03/21 19:57	1
o-Terphenyl	88		70 - 130				04/02/21 11:35	04/03/21 19:57	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.855	U	4.98	0.855	mg/Kg			04/07/21 12:38	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-22-S

Lab Sample ID: 890-406-19

Date Collected: 03/22/21 13:00

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/31/21 11:41	04/02/21 08:56	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/31/21 11:41	04/02/21 08:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	03/31/21 11:41	04/02/21 08:56	1
1,4-Difluorobenzene (Surr)	100		70 - 130	03/31/21 11:41	04/02/21 08:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	24.2	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:18	1
Total TPH	24.2	J B	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:18	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:18	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130	04/02/21 11:35	04/03/21 20:18	1
o-Terphenyl	83		70 - 130	04/02/21 11:35	04/03/21 20:18	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.09		4.96	0.851	mg/Kg			04/07/21 12:44	1

Client Sample ID: TP-22-2

Lab Sample ID: 890-406-20

Date Collected: 03/22/21 13:10

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
Ethylbenzene	<0.000570	U	0.00202	0.000570	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		03/31/21 11:41	04/02/21 09:17	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/31/21 11:41	04/02/21 09:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	03/31/21 11:41	04/02/21 09:17	1
1,4-Difluorobenzene (Surr)	102		70 - 130	03/31/21 11:41	04/02/21 09:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	44.5	J B	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:39	1
Total TPH	44.5	J B	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:39	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-22-2

Lab Sample ID: 890-406-20

Date Collected: 03/22/21 13:10

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:39	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:35	04/03/21 20:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				04/02/21 11:35	04/03/21 20:39	1
o-Terphenyl	94		70 - 130				04/02/21 11:35	04/03/21 20:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.28	J	4.95	0.850	mg/Kg			04/07/21 13:00	1

Client Sample ID: TP-24-S

Lab Sample ID: 890-406-21

Date Collected: 03/22/21 13:20

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 11:41	04/02/21 09:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130				03/31/21 11:41	04/02/21 09:37	1
1,4-Difluorobenzene (Surr)	100		70 - 130				03/31/21 11:41	04/02/21 09:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	30.3	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/02/21 22:56	1
Total TPH	30.3	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/02/21 22:56	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/02/21 22:56	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/02/21 22:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130				04/02/21 11:50	04/02/21 22:56	1
o-Terphenyl	94		70 - 130				04/02/21 11:50	04/02/21 22:56	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.65	J	5.01	0.860	mg/Kg			04/07/21 13:06	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-24-2

Lab Sample ID: 890-406-22

Date Collected: 03/22/21 13:30

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		03/31/21 11:41	04/02/21 09:58	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		03/31/21 11:41	04/02/21 09:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	03/31/21 11:41	04/02/21 09:58	1
1,4-Difluorobenzene (Surr)	101		70 - 130	03/31/21 11:41	04/02/21 09:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	22.6	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:01	1
Total TPH	22.6	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:01	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:01	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130	04/02/21 11:50	04/03/21 00:01	1
o-Terphenyl	86		70 - 130	04/02/21 11:50	04/03/21 00:01	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.62	J	5.02	0.862	mg/Kg			04/07/21 13:12	1

Client Sample ID: TP-29-S

Lab Sample ID: 890-406-23

Date Collected: 03/22/21 13:40

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		03/31/21 11:41	04/02/21 10:18	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		03/31/21 11:41	04/02/21 10:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	03/31/21 11:41	04/02/21 10:18	1
1,4-Difluorobenzene (Surr)	103		70 - 130	03/31/21 11:41	04/02/21 10:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	26.7	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:22	1
Total TPH	26.7	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:22	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-29-S

Lab Sample ID: 890-406-23

Date Collected: 03/22/21 13:40

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:22	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130				04/02/21 11:50	04/03/21 00:22	1
o-Terphenyl	96		70 - 130				04/02/21 11:50	04/03/21 00:22	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.5		4.97	0.853	mg/Kg			04/07/21 13:17	1

Client Sample ID: TP-29-2

Lab Sample ID: 890-406-24

Date Collected: 03/22/21 13:50

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000381	U	0.00198	0.000381	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
Ethylbenzene	<0.000559	U	0.00198	0.000559	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
Toluene	<0.000451	U	0.00198	0.000451	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
Total BTEX	<0.000990	U	0.00198	0.000990	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
Xylenes, Total	<0.000990	U	0.00396	0.000990	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
m-Xylene & p-Xylene	<0.00100	U	0.00396	0.00100	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		03/31/21 11:41	04/02/21 10:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130				03/31/21 11:41	04/02/21 10:39	1
1,4-Difluorobenzene (Surr)	99		70 - 130				03/31/21 11:41	04/02/21 10:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	23.8	J	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:43	1
Total TPH	61.9		50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:43	1
Diesel Range Organics (Over C10-C28)	38.1	J	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:43	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 00:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	42	S1-	70 - 130				04/02/21 11:50	04/03/21 00:43	1
o-Terphenyl	77		70 - 130				04/02/21 11:50	04/03/21 00:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.03	J	4.98	0.855	mg/Kg			04/07/21 13:23	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-27-S

Lab Sample ID: 890-406-25

Date Collected: 03/22/21 14:00

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000382	U	0.00198	0.000382	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
Ethylbenzene	<0.000561	U	0.00198	0.000561	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
Toluene	<0.000452	U	0.00198	0.000452	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
Total BTEX	<0.000992	U	0.00198	0.000992	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
Xylenes, Total	<0.000992	U	0.00397	0.000992	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
m-Xylene & p-Xylene	<0.00100	U	0.00397	0.00100	mg/Kg		03/31/21 11:41	04/02/21 10:59	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		03/31/21 11:41	04/02/21 10:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	03/31/21 11:41	04/02/21 10:59	1
1,4-Difluorobenzene (Surr)	102		70 - 130	03/31/21 11:41	04/02/21 10:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	29.9	J	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:04	1
Total TPH	29.9	J	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:04	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:04	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130	04/02/21 11:50	04/03/21 01:04	1
o-Terphenyl	80		70 - 130	04/02/21 11:50	04/03/21 01:04	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	546		4.96	0.851	mg/Kg			04/07/21 13:28	1

Client Sample ID: TP-27-2

Lab Sample ID: 890-406-26

Date Collected: 03/22/21 14:10

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		03/31/21 11:41	04/02/21 14:31	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		03/31/21 11:41	04/02/21 14:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	03/31/21 11:41	04/02/21 14:31	1
1,4-Difluorobenzene (Surr)	101		70 - 130	03/31/21 11:41	04/02/21 14:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	27.5	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:25	1
Total TPH	27.5	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:25	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-27-2

Lab Sample ID: 890-406-26

Date Collected: 03/22/21 14:10

Matrix: Solid

Date Received: 03/22/21 16:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:25	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				04/02/21 11:50	04/03/21 01:25	1
o-Terphenyl	104		70 - 130				04/02/21 11:50	04/03/21 01:25	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	127		4.99	0.857	mg/Kg			04/07/21 16:50	1

Client Sample ID: TP-21-S

Lab Sample ID: 890-406-27

Date Collected: 03/22/21 14:20

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 11:41	04/02/21 14:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130				03/31/21 11:41	04/02/21 14:52	1
1,4-Difluorobenzene (Surr)	103		70 - 130				03/31/21 11:41	04/02/21 14:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	23.5	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:47	1
Total TPH	23.5	J	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:47	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:47	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 11:50	04/03/21 01:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130				04/02/21 11:50	04/03/21 01:47	1
o-Terphenyl	93		70 - 130				04/02/21 11:50	04/03/21 01:47	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	78.2		5.04	0.865	mg/Kg			04/07/21 17:05	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-21-2

Lab Sample ID: 890-406-28

Date Collected: 03/22/21 14:30

Matrix: Solid

Date Received: 03/22/21 16:00

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/31/21 11:41	04/02/21 15:12	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/31/21 11:41	04/02/21 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	03/31/21 11:41	04/02/21 15:12	1
1,4-Difluorobenzene (Surr)	103		70 - 130	03/31/21 11:41	04/02/21 15:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	26.6	J	49.8	14.9	mg/Kg		04/02/21 11:50	04/03/21 02:08	1
Total TPH	26.6	J	49.8	14.9	mg/Kg		04/02/21 11:50	04/03/21 02:08	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:50	04/03/21 02:08	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 11:50	04/03/21 02:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130	04/02/21 11:50	04/03/21 02:08	1
o-Terphenyl	94		70 - 130	04/02/21 11:50	04/03/21 02:08	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.2		5.02	0.862	mg/Kg			04/08/21 08:47	1

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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)
890-406-1	TP-17-S	100	82
890-406-2	TP-17-2	111	102
890-406-3	TP-16-S	140 S1+	97
890-406-4	TP-16-2	118	100
890-406-5	TP-15-S	112	99
890-406-6	TP-15-2	111	101
890-406-7	TP-23-S	115	99
890-406-8	TP-23-2	113	100
890-406-9	TP-20-S	125	93
890-406-10	TP-20-2	109	99
890-406-11	TP-18-S	118	99
890-406-12	TP-18-2	113	101
890-406-13	TP-32-S	114	92
890-406-14	TP-32-2	114	96
890-406-15	TP-19-S	131 S1+	93
890-406-16	TP-19-2	114	101
890-406-16 MS	TP-19-2	114	89
890-406-16 MSD	TP-19-2	103	100
890-406-17	TP-31-S	122	92
890-406-18	TP-31-2	134 S1+	90
890-406-19	TP-22-S	112	100
890-406-20	TP-22-2	114	102
890-406-21	TP-24-S	109	100
890-406-22	TP-24-2	110	101
890-406-23	TP-29-S	113	103
890-406-24	TP-29-2	113	99
890-406-25	TP-27-S	113	102
890-406-26	TP-27-2	112	101
890-406-27	TP-21-S	115	103
890-406-28	TP-21-2	115	103
LCS 880-1098/1-A	Lab Control Sample	104	98
LCS 880-1102/1-A	Lab Control Sample	103	101
LCSD 880-1098/2-A	Lab Control Sample Dup	103	100
LCSD 880-1102/2-A	Lab Control Sample Dup	102	101
MB 880-1098/5-A	Method Blank	103	95
MB 880-1102/5-A	Method Blank	106	96

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
890-406-1	TP-17-S	98	85
890-406-1 MS	TP-17-S	101	77
890-406-1 MSD	TP-17-S	97	72

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
890-406-2	TP-17-2	106	92
890-406-3	TP-16-S	98	85
890-406-4	TP-16-2	104	91
890-406-5	TP-15-S	98	83
890-406-6	TP-15-2	106	92
890-406-7	TP-23-S	97	82
890-406-8	TP-23-2	103	91
890-406-9	TP-20-S	94	79
890-406-10	TP-20-2	108	91
890-406-11	TP-18-S	101	89
890-406-12	TP-18-2	97	83
890-406-13	TP-32-S	103	88
890-406-14	TP-32-2	102	89
890-406-15	TP-19-S	100	86
890-406-16	TP-19-2	98	84
890-406-17	TP-31-S	103	87
890-406-18	TP-31-2	100	88
890-406-19	TP-22-S	96	83
890-406-20	TP-22-2	113	94
890-406-21	TP-24-S	95	94
890-406-21 MS	TP-24-S	96	85
890-406-21 MSD	TP-24-S	90	79
890-406-22	TP-24-2	86	86
890-406-23	TP-29-S	95	96
890-406-24	TP-29-2	42 S1-	77
890-406-25	TP-27-S	86	80
890-406-26	TP-27-2	103	104
890-406-27	TP-21-S	92	93
890-406-28	TP-21-2	92	94
LCS 880-1241/2-A	Lab Control Sample	108	87
LCS 880-1242/2-A	Lab Control Sample	108	106
LCSD 880-1241/3-A	Lab Control Sample Dup	109	91
LCSD 880-1242/3-A	Lab Control Sample Dup	111	109
MB 880-1241/1-A	Method Blank	105	97
MB 880-1242/1-A	Method Blank	118	130

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-1098/5-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		03/31/21 10:45	04/01/21 19:51	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		03/31/21 10:45	04/01/21 19:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	03/31/21 10:45	04/01/21 19:51	1
1,4-Difluorobenzene (Surr)	95		70 - 130	03/31/21 10:45	04/01/21 19:51	1

Lab Sample ID: LCS 880-1098/1-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09595		mg/Kg		96	70 - 130
Ethylbenzene	0.100	0.1086		mg/Kg		109	70 - 130
Toluene	0.100	0.1018		mg/Kg		102	70 - 130
m-Xylene & p-Xylene	0.200	0.2208		mg/Kg		110	70 - 130
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: LCSD 880-1098/2-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1098

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.1012		mg/Kg		101	70 - 130	5	35
Ethylbenzene	0.100	0.1104		mg/Kg		110	70 - 130	2	35
Toluene	0.100	0.1038		mg/Kg		104	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.2236		mg/Kg		112	70 - 130	1	35
o-Xylene	0.100	0.1099		mg/Kg		110	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: MB 880-1102/5-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1102

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		03/31/21 11:41	04/02/21 07:26	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Lab Sample ID: MB 880-1102/5-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1102

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		03/31/21 11:41	04/02/21 07:26	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		03/31/21 11:41	04/02/21 07:26	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 11:41	04/02/21 07:26	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		03/31/21 11:41	04/02/21 07:26	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		03/31/21 11:41	04/02/21 07:26	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		03/31/21 11:41	04/02/21 07:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	03/31/21 11:41	04/02/21 07:26	1
1,4-Difluorobenzene (Surr)	96		70 - 130	03/31/21 11:41	04/02/21 07:26	1

Lab Sample ID: LCS 880-1102/1-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1102

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.1002		mg/Kg		100	70 - 130
Ethylbenzene	0.100	0.1063		mg/Kg		106	70 - 130
Toluene	0.100	0.1009		mg/Kg		101	70 - 130
m-Xylene & p-Xylene	0.200	0.2147		mg/Kg		107	70 - 130
o-Xylene	0.100	0.1069		mg/Kg		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: LCSD 880-1102/2-A

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1102

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	0.100	0.09797		mg/Kg		98	70 - 130	2	35
Ethylbenzene	0.100	0.1047		mg/Kg		105	70 - 130	2	35
Toluene	0.100	0.1012		mg/Kg		101	70 - 130	0	35
m-Xylene & p-Xylene	0.200	0.2129		mg/Kg		106	70 - 130	1	35
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 890-406-16 MS

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: TP-19-2

Prep Type: Total/NA

Prep Batch: 1102

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.000386	U F1 F2	0.0998	0.04759	F1	mg/Kg		48	70 - 130
Ethylbenzene	<0.000566	U F1 F2	0.0998	0.06474	F1	mg/Kg		65	70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Lab Sample ID: 890-406-16 MS

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: TP-19-2

Prep Type: Total/NA

Prep Batch: 1102

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.000457	U F1 F2	0.0998	0.05846	F1	mg/Kg		59	70 - 130
m-Xylene & p-Xylene	<0.00101	U F1	0.200	0.1370	F1	mg/Kg		69	70 - 130
o-Xylene	<0.000345	U	0.0998	0.07029		mg/Kg		70	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

Lab Sample ID: 890-406-16 MSD

Matrix: Solid

Analysis Batch: 1205

Client Sample ID: TP-19-2

Prep Type: Total/NA

Prep Batch: 1102

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	<0.000386	U F1 F2	0.0994	0.09359	F2	mg/Kg		94	70 - 130	65	35
Ethylbenzene	<0.000566	U F1 F2	0.0994	0.09613	F2	mg/Kg		97	70 - 130	39	35
Toluene	<0.000457	U F1 F2	0.0994	0.09391	F2	mg/Kg		94	70 - 130	47	35
m-Xylene & p-Xylene	<0.00101	U F1	0.199	0.1937		mg/Kg		97	70 - 130	34	35
o-Xylene	<0.000345	U	0.0994	0.09524		mg/Kg		96	70 - 130	30	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

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

Lab Sample ID: MB 880-1241/1-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1241

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	24.22	J	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 11:35	1
Total TPH	24.22	J	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 11:35	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 11:35	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:35	04/03/21 11:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130	04/02/21 11:35	04/03/21 11:35	1
o-Terphenyl	97		70 - 130	04/02/21 11:35	04/03/21 11:35	1

Lab Sample ID: LCS 880-1241/2-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1241

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1164		mg/Kg		116	70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Lab Sample ID: LCS 880-1241/2-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1241

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (Over C10-C28)			1000	941.6		mg/Kg		94	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits								
1-Chlorooctane	108		70 - 130								
o-Terphenyl	87		70 - 130								

Lab Sample ID: LCSD 880-1241/3-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1241

Top Data: 120											
Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1187		mg/Kg		119	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	1001		mg/Kg		100	70 - 130	6	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
1-Chlorooctane	109		70 - 130								
o-Terphenyl	91		70 - 130								

Lab Sample ID: 890-406-1 MS

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: TP-17-S

Prep Type: Total/NA

Prep Batch: 1241

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.		
	Result	Qualifier	Added	Result	Qualifier			Limits			
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	1000	1260		mg/Kg		126	70 - 130		
Diesel Range Organics (Over C10-C28)	<15.0	U	1000	987.6		mg/Kg		99	70 - 130		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
1-Chlorooctane	101		70 - 130								
o-Terphenyl	77		70 - 130								

Lab Sample ID: 890-406-1 MSD

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: TP-17-S

Prep Type: Total/NA

Prep Batch: 1241

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	998	1074		mg/Kg		108	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<15.0	U	998	960.9		mg/Kg		96	70 - 130	3	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Lab Sample ID: MB 880-1242/1-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1242

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		04/02/21 11:50	04/02/21 21:52	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	04/02/21 11:50	04/02/21 21:52	1
o-Terphenyl	130		70 - 130	04/02/21 11:50	04/02/21 21:52	1

Lab Sample ID: LCS 880-1242/2-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1242

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1067		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	1000	980.3		mg/Kg		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	106		70 - 130

Lab Sample ID: LCSD 880-1242/3-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1242

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1120		mg/Kg		112	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	1008		mg/Kg		101	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	109		70 - 130

Lab Sample ID: 890-406-21 MS

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: TP-24-S

Prep Type: Total/NA

Prep Batch: 1242

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	30.3	J	1000	997.6		mg/Kg		97	70 - 130
Diesel Range Organics (Over C10-C28)	<15.0	U	1000	1032		mg/Kg		103	70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

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

Lab Sample ID: 890-406-21 MS

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: TP-24-S

Prep Type: Total/NA

Prep Batch: 1242

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	85		70 - 130

Lab Sample ID: 890-406-21 MSD

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: TP-24-S

Prep Type: Total/NA

Prep Batch: 1242

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	30.3	J	998	963.0		mg/Kg		93	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<15.0	U	998	959.6		mg/Kg		96	70 - 130	7	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	90		70 - 130
o-Terphenyl	79		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1165/1-A

Matrix: Solid

Analysis Batch: 1213

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/01/21 23:30	1

Lab Sample ID: LCS 880-1165/2-A

Matrix: Solid

Analysis Batch: 1213

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	241.5		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-1165/3-A

Matrix: Solid

Analysis Batch: 1213

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	241.7		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-406-5 MS

Matrix: Solid

Analysis Batch: 1213

Client Sample ID: TP-15-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	45.5		250	305.5		mg/Kg		104	90 - 110

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-406-5 MSD

Matrix: Solid

Analysis Batch: 1213

Client Sample ID: TP-15-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	45.5		250	306.5		mg/Kg		105	90 - 110	0	20

Lab Sample ID: MB 880-1436/1-A

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/07/21 11:48	1

Lab Sample ID: LCS 880-1436/2-A

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	250.0		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-1436/3-A

Matrix: Solid

Analysis Batch: 1438

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	250.1		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-406-15 MS

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: TP-19-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.27	F1	250	406.6	F1	mg/Kg		160	90 - 110

Lab Sample ID: 890-406-15 MSD

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: TP-19-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.27	F1	250	392.8	F1	mg/Kg		154	90 - 110	3	20

Lab Sample ID: 890-406-25 MS

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: TP-27-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	546		248	776.9		mg/Kg		93	90 - 110

Lab Sample ID: 890-406-25 MSD

Matrix: Solid

Analysis Batch: 1438

Client Sample ID: TP-27-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	546		248	769.9		mg/Kg		90	90 - 110	1	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1381/1-A

Matrix: Solid

Analysis Batch: 1460

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/07/21 22:21	1

Lab Sample ID: LCS 880-1381/2-A

Matrix: Solid

Analysis Batch: 1460

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	267.3		mg/Kg		107	90 - 110

Lab Sample ID: LCSD 880-1381/3-A

Matrix: Solid

Analysis Batch: 1460

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	267.7		mg/Kg		107	90 - 110	0	20

Lab Sample ID: MB 880-1470/1-A

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/07/21 16:11	1

Lab Sample ID: LCS 880-1470/2-A

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	255.4		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-1470/3-A

Matrix: Solid

Analysis Batch: 1472

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	256.1		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-406-26 MS

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: TP-27-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	127		250	372.4		mg/Kg		98	90 - 110

Lab Sample ID: 890-406-26 MSD

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: TP-27-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	127		250	370.5		mg/Kg		98	90 - 110	1	20

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

GC VOA

Prep Batch: 1098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Total/NA	Solid	5035	
890-406-2	TP-17-2	Total/NA	Solid	5035	
890-406-3	TP-16-S	Total/NA	Solid	5035	
890-406-4	TP-16-2	Total/NA	Solid	5035	
890-406-5	TP-15-S	Total/NA	Solid	5035	
890-406-6	TP-15-2	Total/NA	Solid	5035	
890-406-7	TP-23-S	Total/NA	Solid	5035	
890-406-8	TP-23-2	Total/NA	Solid	5035	
890-406-9	TP-20-S	Total/NA	Solid	5035	
890-406-10	TP-20-2	Total/NA	Solid	5035	
890-406-11	TP-18-S	Total/NA	Solid	5035	
890-406-12	TP-18-2	Total/NA	Solid	5035	
890-406-13	TP-32-S	Total/NA	Solid	5035	
890-406-14	TP-32-2	Total/NA	Solid	5035	
890-406-15	TP-19-S	Total/NA	Solid	5035	
MB 880-1098/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1098/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1098/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 1102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-16	TP-19-2	Total/NA	Solid	5035	
890-406-17	TP-31-S	Total/NA	Solid	5035	
890-406-18	TP-31-2	Total/NA	Solid	5035	
890-406-19	TP-22-S	Total/NA	Solid	5035	
890-406-20	TP-22-2	Total/NA	Solid	5035	
890-406-21	TP-24-S	Total/NA	Solid	5035	
890-406-22	TP-24-2	Total/NA	Solid	5035	
890-406-23	TP-29-S	Total/NA	Solid	5035	
890-406-24	TP-29-2	Total/NA	Solid	5035	
890-406-25	TP-27-S	Total/NA	Solid	5035	
890-406-26	TP-27-2	Total/NA	Solid	5035	
890-406-27	TP-21-S	Total/NA	Solid	5035	
890-406-28	TP-21-2	Total/NA	Solid	5035	
MB 880-1102/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1102/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1102/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-406-16 MS	TP-19-2	Total/NA	Solid	5035	
890-406-16 MSD	TP-19-2	Total/NA	Solid	5035	

Analysis Batch: 1205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Total/NA	Solid	8021B	1098
890-406-2	TP-17-2	Total/NA	Solid	8021B	1098
890-406-3	TP-16-S	Total/NA	Solid	8021B	1098
890-406-4	TP-16-2	Total/NA	Solid	8021B	1098
890-406-5	TP-15-S	Total/NA	Solid	8021B	1098
890-406-6	TP-15-2	Total/NA	Solid	8021B	1098
890-406-7	TP-23-S	Total/NA	Solid	8021B	1098
890-406-8	TP-23-2	Total/NA	Solid	8021B	1098
890-406-9	TP-20-S	Total/NA	Solid	8021B	1098

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

GC VOA (Continued)

Analysis Batch: 1205 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-10	TP-20-2	Total/NA	Solid	8021B	1098
890-406-11	TP-18-S	Total/NA	Solid	8021B	1098
890-406-12	TP-18-2	Total/NA	Solid	8021B	1098
890-406-13	TP-32-S	Total/NA	Solid	8021B	1098
890-406-14	TP-32-2	Total/NA	Solid	8021B	1098
890-406-15	TP-19-S	Total/NA	Solid	8021B	1098
890-406-16	TP-19-2	Total/NA	Solid	8021B	1102
890-406-17	TP-31-S	Total/NA	Solid	8021B	1102
890-406-18	TP-31-2	Total/NA	Solid	8021B	1102
890-406-19	TP-22-S	Total/NA	Solid	8021B	1102
890-406-20	TP-22-2	Total/NA	Solid	8021B	1102
890-406-21	TP-24-S	Total/NA	Solid	8021B	1102
890-406-22	TP-24-2	Total/NA	Solid	8021B	1102
890-406-23	TP-29-S	Total/NA	Solid	8021B	1102
890-406-24	TP-29-2	Total/NA	Solid	8021B	1102
890-406-25	TP-27-S	Total/NA	Solid	8021B	1102
890-406-26	TP-27-2	Total/NA	Solid	8021B	1102
890-406-27	TP-21-S	Total/NA	Solid	8021B	1102
890-406-28	TP-21-2	Total/NA	Solid	8021B	1102
MB 880-1098/5-A	Method Blank	Total/NA	Solid	8021B	1098
MB 880-1102/5-A	Method Blank	Total/NA	Solid	8021B	1102
LCS 880-1098/1-A	Lab Control Sample	Total/NA	Solid	8021B	1098
LCS 880-1102/1-A	Lab Control Sample	Total/NA	Solid	8021B	1102
LCSD 880-1098/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1098
LCSD 880-1102/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1102
890-406-16 MS	TP-19-2	Total/NA	Solid	8021B	1102
890-406-16 MSD	TP-19-2	Total/NA	Solid	8021B	1102

GC Semi VOA

Analysis Batch: 1237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-21	TP-24-S	Total/NA	Solid	8015B NM	1242
890-406-22	TP-24-2	Total/NA	Solid	8015B NM	1242
890-406-23	TP-29-S	Total/NA	Solid	8015B NM	1242
890-406-24	TP-29-2	Total/NA	Solid	8015B NM	1242
890-406-25	TP-27-S	Total/NA	Solid	8015B NM	1242
890-406-26	TP-27-2	Total/NA	Solid	8015B NM	1242
890-406-27	TP-21-S	Total/NA	Solid	8015B NM	1242
890-406-28	TP-21-2	Total/NA	Solid	8015B NM	1242
MB 880-1242/1-A	Method Blank	Total/NA	Solid	8015B NM	1242
LCS 880-1242/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1242
LCSD 880-1242/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1242
890-406-21 MS	TP-24-S	Total/NA	Solid	8015B NM	1242
890-406-21 MSD	TP-24-S	Total/NA	Solid	8015B NM	1242

Prep Batch: 1241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Total/NA	Solid	8015NM Prep	
890-406-2	TP-17-2	Total/NA	Solid	8015NM Prep	
890-406-3	TP-16-S	Total/NA	Solid	8015NM Prep	

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

GC Semi VOA (Continued)

Prep Batch: 1241 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-4	TP-16-2	Total/NA	Solid	8015NM Prep	
890-406-5	TP-15-S	Total/NA	Solid	8015NM Prep	
890-406-6	TP-15-2	Total/NA	Solid	8015NM Prep	
890-406-7	TP-23-S	Total/NA	Solid	8015NM Prep	
890-406-8	TP-23-2	Total/NA	Solid	8015NM Prep	
890-406-9	TP-20-S	Total/NA	Solid	8015NM Prep	
890-406-10	TP-20-2	Total/NA	Solid	8015NM Prep	
890-406-11	TP-18-S	Total/NA	Solid	8015NM Prep	
890-406-12	TP-18-2	Total/NA	Solid	8015NM Prep	
890-406-13	TP-32-S	Total/NA	Solid	8015NM Prep	
890-406-14	TP-32-2	Total/NA	Solid	8015NM Prep	
890-406-15	TP-19-S	Total/NA	Solid	8015NM Prep	
890-406-16	TP-19-2	Total/NA	Solid	8015NM Prep	
890-406-17	TP-31-S	Total/NA	Solid	8015NM Prep	
890-406-18	TP-31-2	Total/NA	Solid	8015NM Prep	
890-406-19	TP-22-S	Total/NA	Solid	8015NM Prep	
890-406-20	TP-22-2	Total/NA	Solid	8015NM Prep	
MB 880-1241/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1241/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1241/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-406-1 MS	TP-17-S	Total/NA	Solid	8015NM Prep	
890-406-1 MSD	TP-17-S	Total/NA	Solid	8015NM Prep	

Prep Batch: 1242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-21	TP-24-S	Total/NA	Solid	8015NM Prep	
890-406-22	TP-24-2	Total/NA	Solid	8015NM Prep	
890-406-23	TP-29-S	Total/NA	Solid	8015NM Prep	
890-406-24	TP-29-2	Total/NA	Solid	8015NM Prep	
890-406-25	TP-27-S	Total/NA	Solid	8015NM Prep	
890-406-26	TP-27-2	Total/NA	Solid	8015NM Prep	
890-406-27	TP-21-S	Total/NA	Solid	8015NM Prep	
890-406-28	TP-21-2	Total/NA	Solid	8015NM Prep	
MB 880-1242/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1242/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1242/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-406-21 MS	TP-24-S	Total/NA	Solid	8015NM Prep	
890-406-21 MSD	TP-24-S	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Total/NA	Solid	8015B NM	1241
890-406-2	TP-17-2	Total/NA	Solid	8015B NM	1241
890-406-3	TP-16-S	Total/NA	Solid	8015B NM	1241
890-406-4	TP-16-2	Total/NA	Solid	8015B NM	1241
890-406-5	TP-15-S	Total/NA	Solid	8015B NM	1241
890-406-6	TP-15-2	Total/NA	Solid	8015B NM	1241
890-406-7	TP-23-S	Total/NA	Solid	8015B NM	1241
890-406-8	TP-23-2	Total/NA	Solid	8015B NM	1241
890-406-9	TP-20-S	Total/NA	Solid	8015B NM	1241
890-406-10	TP-20-2	Total/NA	Solid	8015B NM	1241

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

GC Semi VOA (Continued)

Analysis Batch: 1267 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-11	TP-18-S	Total/NA	Solid	8015B NM	1241
890-406-12	TP-18-2	Total/NA	Solid	8015B NM	1241
890-406-13	TP-32-S	Total/NA	Solid	8015B NM	1241
890-406-14	TP-32-2	Total/NA	Solid	8015B NM	1241
890-406-15	TP-19-S	Total/NA	Solid	8015B NM	1241
890-406-16	TP-19-2	Total/NA	Solid	8015B NM	1241
890-406-17	TP-31-S	Total/NA	Solid	8015B NM	1241
890-406-18	TP-31-2	Total/NA	Solid	8015B NM	1241
890-406-19	TP-22-S	Total/NA	Solid	8015B NM	1241
890-406-20	TP-22-2	Total/NA	Solid	8015B NM	1241
MB 880-1241/1-A	Method Blank	Total/NA	Solid	8015B NM	1241
LCS 880-1241/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1241
LCSD 880-1241/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1241
890-406-1 MS	TP-17-S	Total/NA	Solid	8015B NM	1241
890-406-1 MSD	TP-17-S	Total/NA	Solid	8015B NM	1241

HPLC/IC

Leach Batch: 1165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Soluble	Solid	DI Leach	
890-406-2	TP-17-2	Soluble	Solid	DI Leach	
890-406-3	TP-16-S	Soluble	Solid	DI Leach	
890-406-4	TP-16-2	Soluble	Solid	DI Leach	
890-406-5	TP-15-S	Soluble	Solid	DI Leach	
890-406-6	TP-15-2	Soluble	Solid	DI Leach	
890-406-7	TP-23-S	Soluble	Solid	DI Leach	
890-406-8	TP-23-2	Soluble	Solid	DI Leach	
890-406-9	TP-20-S	Soluble	Solid	DI Leach	
890-406-10	TP-20-2	Soluble	Solid	DI Leach	
890-406-11	TP-18-S	Soluble	Solid	DI Leach	
890-406-12	TP-18-2	Soluble	Solid	DI Leach	
890-406-13	TP-32-S	Soluble	Solid	DI Leach	
890-406-14	TP-32-2	Soluble	Solid	DI Leach	
MB 880-1165/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1165/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1165/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-406-5 MS	TP-15-S	Soluble	Solid	DI Leach	
890-406-5 MSD	TP-15-S	Soluble	Solid	DI Leach	

Analysis Batch: 1213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-1	TP-17-S	Soluble	Solid	300.0	1165
890-406-2	TP-17-2	Soluble	Solid	300.0	1165
890-406-3	TP-16-S	Soluble	Solid	300.0	1165
890-406-4	TP-16-2	Soluble	Solid	300.0	1165
890-406-5	TP-15-S	Soluble	Solid	300.0	1165
890-406-6	TP-15-2	Soluble	Solid	300.0	1165
890-406-7	TP-23-S	Soluble	Solid	300.0	1165
890-406-8	TP-23-2	Soluble	Solid	300.0	1165
890-406-9	TP-20-S	Soluble	Solid	300.0	1165

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

HPLC/IC (Continued)

Analysis Batch: 1213 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-10	TP-20-2	Soluble	Solid	300.0	1165
890-406-11	TP-18-S	Soluble	Solid	300.0	1165
890-406-12	TP-18-2	Soluble	Solid	300.0	1165
890-406-13	TP-32-S	Soluble	Solid	300.0	1165
890-406-14	TP-32-2	Soluble	Solid	300.0	1165
MB 880-1165/1-A	Method Blank	Soluble	Solid	300.0	1165
LCS 880-1165/2-A	Lab Control Sample	Soluble	Solid	300.0	1165
LCSD 880-1165/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1165
890-406-5 MS	TP-15-S	Soluble	Solid	300.0	1165
890-406-5 MSD	TP-15-S	Soluble	Solid	300.0	1165

Leach Batch: 1381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1381/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1381/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1381/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Leach Batch: 1436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-15	TP-19-S	Soluble	Solid	DI Leach	
890-406-16	TP-19-2	Soluble	Solid	DI Leach	
890-406-17	TP-31-S	Soluble	Solid	DI Leach	
890-406-18	TP-31-2	Soluble	Solid	DI Leach	
890-406-19	TP-22-S	Soluble	Solid	DI Leach	
890-406-20	TP-22-2	Soluble	Solid	DI Leach	
890-406-21	TP-24-S	Soluble	Solid	DI Leach	
890-406-22	TP-24-2	Soluble	Solid	DI Leach	
890-406-23	TP-29-S	Soluble	Solid	DI Leach	
890-406-24	TP-29-2	Soluble	Solid	DI Leach	
890-406-25	TP-27-S	Soluble	Solid	DI Leach	
MB 880-1436/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1436/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1436/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-406-15 MS	TP-19-S	Soluble	Solid	DI Leach	
890-406-15 MSD	TP-19-S	Soluble	Solid	DI Leach	
890-406-25 MS	TP-27-S	Soluble	Solid	DI Leach	
890-406-25 MSD	TP-27-S	Soluble	Solid	DI Leach	

Analysis Batch: 1438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-15	TP-19-S	Soluble	Solid	300.0	1436
890-406-16	TP-19-2	Soluble	Solid	300.0	1436
890-406-17	TP-31-S	Soluble	Solid	300.0	1436
890-406-18	TP-31-2	Soluble	Solid	300.0	1436
890-406-19	TP-22-S	Soluble	Solid	300.0	1436
890-406-20	TP-22-2	Soluble	Solid	300.0	1436
890-406-21	TP-24-S	Soluble	Solid	300.0	1436
890-406-22	TP-24-2	Soluble	Solid	300.0	1436
890-406-23	TP-29-S	Soluble	Solid	300.0	1436
890-406-24	TP-29-2	Soluble	Solid	300.0	1436
890-406-25	TP-27-S	Soluble	Solid	300.0	1436

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

HPLC/IC (Continued)

Analysis Batch: 1438 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1436/1-A	Method Blank	Soluble	Solid	300.0	1436
LCS 880-1436/2-A	Lab Control Sample	Soluble	Solid	300.0	1436
LCSD 880-1436/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1436
890-406-15 MS	TP-19-S	Soluble	Solid	300.0	1436
890-406-15 MSD	TP-19-S	Soluble	Solid	300.0	1436
890-406-25 MS	TP-27-S	Soluble	Solid	300.0	1436
890-406-25 MSD	TP-27-S	Soluble	Solid	300.0	1436

Analysis Batch: 1460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1381/1-A	Method Blank	Soluble	Solid	300.0	1381
LCS 880-1381/2-A	Lab Control Sample	Soluble	Solid	300.0	1381
LCSD 880-1381/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1381

Leach Batch: 1470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-26	TP-27-2	Soluble	Solid	DI Leach	
890-406-27	TP-21-S	Soluble	Solid	DI Leach	
890-406-28	TP-21-2	Soluble	Solid	DI Leach	
MB 880-1470/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1470/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1470/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-406-26 MS	TP-27-2	Soluble	Solid	DI Leach	
890-406-26 MSD	TP-27-2	Soluble	Solid	DI Leach	

Analysis Batch: 1472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-406-26	TP-27-2	Soluble	Solid	300.0	1470
890-406-27	TP-21-S	Soluble	Solid	300.0	1470
890-406-28	TP-21-2	Soluble	Solid	300.0	1470
MB 880-1470/1-A	Method Blank	Soluble	Solid	300.0	1470
LCS 880-1470/2-A	Lab Control Sample	Soluble	Solid	300.0	1470
LCSD 880-1470/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1470
890-406-26 MS	TP-27-2	Soluble	Solid	300.0	1470
890-406-26 MSD	TP-27-2	Soluble	Solid	300.0	1470

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-17-S

Lab Sample ID: 890-406-1

Date Collected: 03/22/21 09:00

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/01/21 22:02	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 12:38	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 00:35	CH	XM

Client Sample ID: TP-17-2

Lab Sample ID: 890-406-2

Date Collected: 03/22/21 09:15

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/01/21 22:23	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 13:41	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 00:40	CH	XM

Client Sample ID: TP-16-S

Lab Sample ID: 890-406-3

Date Collected: 03/22/21 09:20

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/01/21 22:43	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 14:02	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 00:45	CH	XM

Client Sample ID: TP-16-2

Lab Sample ID: 890-406-4

Date Collected: 03/22/21 09:30

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/01/21 23:03	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 14:23	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 00:50	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-15-S

Lab Sample ID: 890-406-5

Date Collected: 03/22/21 09:35

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/01/21 23:24	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 14:44	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 00:55	CH	XM

Client Sample ID: TP-15-2

Lab Sample ID: 890-406-6

Date Collected: 03/22/21 09:40

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 01:14	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 15:05	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:10	CH	XM

Client Sample ID: TP-23-S

Lab Sample ID: 890-406-7

Date Collected: 03/22/21 10:10

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 01:34	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 15:27	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:15	CH	XM

Client Sample ID: TP-23-2

Lab Sample ID: 890-406-8

Date Collected: 03/22/21 10:25

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 01:55	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 15:48	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:30	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-20-S

Lab Sample ID: 890-406-9

Date Collected: 03/22/21 10:30

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 02:15	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 16:09	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:35	CH	XM

Client Sample ID: TP-20-2

Lab Sample ID: 890-406-10

Date Collected: 03/22/21 10:40

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 02:35	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 16:30	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:40	CH	XM

Client Sample ID: TP-18-S

Lab Sample ID: 890-406-11

Date Collected: 03/22/21 10:50

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 02:56	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 17:29	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:45	CH	XM

Client Sample ID: TP-18-2

Lab Sample ID: 890-406-12

Date Collected: 03/22/21 11:00

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 03:16	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 17:50	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:50	CH	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-32-S

Date Collected: 03/22/21 11:10

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 03:37	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 18:11	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 01:55	CH	XM

Client Sample ID: TP-32-2

Date Collected: 03/22/21 11:15

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 03:57	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 18:32	AJ	XM
Soluble	Leach	DI Leach			1165	04/01/21 11:52	SC	XM
Soluble	Analysis	300.0		1	1213	04/02/21 02:00	CH	XM

Client Sample ID: TP-19-S

Date Collected: 03/22/21 11:20

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1098	03/31/21 10:45	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 04:17	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 18:53	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 12:05	CH	XM

Client Sample ID: TP-19-2

Date Collected: 03/22/21 11:30

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-16

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 07:55	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 19:14	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 12:27	CH	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-31-S

Lab Sample ID: 890-406-17

Date Collected: 03/22/21 11:40

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 08:16	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 19:36	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 12:33	CH	XM

Client Sample ID: TP-31-2

Lab Sample ID: 890-406-18

Date Collected: 03/22/21 11:50

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 08:36	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 19:57	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 12:38	CH	XM

Client Sample ID: TP-22-S

Lab Sample ID: 890-406-19

Date Collected: 03/22/21 13:00

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 08:56	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 20:18	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 12:44	CH	XM

Client Sample ID: TP-22-2

Lab Sample ID: 890-406-20

Date Collected: 03/22/21 13:10

Matrix: Solid

Date Received: 03/22/21 16:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 09:17	MR	XM
Total/NA	Prep	8015NM Prep			1241	04/02/21 11:35	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/03/21 20:39	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:00	CH	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-24-S

Date Collected: 03/22/21 13:20

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-21

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 09:37	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/02/21 22:56	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:06	CH	XM

Client Sample ID: TP-24-2

Date Collected: 03/22/21 13:30

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-22

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 09:58	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 00:01	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:12	CH	XM

Client Sample ID: TP-29-S

Date Collected: 03/22/21 13:40

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-23

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 10:18	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 00:22	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:17	CH	XM

Client Sample ID: TP-29-2

Date Collected: 03/22/21 13:50

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-24

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 10:39	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 00:43	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:23	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Client Sample ID: TP-27-S

Date Collected: 03/22/21 14:00

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-25

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 10:59	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 01:04	AJ	XM
Soluble	Leach	DI Leach			1436	04/07/21 11:06	CH	XM
Soluble	Analysis	300.0		1	1438	04/07/21 13:28	CH	XM

Client Sample ID: TP-27-2

Date Collected: 03/22/21 14:10

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-26

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 14:31	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 01:25	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 16:50	WP	XM

Client Sample ID: TP-21-S

Date Collected: 03/22/21 14:20

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-27

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 14:52	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 01:47	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:05	WP	XM

Client Sample ID: TP-21-2

Date Collected: 03/22/21 14:30

Date Received: 03/22/21 16:00

Lab Sample ID: 890-406-28

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1102	03/31/21 11:41	MR	XM
Total/NA	Analysis	8021B		1	1205	04/02/21 15:12	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 02:08	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/08/21 08:47	WP	XM

Laboratory References:

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

Eurofins Xenco, Carlsbad

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21
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
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
5035	Closed System Purge and Trap	SW846	XM
8015NM Prep	Microextraction	SW846	XM
DI Leach	Deionized Water Leaching Procedure	ASTM	XM

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.

Laboratory References:

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

Eurofins Xenco, Carlsbad

Sample Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-406-1
SDG: I11224133

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
890-406-1	TP-17-S	Solid	03/22/21 09:00	03/22/21 16:00	
890-406-2	TP-17-2	Solid	03/22/21 09:15	03/22/21 16:00	
890-406-3	TP-16-S	Solid	03/22/21 09:20	03/22/21 16:00	
890-406-4	TP-16-2	Solid	03/22/21 09:30	03/22/21 16:00	
890-406-5	TP-15-S	Solid	03/22/21 09:35	03/22/21 16:00	
890-406-6	TP-15-2	Solid	03/22/21 09:40	03/22/21 16:00	
890-406-7	TP-23-S	Solid	03/22/21 10:10	03/22/21 16:00	
890-406-8	TP-23-2	Solid	03/22/21 10:25	03/22/21 16:00	
890-406-9	TP-20-S	Solid	03/22/21 10:30	03/22/21 16:00	
890-406-10	TP-20-2	Solid	03/22/21 10:40	03/22/21 16:00	
890-406-11	TP-18-S	Solid	03/22/21 10:50	03/22/21 16:00	
890-406-12	TP-18-2	Solid	03/22/21 11:00	03/22/21 16:00	
890-406-13	TP-32-S	Solid	03/22/21 11:10	03/22/21 16:00	
890-406-14	TP-32-2	Solid	03/22/21 11:15	03/22/21 16:00	
890-406-15	TP-19-S	Solid	03/22/21 11:20	03/22/21 16:00	
890-406-16	TP-19-2	Solid	03/22/21 11:30	03/22/21 16:00	
890-406-17	TP-31-S	Solid	03/22/21 11:40	03/22/21 16:00	
890-406-18	TP-31-2	Solid	03/22/21 11:50	03/22/21 16:00	
890-406-19	TP-22-S	Solid	03/22/21 13:00	03/22/21 16:00	
890-406-20	TP-22-2	Solid	03/22/21 13:10	03/22/21 16:00	
890-406-21	TP-24-S	Solid	03/22/21 13:20	03/22/21 16:00	
890-406-22	TP-24-2	Solid	03/22/21 13:30	03/22/21 16:00	
890-406-23	TP-29-S	Solid	03/22/21 13:40	03/22/21 16:00	
890-406-24	TP-29-2	Solid	03/22/21 13:50	03/22/21 16:00	
890-406-25	TP-27-S	Solid	03/22/21 14:00	03/22/21 16:00	
890-406-26	TP-27-2	Solid	03/22/21 14:10	03/22/21 16:00	
890-406-27	TP-21-S	Solid	03/22/21 14:20	03/22/21 16:00	
890-406-28	TP-21-2	Solid	03/22/21 14:30	03/22/21 16:00	

Eurofins Xenco, Carlsbad



CHAIN OF CUSTODY

Page 1 Of 2

70

Setting the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

Odessa, Texas (432-663-1800)	Lakeand, Florida (863-646-8526)
Norcross, Georgia (770-449-8800)	Tampa, Florida (813-620-2000)

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CHAIN OF CUSTODY

Page 1 Of 1

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Page 1 of 3

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Xenco Quote # Xenco Job #

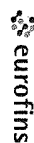
Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: GHD/Midland				Project Name/Number: Livingston Ridge SWD System / 11224133														
Company Address: 2135 S. Loop 250 West Midland TX				Project Location: Eddy County, New Mexico														
Email: Becky Haskell@ghd.com glenn.quinney@ghd.com				Phone No: (432)250-7917 Zach.comino@ghd.com tom.larson@ghd.com				Invoice To: EOG / James Kennedy										
Project Contact: Becky Haskell / Glenn Quinney				PO Number: NA														
Sampler's Name Zach Comino																		
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH By 8015 Mod (GRO, DRO & MRO)	BTEX 8021 B	Chloride 600	Field Comments
1	TP24-S		03/22/21	1330	S	1									X	X	X	
2	TP24-2			1330											X	X	X	
3	TP29-S			1340											X	X	X	
4	TP29-2			1350											X	X	X	
5	TP27-S			1400											X	X	X	
6	TP27-2			1410											X	X	X	
7	TP21-S			1420											X	X	X	
8	TP21-2			1430											X	X	X	
9															X	X	X	
10															X	X	X	
Turnaround Time (Business days)				Data Deliverable Information														
☐ Same Day TAT				☒ 5 Day TAT				☐ Level II Std QC				☐ Level IV (Full Data Pkg /raw data)						
☐ Next Day EMERGENCY				☐ 7 Day TAT				☐ Level III Std QC+ Forms				☐ TRRP Level IV						
☐ 2 Day EMERGENCY				☐ Contract TAT				☐ Level 3 (CLP Forms)				☐ UST / RG -411						
☐ 3 Day EMERGENCY								☐ TRRP Checklist										
TAT Starts Day received by Lab, if received by 5:00 pm				Report MDLs and J values.														
Relinquished by Sampler: 1 Zach Comino / JAL				Date Time: 03/22/21				Received By: 2				Date Time: 03/22/21						
Relinquished by: 3				Date Time: 03/22/21				Received By: 4				Date Time: 03/22/21						
Relinquished by: 5				Date Time: 03/22/21				Received By: 6				Date Time: 03/22/21						
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.																		

Eurofins Xenco, Carlsbad

1089 N Canal St.
Carlsbad NM 88220

Phone 575-988-3199 Fax: 575-988-3199

Chain of Custody Record



Environment Testing America

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Chain of Custody Record



eurofins
Environment Testing
America

1089 N Canal St.
Carlsbad, NM 88220
Phone: 575-988-3199 Fax: 575-988-3199

Client Information (Sub Contract Lab)				Sampler	Lab PM	Carrier Tracking No(s)	COC No:							
Client Contact:				Phone:	Simmons, Debbie		890-121 1							
Shipping/Receiving				E-Mail:	debbie.simmons@eurofins.com	State of Origin:	Page 1 of 3							
Company:				Accreditations Required (See note):			Job #:							
Eurofins Xenco				NELAP - Louisiana, NELAP - Texas			890-406-1							
Address:				Due Date Requested:	Analysis Requested									
1211 W. Florida Ave.				3/29/2021										
City:				TAT Requested (days):										
Midland														
State, Zip:														
TX, 79701														
Phone:				PO #:										
432-704-5440(Tel)														
Email:				WOC #:										
Project Name:				Project #:										
Livingston Ridge SWD System				88000221										
Site:				SSOV#:										
Sample Identification - Client ID (Lab ID)				Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=Water, S=solid, O=soil, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8021B/6035LP_Calc BTEX	8015MOD_NM/8015NM_S_Frep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	Total Number of containers	Special Instructions/Note:
TP-17-5 (890-406-1)				3/22/21	09:00	Mountain	Solid	X	X	X	X	1		
TP-17-2 (890-406-2)				3/22/21	09:15	Mountain	Solid	X	X	X	X	1		
TP-16-5 (890-406-3)				3/22/21	09:20	Mountain	Solid	X	X	X	X	1		
TP-16-2 (890-406-4)				3/22/21	09:30	Mountain	Solid	X	X	X	X	1		
TP-15-5 (890-406-5)				3/22/21	09:35	Mountain	Solid	X	X	X	X	1		
TP-15-2 (890-406-6)				3/22/21	09:40	Mountain	Solid	X	X	X	X	1		
TP-23-5 (890-406-7)				3/22/21	10:10	Mountain	Solid	X	X	X	X	1		
TP-23-2 (890-406-8)				3/22/21	10:25	Mountain	Solid	X	X	X	X	1		
TP-20-5 (890-406-9)				3/22/21	10:30	Mountain	Solid	X	X	X	X	1		

Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon our subcontracted laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.

Possible Hazard Identification

Unconfirmed

Deliverable Requested I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by: Joe Cuff 3.23.21 Date/Time: 3/23/21 3:00 PM Company:

Relinquished by: Date/Time: Company:

Relinquished by: Date/Time: Company:

Custody Seals Intact: Custody Seal No. Cooler Temperature(s) °C and Other Remarks:

Ver 11/01/2020

eurofins Environment Testing

Phone: 575-988-3199 Fax: 575-988-3199

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Ver. 11/01/2020

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-406-1

SDG Number: I11224133

Login Number: 406

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	
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	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-406-1

SDG Number: I11224133

Login Number: 406

List Number: 2

Creator: Copeland, Tatiana

List Source: Eurofins Midland

List Creation: 03/23/21 03:08 PM

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



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-418-1
Laboratory Sample Delivery Group: 11224133
Client Project/Site: LivingstonRidge SWD System

For:
GHD Services Inc.
2135 South Loop 250 West
Midland, Texas 79703

Attn: Becky Haskell

A handwritten signature in black ink, reading "Debbie Simmons".

Authorized for release by:
4/5/2021 6:42:52 PM

Debbie Simmons, Project Manager
(281)240-4200
debbie.simmons@eurofinset.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: LivingstonRidge SWD System

Laboratory Job ID: 890-418-1
SDG: 11224133

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	5
Client Sample Results	6
Surrogate Summary	19
QC Sample Results	21
QC Association Summary	27
Lab Chronicle	31
Certification Summary	36
Method Summary	37
Sample Summary	38
Chain of Custody	39
Receipt Checklists	44

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F2	MS/MSD 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.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery 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.

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)

Eurofins Xenco, Carlsbad

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Glossary (Continued)

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

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Case Narrative

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Job ID: 890-418-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-418-1

Comments

No additional comments.

Receipt

The samples were received on 3/23/2021 3:36 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 5.6° C.

Receipt Exceptions

The following samples analyzed for method BTEX 8021 were received and analyzed from an unpreserved bulk soil jar: TP12-S (890-418-1), TP12-2 (890-418-2), TP12-4 (890-418-3), TP33-S (890-418-4), TP33-2 (890-418-5), TP33-4 (890-418-6), TP11-S (890-418-7), TP11-2 (890-418-8), TP11-4 (890-418-9), TP8-S (890-418-10), TP8-2 (890-418-11), TP7-S (890-418-12), TP7-2 (890-418-13), TP7-4 (890-418-14), TP30-S (890-418-15), TP30-2 (890-418-16), TP30-4 (890-418-17), TP28-S (890-418-18) and TP28-2 (890-418-19).

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-1070 and analytical batch 880-1096 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: Internal standard responses were outside of acceptance limits for the following samples: TP12-S (890-418-1), TP33-S (890-418-4), TP33-2 (890-418-5), TP33-4 (890-418-6), TP11-2 (890-418-8), TP8-S (890-418-10), TP8-2 (890-418-11), TP7-S (890-418-12), TP7-2 (890-418-13), TP7-4 (890-418-14) and TP28-S (890-418-18). The sample(s) shows evidence of matrix interference.

Method 8021B: Surrogate recovery for the following sample was outside control limits: 4-Bromofluorobenzene (Surr)TP33-2 (890-418-5). 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

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

General Chemistry

Method 300.0: The method blank for preparation batch 880-1016 and analytical batch 880-1128 contained Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP12-S

Lab Sample ID: 890-418-1

Date Collected: 03/23/21 11:25

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000482	J F2 F1	0.00200	0.000386	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
Ethylbenzene	<0.000566	U F2 F1	0.00200	0.000566	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
Toluene	<0.000457	U F2 F1	0.00200	0.000457	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
Total BTEX	<0.00100	U F2 F1	0.00200	0.00100	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
Xylenes, Total	<0.00100	U F2 F1	0.00401	0.00100	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
m-Xylene & p-Xylene	<0.00101	U F2 F1	0.00401	0.00101	mg/Kg		03/30/21 13:10	04/01/21 07:59	1
o-Xylene	<0.000345	U F2 F1	0.00200	0.000345	mg/Kg		03/30/21 13:10	04/01/21 07:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130	03/30/21 13:10	04/01/21 07:59	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 07:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 12:27	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 12:27	1
Diesel Range Organics (Over C10-C28)	<15.0	U F2	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 12:27	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 12:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	03/26/21 14:35	03/27/21 12:27	1
o-Terphenyl	92		70 - 130	03/26/21 14:35	03/27/21 12:27	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.9		4.99	0.857	mg/Kg			03/31/21 17:47	1

Client Sample ID: TP12-2

Lab Sample ID: 890-418-2

Date Collected: 03/23/21 11:30

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
Ethylbenzene	0.00176	J	0.00201	0.000567	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
Total BTEX	0.00176	J	0.00201	0.00100	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/30/21 13:10	04/01/21 08:24	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/30/21 13:10	04/01/21 08:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 08:24	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 08:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 13:31	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 13:31	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP12-2

Lab Sample ID: 890-418-2

Date Collected: 03/23/21 11:30

Matrix: Solid

Date Received: 03/23/21 15:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 13:31	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 13:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130				03/26/21 14:35	03/27/21 13:31	1
o-Terphenyl	90		70 - 130				03/26/21 14:35	03/27/21 13:31	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.13		4.98	0.855	mg/Kg			03/31/21 17:52	1

Client Sample ID: TP12-4

Lab Sample ID: 890-418-3

Date Collected: 03/23/21 11:40

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
Ethylbenzene	0.00117	J	0.00202	0.000571	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
Total BTEX	0.00117	J	0.00202	0.00101	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/30/21 13:10	04/01/21 08:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130				03/30/21 13:10	04/01/21 08:49	1
1,4-Difluorobenzene (Surr)	100		70 - 130				03/30/21 13:10	04/01/21 08:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.7	14.9	mg/Kg		03/26/21 14:35	03/27/21 13:53	1
Total TPH	<14.9	U	49.7	14.9	mg/Kg		03/26/21 14:35	03/27/21 13:53	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.7	14.9	mg/Kg		03/26/21 14:35	03/27/21 13:53	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.7	14.9	mg/Kg		03/26/21 14:35	03/27/21 13:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				03/26/21 14:35	03/27/21 13:53	1
o-Terphenyl	88		70 - 130				03/26/21 14:35	03/27/21 13:53	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.5		4.96	0.851	mg/Kg			03/31/21 17:57	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP33-S

Lab Sample ID: 890-418-4

Date Collected: 03/23/21 11:45

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
Ethylbenzene	0.000924	J	0.00201	0.000567	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/30/21 13:10	04/01/21 09:14	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/30/21 13:10	04/01/21 09:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130	03/30/21 13:10	04/01/21 09:14	1
1,4-Difluorobenzene (Surr)	92		70 - 130	03/30/21 13:10	04/01/21 09:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:15	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:15	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:15	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	115		70 - 130	03/26/21 14:35	03/27/21 14:15	1
o-Terphenyl	95		70 - 130	03/26/21 14:35	03/27/21 14:15	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16.0		4.97	0.853	mg/Kg			03/31/21 18:02	1

Client Sample ID: TP33-2

Lab Sample ID: 890-418-5

Date Collected: 03/23/21 11:50

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
Ethylbenzene	0.000822	J	0.00200	0.000564	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
Toluene	0.000632	J	0.00200	0.000455	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
Total BTEX	0.00145	J	0.00200	0.000998	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/30/21 13:10	04/01/21 09:39	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/30/21 13:10	04/01/21 09:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	47	S1-	70 - 130	03/30/21 13:10	04/01/21 09:39	1
1,4-Difluorobenzene (Surr)	75		70 - 130	03/30/21 13:10	04/01/21 09:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 14:36	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 14:36	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP33-2

Lab Sample ID: 890-418-5

Date Collected: 03/23/21 11:50

Matrix: Solid

Date Received: 03/23/21 15:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 14:36	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 14:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	122		70 - 130				03/26/21 14:35	03/27/21 14:36	1
o-Terphenyl	99		70 - 130				03/26/21 14:35	03/27/21 14:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52.3		5.00	0.858	mg/Kg			03/31/21 18:07	1

Client Sample ID: TP33-4

Lab Sample ID: 890-418-6

Date Collected: 03/23/21 11:55

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		03/30/21 13:10	04/01/21 10:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130				03/30/21 13:10	04/01/21 10:04	1
1,4-Difluorobenzene (Surr)	94		70 - 130				03/30/21 13:10	04/01/21 10:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:57	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:57	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:57	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 14:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130				03/26/21 14:35	03/27/21 14:57	1
o-Terphenyl	93		70 - 130				03/26/21 14:35	03/27/21 14:57	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	51.6		5.00	0.858	mg/Kg			03/31/21 18:12	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP11-S

Lab Sample ID: 890-418-7

Date Collected: 03/23/21 12:45

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		03/30/21 13:10	04/01/21 10:29	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		03/30/21 13:10	04/01/21 10:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	03/30/21 13:10	04/01/21 10:29	1
1,4-Difluorobenzene (Surr)	103		70 - 130	03/30/21 13:10	04/01/21 10:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:19	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:19	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:19	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	03/26/21 14:35	03/27/21 15:19	1
o-Terphenyl	94		70 - 130	03/26/21 14:35	03/27/21 15:19	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33.3		5.05	0.867	mg/Kg			04/03/21 14:42	1

Client Sample ID: TP11-2

Lab Sample ID: 890-418-8

Date Collected: 03/23/21 12:50

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000381	U	0.00198	0.000381	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
Ethylbenzene	0.00200		0.00198	0.000559	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
Toluene	<0.000451	U	0.00198	0.000451	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
Total BTEX	0.00200		0.00198	0.000990	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
Xylenes, Total	<0.000990	U	0.00396	0.000990	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
m-Xylene & p-Xylene	<0.00100	U	0.00396	0.00100	mg/Kg		03/30/21 13:10	04/01/21 10:54	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		03/30/21 13:10	04/01/21 10:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	03/30/21 13:10	04/01/21 10:54	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 10:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:40	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:40	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP11-2

Lab Sample ID: 890-418-8

Date Collected: 03/23/21 12:50

Matrix: Solid

Date Received: 03/23/21 15:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:40	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 15:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130				03/26/21 14:35	03/27/21 15:40	1
o-Terphenyl	95		70 - 130				03/26/21 14:35	03/27/21 15:40	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.7	F1	5.05	0.867	mg/Kg			04/03/21 14:47	1

Client Sample ID: TP11-4

Lab Sample ID: 890-418-9

Date Collected: 03/23/21 13:00

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
Ethylbenzene	0.000651	J	0.00201	0.000567	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/30/21 13:10	04/01/21 11:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130				03/30/21 13:10	04/01/21 11:19	1
1,4-Difluorobenzene (Surr)	107		70 - 130				03/30/21 13:10	04/01/21 11:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 16:01	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 16:01	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 16:01	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 16:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				03/26/21 14:35	03/27/21 16:01	1
o-Terphenyl	101		70 - 130				03/26/21 14:35	03/27/21 16:01	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.5		4.98	0.855	mg/Kg			04/03/21 15:02	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP8-S

Lab Sample ID: 890-418-10

Date Collected: 03/23/21 13:10

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/30/21 13:10	04/01/21 11:44	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/30/21 13:10	04/01/21 11:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130	03/30/21 13:10	04/01/21 11:44	1
1,4-Difluorobenzene (Surr)	94		70 - 130	03/30/21 13:10	04/01/21 11:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 16:22	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 16:22	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 16:22	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 16:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130	03/26/21 14:35	03/27/21 16:22	1
o-Terphenyl	89		70 - 130	03/26/21 14:35	03/27/21 16:22	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.2		5.00	0.858	mg/Kg			04/03/21 15:07	1

Client Sample ID: TP8-2

Lab Sample ID: 890-418-11

Date Collected: 03/23/21 13:20

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
Ethylbenzene	0.000645	J	0.00202	0.000570	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
Total BTEX	0.00221		0.00202	0.00101	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
Xylenes, Total	0.00156	J	0.00403	0.00101	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
m-Xylene & p-Xylene	0.00156	J	0.00403	0.00102	mg/Kg		03/30/21 13:10	04/01/21 13:25	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/30/21 13:10	04/01/21 13:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	03/30/21 13:10	04/01/21 13:25	1
1,4-Difluorobenzene (Surr)	85		70 - 130	03/30/21 13:10	04/01/21 13:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:04	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:04	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP8-2

Lab Sample ID: 890-418-11

Date Collected: 03/23/21 13:20

Matrix: Solid

Date Received: 03/23/21 15:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:04	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130				03/26/21 14:35	03/27/21 17:04	1
o-Terphenyl	96		70 - 130				03/26/21 14:35	03/27/21 17:04	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.3		4.96	0.851	mg/Kg			04/03/21 15:22	1

Client Sample ID: TP7-S

Lab Sample ID: 890-418-12

Date Collected: 03/23/21 13:30

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
Toluene	<0.000457	U	0.00200	0.000457	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		03/30/21 13:10	04/01/21 13:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130				03/30/21 13:10	04/01/21 13:51	1
1,4-Difluorobenzene (Surr)	88		70 - 130				03/30/21 13:10	04/01/21 13:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:25	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:25	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:25	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 17:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130				03/26/21 14:35	03/27/21 17:25	1
o-Terphenyl	87		70 - 130				03/26/21 14:35	03/27/21 17:25	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.1		5.00	0.858	mg/Kg			04/03/21 15:27	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP7-2

Lab Sample ID: 890-418-13

Date Collected: 03/23/21 13:40

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
Ethylbenzene	0.000621	J	0.00201	0.000568	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
Toluene	<0.000459	U	0.00201	0.000459	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
Total BTEX	<0.00101	U	0.00201	0.00101	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
Xylenes, Total	<0.00101	U	0.00402	0.00101	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
m-Xylene & p-Xylene	<0.00102	U	0.00402	0.00102	mg/Kg		03/30/21 13:10	04/01/21 14:16	1
o-Xylene	<0.000346	U	0.00201	0.000346	mg/Kg		03/30/21 13:10	04/01/21 14:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	03/30/21 13:10	04/01/21 14:16	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 14:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 17:46	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 17:46	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 17:46	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		03/26/21 14:35	03/27/21 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	03/26/21 14:35	03/27/21 17:46	1
o-Terphenyl	90		70 - 130	03/26/21 14:35	03/27/21 17:46	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.5		5.00	0.858	mg/Kg			04/03/21 15:32	1

Client Sample ID: TP7-4

Lab Sample ID: 890-418-14

Date Collected: 03/23/21 13:45

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.000490	J	0.00202	0.000388	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
Ethylbenzene	<0.000570	U	0.00202	0.000570	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		03/30/21 13:10	04/01/21 14:41	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/30/21 13:10	04/01/21 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	03/30/21 13:10	04/01/21 14:41	1
1,4-Difluorobenzene (Surr)	98		70 - 130	03/30/21 13:10	04/01/21 14:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	15.6	J B	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:07	1
Total TPH	15.6	J B	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:07	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP7-4

Lab Sample ID: 890-418-14

Date Collected: 03/23/21 13:45

Matrix: Solid

Date Received: 03/23/21 15:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:07	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	123		70 - 130				03/26/21 14:35	03/27/21 18:07	1
o-Terphenyl	108		70 - 130				03/26/21 14:35	03/27/21 18:07	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.6		4.97	0.853	mg/Kg			04/03/21 15:37	1

Client Sample ID: TP30-S

Lab Sample ID: 890-418-15

Date Collected: 03/23/21 13:50

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		03/30/21 13:10	04/01/21 15:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130				03/30/21 13:10	04/01/21 15:06	1
1,4-Difluorobenzene (Surr)	95		70 - 130				03/30/21 13:10	04/01/21 15:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.1	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:28	1
Total TPH	<15.0	U	50.1	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:28	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:28	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	57	S1-	70 - 130				03/26/21 14:35	03/27/21 18:28	1
o-Terphenyl	74		70 - 130				03/26/21 14:35	03/27/21 18:28	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.9		4.99	0.857	mg/Kg			04/03/21 15:42	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP30-2

Lab Sample ID: 890-418-16

Date Collected: 03/23/21 13:55

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		03/30/21 13:10	04/01/21 15:31	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		03/30/21 13:10	04/01/21 15:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	03/30/21 13:10	04/01/21 15:31	1
1,4-Difluorobenzene (Surr)	93		70 - 130	03/30/21 13:10	04/01/21 15:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:49	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:49	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:49	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 18:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	03/26/21 14:35	03/27/21 18:49	1
o-Terphenyl	109		70 - 130	03/26/21 14:35	03/27/21 18:49	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.65		4.95	0.850	mg/Kg			04/03/21 15:47	1

Client Sample ID: TP30-4

Lab Sample ID: 890-418-17

Date Collected: 03/23/21 14:00

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		03/30/21 13:10	04/01/21 15:56	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		03/30/21 13:10	04/01/21 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	03/30/21 13:10	04/01/21 15:56	1
1,4-Difluorobenzene (Surr)	106		70 - 130	03/30/21 13:10	04/01/21 15:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:10	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:10	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP30-4

Date Collected: 03/23/21 14:00

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-17

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:10	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				03/26/21 14:35	03/27/21 19:10	1
o-Terphenyl	84		70 - 130				03/26/21 14:35	03/27/21 19:10	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.4		5.00	0.858	mg/Kg			04/03/21 15:52	1

Client Sample ID: TP28-S

Date Collected: 03/23/21 14:10

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-18

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		03/30/21 13:10	04/01/21 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130				03/30/21 13:10	04/01/21 16:21	1
1,4-Difluorobenzene (Surr)	106		70 - 130				03/30/21 13:10	04/01/21 16:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:31	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:31	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:31	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 19:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	57	S1-	70 - 130				03/26/21 14:35	03/27/21 19:31	1
o-Terphenyl	76		70 - 130				03/26/21 14:35	03/27/21 19:31	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.6	B	4.95	0.850	mg/Kg			03/31/21 20:11	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP28-2

Lab Sample ID: 890-418-19

Date Collected: 03/23/21 14:20

Matrix: Solid

Date Received: 03/23/21 15:36

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U H	0.00199	0.000383	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
Ethylbenzene	<0.000562	U H	0.00199	0.000562	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
Toluene	<0.000453	U H	0.00199	0.000453	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
Total BTEX	<0.000994	U H	0.00199	0.000994	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
Xylenes, Total	<0.000994	U H	0.00398	0.000994	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
m-Xylene & p-Xylene	<0.00100	U H	0.00398	0.00100	mg/Kg		03/30/21 13:10	04/01/21 16:46	1
o-Xylene	<0.000342	U H	0.00199	0.000342	mg/Kg		03/30/21 13:10	04/01/21 16:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	03/30/21 13:10	04/01/21 16:46	1
1,4-Difluorobenzene (Surr)	104		70 - 130	03/30/21 13:10	04/01/21 16:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	16.1	J	50.1	15.0	mg/Kg		04/02/21 11:50	04/03/21 06:44	1
Total TPH	16.1	J	50.1	15.0	mg/Kg		04/02/21 11:50	04/03/21 06:44	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:50	04/03/21 06:44	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 11:50	04/03/21 06:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130	04/02/21 11:50	04/03/21 06:44	1
o-Terphenyl	95		70 - 130	04/02/21 11:50	04/03/21 06:44	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.3	B	5.00	0.858	mg/Kg			03/31/21 20:16	1

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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)
890-418-1	TP12-S	126	98
890-418-1 MS	TP12-S	131 S1+	71
890-418-1 MSD	TP12-S	128	85
890-418-2	TP12-2	98	98
890-418-3	TP12-4	105	100
890-418-4	TP33-S	88	92
890-418-5	TP33-2	47 S1-	75
890-418-6	TP33-4	117	94
890-418-7	TP11-S	107	103
890-418-8	TP11-2	94	98
890-418-9	TP11-4	113	107
890-418-10	TP8-S	91	94
890-418-11	TP8-2	106	85
890-418-12	TP7-S	92	88
890-418-13	TP7-2	96	98
890-418-14	TP7-4	94	98
890-418-15	TP30-S	122	95
890-418-16	TP30-2	92	93
890-418-17	TP30-4	104	106
890-418-18	TP28-S	103	106
890-418-19	TP28-2	105	104
LCS 880-1070/1-A	Lab Control Sample	87	100
LCSD 880-1070/2-A	Lab Control Sample Dup	89	87
MB 880-1070/5-A	Method Blank	66 S1-	85
MB 880-1096/8	Method Blank	68 S1-	84

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
890-418-1	TP12-S	114	92
890-418-1 MS	TP12-S	124	103
890-418-1 MSD	TP12-S	108	78
890-418-2	TP12-2	102	90
890-418-3	TP12-4	103	88
890-418-4	TP33-S	115	95
890-418-5	TP33-2	122	99
890-418-6	TP33-4	104	93
890-418-7	TP11-S	118	94
890-418-8	TP11-2	114	95
890-418-9	TP11-4	113	101
890-418-10	TP8-S	109	89
890-418-11	TP8-2	118	96
890-418-12	TP7-S	100	87

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-418-13	TP7-2	106	90
890-418-14	TP7-4	123	108
890-418-15	TP30-S	57 S1-	74
890-418-16	TP30-2	107	109
890-418-17	TP30-4	97	84
890-418-18	TP28-S	57 S1-	76
890-418-19	TP28-2	92	95
LCS 880-1242/2-A	Lab Control Sample	108	106
LCS 880-912/2-A	Lab Control Sample	95	80
LCSD 880-1242/3-A	Lab Control Sample Dup	111	109
LCSD 880-912/3-A	Lab Control Sample Dup	89	74
MB 880-1242/1-A	Method Blank	118	130
MB 880-912/1-A	Method Blank	101	88

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-1070/5-A

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1070

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		03/30/21 13:10	04/01/21 07:34	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		03/30/21 13:10	04/01/21 07:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	66	S1-	70 - 130	03/30/21 13:10	04/01/21 07:34	1
1,4-Difluorobenzene (Surr)	85		70 - 130	03/30/21 13:10	04/01/21 07:34	1

Lab Sample ID: LCS 880-1070/1-A

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1070

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.08639		mg/Kg		86	70 - 130
Ethylbenzene	0.100	0.08863		mg/Kg		89	70 - 130
Toluene	0.100	0.09579		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	0.200	0.1798		mg/Kg		90	70 - 130
o-Xylene	0.100	0.09855		mg/Kg		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: LCSD 880-1070/2-A

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1070

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.07762		mg/Kg		78	70 - 130	11	35
Ethylbenzene	0.100	0.08096		mg/Kg		81	70 - 130	9	35
Toluene	0.100	0.08834		mg/Kg		88	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1653		mg/Kg		83	70 - 130	8	35
o-Xylene	0.100	0.09210		mg/Kg		92	70 - 130	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

Lab Sample ID: 890-418-1 MS

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 1070

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.000482	J F2 F1	0.0998	0.01603	F1	mg/Kg		16	70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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

Lab Sample ID: 890-418-1 MS

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 1070

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	<0.000566	U F2 F1	0.0998	0.01982	F1	mg/Kg		20	70 - 130
Toluene	<0.000457	U F2 F1	0.0998	0.01423	F1	mg/Kg		14	70 - 130
m-Xylene & p-Xylene	<0.00101	U F2 F1	0.200	0.02775	F1	mg/Kg		14	70 - 130
o-Xylene	<0.000345	U F2 F1	0.0998	0.02635	F1	mg/Kg		26	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	131	S1+	70 - 130						
1,4-Difluorobenzene (Surr)	71		70 - 130						

Lab Sample ID: 890-418-1 MSD

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 1070

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000482	J F2 F1	0.0996	0.004342	F1 F2	mg/Kg		4	70 - 130	115	35
Ethylbenzene	<0.000566	U F2 F1	0.0996	0.008491	F1 F2	mg/Kg		9	70 - 130	80	35
Toluene	<0.000457	U F2 F1	0.0996	0.007176	F1 F2	mg/Kg		7	70 - 130	66	35
m-Xylene & p-Xylene	<0.00101	U F2 F1	0.199	0.01720	F1 F2	mg/Kg		9	70 - 130	47	35
o-Xylene	<0.000345	U F2 F1	0.0996	0.01010	F1 F2	mg/Kg		10	70 - 130	89	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	128		70 - 130								
1,4-Difluorobenzene (Surr)	85		70 - 130								

Lab Sample ID: MB 880-1096/8

Matrix: Solid

Analysis Batch: 1096

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg			03/31/21 18:28	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg			03/31/21 18:28	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg			03/31/21 18:28	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg			03/31/21 18:28	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg			03/31/21 18:28	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg			03/31/21 18:28	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg			03/31/21 18:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	68	S1-	70 - 130					03/31/21 18:28	1
1,4-Difluorobenzene (Surr)	84		70 - 130					03/31/21 18:28	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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

Lab Sample ID: MB 880-1242/1-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1242

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		04/02/21 11:50	04/02/21 21:52	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 11:50	04/02/21 21:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	04/02/21 11:50	04/02/21 21:52	1
o-Terphenyl	130		70 - 130	04/02/21 11:50	04/02/21 21:52	1

Lab Sample ID: LCS 880-1242/2-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1242

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1067		mg/Kg		107	70 - 130
Diesel Range Organics (Over C10-C28)	1000	980.3		mg/Kg		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	106		70 - 130

Lab Sample ID: LCSD 880-1242/3-A

Matrix: Solid

Analysis Batch: 1237

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1242

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1120		mg/Kg		112	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	1008		mg/Kg		101	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	109		70 - 130

Lab Sample ID: MB 880-912/1-A

Matrix: Solid

Analysis Batch: 937

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 912

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	175.3		50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 11:22	1
Total TPH	175.3		50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 11:22	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 11:22	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		03/26/21 14:35	03/27/21 11:22	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130	03/26/21 14:35	03/27/21 11:22	1
o-Terphenyl	88		70 - 130	03/26/21 14:35	03/27/21 11:22	1

Lab Sample ID: LCS 880-912/2-A

Matrix: Solid

Analysis Batch: 937

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 912

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1093		mg/Kg		109	70 - 130
Diesel Range Organics (Over C10-C28)	1000	890.8		mg/Kg		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	80		70 - 130

Lab Sample ID: LCSD 880-912/3-A

Matrix: Solid

Analysis Batch: 937

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 912

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1016		mg/Kg		102	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	861.1		mg/Kg		86	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	74		70 - 130

Lab Sample ID: 890-418-1 MS

Matrix: Solid

Analysis Batch: 937

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 912

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	1000	1290		mg/Kg		129	70 - 130
Diesel Range Organics (Over C10-C28)	<15.0	U F2	1000	1289		mg/Kg		129	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	124		70 - 130
o-Terphenyl	103		70 - 130

Lab Sample ID: 890-418-1 MSD

Matrix: Solid

Analysis Batch: 937

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 912

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	<15.0	U	998	1224		mg/Kg		123	70 - 130	5	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

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

Lab Sample ID: 890-418-1 MSD

Matrix: Solid

Analysis Batch: 937

Client Sample ID: TP12-S

Prep Type: Total/NA

Prep Batch: 912

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (Over C10-C28)	<15.0	U F2	998	1006	F2	mg/Kg		101	70 - 130	25	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	108		70 - 130								
o-Terphenyl	78		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1019/1-A

Matrix: Solid

Analysis Batch: 1121

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			03/31/21 15:42	1

Lab Sample ID: LCS 880-1019/2-A

Matrix: Solid

Analysis Batch: 1121

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Chloride	250	252.0		mg/Kg		101	90 - 110			

Lab Sample ID: LCSD 880-1019/3-A

Matrix: Solid

Analysis Batch: 1121

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	252.0		mg/Kg		101	90 - 110	0	20

Lab Sample ID: MB 880-1016/1-A

Matrix: Solid

Analysis Batch: 1128

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.290	J	5.00	0.858	mg/Kg			03/31/21 17:37	1

Lab Sample ID: LCS 880-1016/2-A

Matrix: Solid

Analysis Batch: 1128

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Chloride	250	248.3		mg/Kg		99	90 - 110			

Lab Sample ID: LCSD 880-1016/3-A

Matrix: Solid

Analysis Batch: 1128

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	249.0		mg/Kg		100	90 - 110	0	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 880-1020/1-A

Matrix: Solid

Analysis Batch: 1143

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/03/21 13:22	1

Lab Sample ID: LCS 880-1020/2-A

Matrix: Solid

Analysis Batch: 1143

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	242.6		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-1020/3-A

Matrix: Solid

Analysis Batch: 1143

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	241.1		mg/Kg		96	90 - 110	1	20

Lab Sample ID: 890-418-8 MS

Matrix: Solid

Analysis Batch: 1143

Client Sample ID: TP11-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.7	F1	253	344.2	F1	mg/Kg		131	90 - 110

Lab Sample ID: 890-418-8 MSD

Matrix: Solid

Analysis Batch: 1143

Client Sample ID: TP11-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.7	F1	253	300.6	F1	mg/Kg		114	90 - 110	14	20

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

GC VOA

Prep Batch: 1070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Total/NA	Solid	5035	
890-418-2	TP12-2	Total/NA	Solid	5035	
890-418-3	TP12-4	Total/NA	Solid	5035	
890-418-4	TP33-S	Total/NA	Solid	5035	
890-418-5	TP33-2	Total/NA	Solid	5035	
890-418-6	TP33-4	Total/NA	Solid	5035	
890-418-7	TP11-S	Total/NA	Solid	5035	
890-418-8	TP11-2	Total/NA	Solid	5035	
890-418-9	TP11-4	Total/NA	Solid	5035	
890-418-10	TP8-S	Total/NA	Solid	5035	
890-418-11	TP8-2	Total/NA	Solid	5035	
890-418-12	TP7-S	Total/NA	Solid	5035	
890-418-13	TP7-2	Total/NA	Solid	5035	
890-418-14	TP7-4	Total/NA	Solid	5035	
890-418-15	TP30-S	Total/NA	Solid	5035	
890-418-16	TP30-2	Total/NA	Solid	5035	
890-418-17	TP30-4	Total/NA	Solid	5035	
890-418-18	TP28-S	Total/NA	Solid	5035	
890-418-19	TP28-2	Total/NA	Solid	5035	
MB 880-1070/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1070/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1070/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-418-1 MS	TP12-S	Total/NA	Solid	5035	
890-418-1 MSD	TP12-S	Total/NA	Solid	5035	

Analysis Batch: 1096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Total/NA	Solid	8021B	1070
890-418-2	TP12-2	Total/NA	Solid	8021B	1070
890-418-3	TP12-4	Total/NA	Solid	8021B	1070
890-418-4	TP33-S	Total/NA	Solid	8021B	1070
890-418-5	TP33-2	Total/NA	Solid	8021B	1070
890-418-6	TP33-4	Total/NA	Solid	8021B	1070
890-418-7	TP11-S	Total/NA	Solid	8021B	1070
890-418-8	TP11-2	Total/NA	Solid	8021B	1070
890-418-9	TP11-4	Total/NA	Solid	8021B	1070
890-418-10	TP8-S	Total/NA	Solid	8021B	1070
890-418-11	TP8-2	Total/NA	Solid	8021B	1070
890-418-12	TP7-S	Total/NA	Solid	8021B	1070
890-418-13	TP7-2	Total/NA	Solid	8021B	1070
890-418-14	TP7-4	Total/NA	Solid	8021B	1070
890-418-15	TP30-S	Total/NA	Solid	8021B	1070
890-418-16	TP30-2	Total/NA	Solid	8021B	1070
890-418-17	TP30-4	Total/NA	Solid	8021B	1070
890-418-18	TP28-S	Total/NA	Solid	8021B	1070
890-418-19	TP28-2	Total/NA	Solid	8021B	1070
MB 880-1070/5-A	Method Blank	Total/NA	Solid	8021B	1070
MB 880-1096/8	Method Blank	Total/NA	Solid	8021B	
LCS 880-1070/1-A	Lab Control Sample	Total/NA	Solid	8021B	1070
LCSD 880-1070/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1070
890-418-1 MS	TP12-S	Total/NA	Solid	8021B	1070

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QC Association Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

GC VOA (Continued)

Analysis Batch: 1096 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1 MSD	TP12-S	Total/NA	Solid	8021B	1070

GC Semi VOA

Prep Batch: 912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Total/NA	Solid	8015NM Prep	
890-418-2	TP12-2	Total/NA	Solid	8015NM Prep	
890-418-3	TP12-4	Total/NA	Solid	8015NM Prep	
890-418-4	TP33-S	Total/NA	Solid	8015NM Prep	
890-418-5	TP33-2	Total/NA	Solid	8015NM Prep	
890-418-6	TP33-4	Total/NA	Solid	8015NM Prep	
890-418-7	TP11-S	Total/NA	Solid	8015NM Prep	
890-418-8	TP11-2	Total/NA	Solid	8015NM Prep	
890-418-9	TP11-4	Total/NA	Solid	8015NM Prep	
890-418-10	TP8-S	Total/NA	Solid	8015NM Prep	
890-418-11	TP8-2	Total/NA	Solid	8015NM Prep	
890-418-12	TP7-S	Total/NA	Solid	8015NM Prep	
890-418-13	TP7-2	Total/NA	Solid	8015NM Prep	
890-418-14	TP7-4	Total/NA	Solid	8015NM Prep	
890-418-15	TP30-S	Total/NA	Solid	8015NM Prep	
890-418-16	TP30-2	Total/NA	Solid	8015NM Prep	
890-418-17	TP30-4	Total/NA	Solid	8015NM Prep	
890-418-18	TP28-S	Total/NA	Solid	8015NM Prep	
MB 880-912/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-912/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCS 880-912/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-418-1 MS	TP12-S	Total/NA	Solid	8015NM Prep	
890-418-1 MSD	TP12-S	Total/NA	Solid	8015NM Prep	

Analysis Batch: 937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Total/NA	Solid	8015B NM	912
890-418-2	TP12-2	Total/NA	Solid	8015B NM	912
890-418-3	TP12-4	Total/NA	Solid	8015B NM	912
890-418-4	TP33-S	Total/NA	Solid	8015B NM	912
890-418-5	TP33-2	Total/NA	Solid	8015B NM	912
890-418-6	TP33-4	Total/NA	Solid	8015B NM	912
890-418-7	TP11-S	Total/NA	Solid	8015B NM	912
890-418-8	TP11-2	Total/NA	Solid	8015B NM	912
890-418-9	TP11-4	Total/NA	Solid	8015B NM	912
890-418-10	TP8-S	Total/NA	Solid	8015B NM	912
890-418-11	TP8-2	Total/NA	Solid	8015B NM	912
890-418-12	TP7-S	Total/NA	Solid	8015B NM	912
890-418-13	TP7-2	Total/NA	Solid	8015B NM	912
890-418-14	TP7-4	Total/NA	Solid	8015B NM	912
890-418-15	TP30-S	Total/NA	Solid	8015B NM	912
890-418-16	TP30-2	Total/NA	Solid	8015B NM	912
890-418-17	TP30-4	Total/NA	Solid	8015B NM	912
890-418-18	TP28-S	Total/NA	Solid	8015B NM	912
MB 880-912/1-A	Method Blank	Total/NA	Solid	8015B NM	912

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QC Association Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

GC Semi VOA (Continued)

Analysis Batch: 937 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-912/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	912
LCSD 880-912/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	912
890-418-1 MS	TP12-S	Total/NA	Solid	8015B NM	912
890-418-1 MSD	TP12-S	Total/NA	Solid	8015B NM	912

Analysis Batch: 1237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-19	TP28-2	Total/NA	Solid	8015B NM	1242
MB 880-1242/1-A	Method Blank	Total/NA	Solid	8015B NM	1242
LCS 880-1242/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1242
LCSD 880-1242/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1242

Prep Batch: 1242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-19	TP28-2	Total/NA	Solid	8015NM Prep	
MB 880-1242/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1242/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1242/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 1016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-18	TP28-S	Soluble	Solid	DI Leach	
890-418-19	TP28-2	Soluble	Solid	DI Leach	
MB 880-1016/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1016/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1016/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Leach Batch: 1019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Soluble	Solid	DI Leach	
890-418-2	TP12-2	Soluble	Solid	DI Leach	
890-418-3	TP12-4	Soluble	Solid	DI Leach	
890-418-4	TP33-S	Soluble	Solid	DI Leach	
890-418-5	TP33-2	Soluble	Solid	DI Leach	
890-418-6	TP33-4	Soluble	Solid	DI Leach	
MB 880-1019/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1019/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1019/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Leach Batch: 1020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-7	TP11-S	Soluble	Solid	DI Leach	
890-418-8	TP11-2	Soluble	Solid	DI Leach	
890-418-9	TP11-4	Soluble	Solid	DI Leach	
890-418-10	TP8-S	Soluble	Solid	DI Leach	
890-418-11	TP8-2	Soluble	Solid	DI Leach	
890-418-12	TP7-S	Soluble	Solid	DI Leach	
890-418-13	TP7-2	Soluble	Solid	DI Leach	
890-418-14	TP7-4	Soluble	Solid	DI Leach	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

HPLC/IC (Continued)

Leach Batch: 1020 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-15	TP30-S	Soluble	Solid	DI Leach	
890-418-16	TP30-2	Soluble	Solid	DI Leach	
890-418-17	TP30-4	Soluble	Solid	DI Leach	
MB 880-1020/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1020/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1020/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-418-8 MS	TP11-2	Soluble	Solid	DI Leach	
890-418-8 MSD	TP11-2	Soluble	Solid	DI Leach	

Analysis Batch: 1121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-1	TP12-S	Soluble	Solid	300.0	1019
890-418-2	TP12-2	Soluble	Solid	300.0	1019
890-418-3	TP12-4	Soluble	Solid	300.0	1019
890-418-4	TP33-S	Soluble	Solid	300.0	1019
890-418-5	TP33-2	Soluble	Solid	300.0	1019
890-418-6	TP33-4	Soluble	Solid	300.0	1019
MB 880-1019/1-A	Method Blank	Soluble	Solid	300.0	1019
LCS 880-1019/2-A	Lab Control Sample	Soluble	Solid	300.0	1019
LCSD 880-1019/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1019

Analysis Batch: 1128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-18	TP28-S	Soluble	Solid	300.0	1016
890-418-19	TP28-2	Soluble	Solid	300.0	1016
MB 880-1016/1-A	Method Blank	Soluble	Solid	300.0	1016
LCS 880-1016/2-A	Lab Control Sample	Soluble	Solid	300.0	1016
LCSD 880-1016/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1016

Analysis Batch: 1143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-418-7	TP11-S	Soluble	Solid	300.0	1020
890-418-8	TP11-2	Soluble	Solid	300.0	1020
890-418-9	TP11-4	Soluble	Solid	300.0	1020
890-418-10	TP8-S	Soluble	Solid	300.0	1020
890-418-11	TP8-2	Soluble	Solid	300.0	1020
890-418-12	TP7-S	Soluble	Solid	300.0	1020
890-418-13	TP7-2	Soluble	Solid	300.0	1020
890-418-14	TP7-4	Soluble	Solid	300.0	1020
890-418-15	TP30-S	Soluble	Solid	300.0	1020
890-418-16	TP30-2	Soluble	Solid	300.0	1020
890-418-17	TP30-4	Soluble	Solid	300.0	1020
MB 880-1020/1-A	Method Blank	Soluble	Solid	300.0	1020
LCS 880-1020/2-A	Lab Control Sample	Soluble	Solid	300.0	1020
LCSD 880-1020/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1020
890-418-8 MS	TP11-2	Soluble	Solid	300.0	1020
890-418-8 MSD	TP11-2	Soluble	Solid	300.0	1020

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP12-S

Date Collected: 03/23/21 11:25

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 07:59	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 12:27	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 17:47	CH	XM

Client Sample ID: TP12-2

Date Collected: 03/23/21 11:30

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 08:24	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 13:31	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 17:52	CH	XM

Client Sample ID: TP12-4

Date Collected: 03/23/21 11:40

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 08:49	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 13:53	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 17:57	CH	XM

Client Sample ID: TP33-S

Date Collected: 03/23/21 11:45

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 09:14	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 14:15	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 18:02	CH	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP33-2

Date Collected: 03/23/21 11:50

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 09:39	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 14:36	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 18:07	CH	XM

Client Sample ID: TP33-4

Date Collected: 03/23/21 11:55

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 10:04	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 14:57	AJ	XM
Soluble	Leach	DI Leach			1019	03/29/21 14:40	CH	XM
Soluble	Analysis	300.0		1	1121	03/31/21 18:12	CH	XM

Client Sample ID: TP11-S

Date Collected: 03/23/21 12:45

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 10:29	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 15:19	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 14:42	CH	XM

Client Sample ID: TP11-2

Date Collected: 03/23/21 12:50

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 10:54	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 15:40	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 14:47	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP11-4

Lab Sample ID: 890-418-9

Date Collected: 03/23/21 13:00

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 11:19	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 16:01	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:02	CH	XM

Client Sample ID: TP8-S

Lab Sample ID: 890-418-10

Date Collected: 03/23/21 13:10

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 11:44	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 16:22	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:07	CH	XM

Client Sample ID: TP8-2

Lab Sample ID: 890-418-11

Date Collected: 03/23/21 13:20

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 13:25	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 17:04	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:22	CH	XM

Client Sample ID: TP7-S

Lab Sample ID: 890-418-12

Date Collected: 03/23/21 13:30

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 13:51	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 17:25	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:27	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP7-2

Lab Sample ID: 890-418-13

Date Collected: 03/23/21 13:40

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 14:16	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 17:46	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:32	CH	XM

Client Sample ID: TP7-4

Lab Sample ID: 890-418-14

Date Collected: 03/23/21 13:45

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 14:41	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 18:07	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:37	CH	XM

Client Sample ID: TP30-S

Lab Sample ID: 890-418-15

Date Collected: 03/23/21 13:50

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 15:06	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 18:28	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:42	CH	XM

Client Sample ID: TP30-2

Lab Sample ID: 890-418-16

Date Collected: 03/23/21 13:55

Matrix: Solid

Date Received: 03/23/21 15:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 15:31	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 18:49	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:47	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Client Sample ID: TP30-4

Date Collected: 03/23/21 14:00

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-17

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 15:56	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 19:10	AJ	XM
Soluble	Leach	DI Leach			1020	03/29/21 14:43	CH	XM
Soluble	Analysis	300.0		1	1143	04/03/21 15:52	CH	XM

Client Sample ID: TP28-S

Date Collected: 03/23/21 14:10

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 16:21	MR	XM
Total/NA	Prep	8015NM Prep			912	03/26/21 14:35	DM	XM
Total/NA	Analysis	8015B NM		1	937	03/27/21 19:31	AJ	XM
Soluble	Leach	DI Leach			1016	03/29/21 14:32	CH	XM
Soluble	Analysis	300.0		1	1128	03/31/21 20:11	WP	XM

Client Sample ID: TP28-2

Date Collected: 03/23/21 14:20

Date Received: 03/23/21 15:36

Lab Sample ID: 890-418-19

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1070	03/30/21 13:10	MR	XM
Total/NA	Analysis	8021B		1	1096	04/01/21 16:46	MR	XM
Total/NA	Prep	8015NM Prep			1242	04/02/21 11:50	DM	XM
Total/NA	Analysis	8015B NM		1	1237	04/03/21 06:44	AJ	XM
Soluble	Leach	DI Leach			1016	03/29/21 14:32	CH	XM
Soluble	Analysis	300.0		1	1128	03/31/21 20:16	WP	XM

Laboratory References:

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

Eurofins Xenco, Carlsbad

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21
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
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
5035	Closed System Purge and Trap	SW846	XM
8015NM Prep	Microextraction	SW846	XM
DI Leach	Deionized Water Leaching Procedure	ASTM	XM

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.

Laboratory References:

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

Eurofins Xenco, Carlsbad

Sample Summary

Client: GHD Services Inc.
Project/Site: LivingstonRidge SWD System

Job ID: 890-418-1
SDG: 11224133

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
890-418-1	TP12-S	Solid	03/23/21 11:25	03/23/21 15:36	
890-418-2	TP12-2	Solid	03/23/21 11:30	03/23/21 15:36	
890-418-3	TP12-4	Solid	03/23/21 11:40	03/23/21 15:36	
890-418-4	TP33-S	Solid	03/23/21 11:45	03/23/21 15:36	
890-418-5	TP33-2	Solid	03/23/21 11:50	03/23/21 15:36	
890-418-6	TP33-4	Solid	03/23/21 11:55	03/23/21 15:36	
890-418-7	TP11-S	Solid	03/23/21 12:45	03/23/21 15:36	
890-418-8	TP11-2	Solid	03/23/21 12:50	03/23/21 15:36	
890-418-9	TP11-4	Solid	03/23/21 13:00	03/23/21 15:36	
890-418-10	TP8-S	Solid	03/23/21 13:10	03/23/21 15:36	
890-418-11	TP8-2	Solid	03/23/21 13:20	03/23/21 15:36	
890-418-12	TP7-S	Solid	03/23/21 13:30	03/23/21 15:36	
890-418-13	TP7-2	Solid	03/23/21 13:40	03/23/21 15:36	
890-418-14	TP7-4	Solid	03/23/21 13:45	03/23/21 15:36	
890-418-15	TP30-S	Solid	03/23/21 13:50	03/23/21 15:36	
890-418-16	TP30-2	Solid	03/23/21 13:55	03/23/21 15:36	
890-418-17	TP30-4	Solid	03/23/21 14:00	03/23/21 15:36	
890-418-18	TP28-S	Solid	03/23/21 14:10	03/23/21 15:36	
890-418-19	TP28-2	Solid	03/23/21 14:20	03/23/21 15:36	

Eurofins Xenco, Carlsbad



CHAIN OF CUSTODY

Page 1 of 2

Setting the Standard since 1990
 Stafford, Texas (281-240-4200)
 Dallas, Texas (214-902-0300)
 Service Center - San Antonio, Texas (210-609-3334)

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Lakeland, Florida (863-546-8526)

Norcross, Georgia (770-449-8800)

Tampa, Florida (813-620-2000)

Xenco Quote #

Xenco Job #

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes							
Company Name / Branch: GHD/Midland				Project Name/Number: Livingston Ridge SWD System / 11224133															
Company Address: 2135 S. Loop 250 West Midland TX				Project Location: Eddy County, New Mexico															
Email: becky.haskell@ghd.com glenn.quinney@ghd.com				Invoice To: EOG / James Kennedy															
Phone No: (432)250-7917 Zach.comino@ghd.com tom.larson@ghd.com																			
Project Contact: Becky Haskell / Glenn Quinney				PO Number: NA															
Sampler's Name: Zach Comino																			
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH By 8015 Mod (GRO, DRO & MRO)	BTEX 8021 B	Chloride 600	Field Comments	
1	TP12-S		5/25/2021	11:25	S	1									X	X	X		
2	TP12-2			11:30											X				
3	TP12-4			11:40											X				
4	TP33-S			11:45											X				
5	TP33-2			11:50											X				
6	TP33-4			11:55											X				
7	TP11-S			12:15											X				
8	TP11-2			12:50											X				
9	TP11-4			13:00											X				
10	TP8-S			13:10											X				
Turnaround Time (Business days)																			
Data Deliverable Information																			
☐ Same Day TAT ☒ 5 Day TAT ☐ Level II Std QC ☐ Level IV (Full Data Pkg /raw data) ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG -411 ☐ 3 Day EMERGENCY ☐ TRRP Checklist																			
TAT Starts Day received by Lab, if received by 5:00 pm Report MDLs and J values.																			
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																			
Relinquished by Sampler:				Date Time:				Received By:				Date Time:				Received By:			
1. Zach Comino				5/25/2021 11:25				Joe Cutler				5/23/21 1534				2			
Relinquished by:				Date Time:				Received By:				Date Time:				Received By:			
3. Relinquished by:				Date Time:				Received By:				Date Time:				Received By:			
5. Relinquished by:				Date Time:				Received By:				Date Time:				Received By:			
5				5				4				4				4			
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.																			
				On Ice				Cooler Temp.				Thermo. Corr. Factor							
				5.8/5.4				7.7MM.007											



Setting the Standard since 1990
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Norcross, Georgia (770-449-8800)	Tampa, Florida (813-620-2000)

4/5/2021

CHAIN OF CUSTODY

[illegible]

Eurofins Xenco, Carlsbad

1089 N Canal St.

Carlsbad, NM 88220

Phone: 575-988-3199 Fax: 575-988-3199

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):		COC No:
Client Contact:	Phone:	Simmons, Debbie	State of Origin:		890-126 1	Page:
Shipping/Receiving	E-Mail:	debbie.simmons@eurofins.com	New Mexico		Page 1 of 3	
Company	Eurofins Xenco		Accreditations Required (See note)		Job #:	
Address:	1211 W Florida Ave.		NELAP - Louisiana, NELAP - Texas		890-418-1	
City:	Midland		Analysis Requested		Preservation Codes:	
State, Zip:	TX, 79701		Field Filtered Sample (Yes or No)		A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Ammonia H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other	
Phone:	432-704-5440(Tel)		Perform MS/MSD (Yes or No)		M - Hexane N - None O - AsHClO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Email:	WFO #:		8021B/6036LP_Cale BTEX			
Project Name:	Perdono BMO State #1		8016MOD_NM/8016NM_S_Prep Full TPH			
Site:	SSOW#:		300_ORGFMM_28D/DI_LEACH Chloride			
Sample Identification - Client ID (Lab ID)			Total Number of containers		Special Instructions/Note:	
TP12-S (890-418-1)	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=Water, S=solid, O=overhead, B=brine, A=air)		
TP12-2 (890-418-2)	3/23/21	11 25	Solid			
TP12-4 (890-418-3)	3/23/21	11 30	Solid			
TP33-S (890-418-4)	3/23/21	11 40	Solid			
TP33-2 (890-418-5)	3/23/21	11 45	Solid			
TP33-4 (890-418-6)	3/23/21	11 50	Solid			
TP11-S (890-418-7)	3/23/21	11 55	Solid			
TP11-2 (890-418-8)	3/23/21	12 45	Solid			
TP11-4 (890-418-9)	3/23/21	12 50	Solid			
	3/23/21	13 00	Solid			
Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon our subcontracted laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.						
Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed			Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months			
Deliverable Requested I, II, III, IV, Other (specify)			Special Instructions/QC Requirements:			
Primary Deliverable Rank. 2						
Empty Kit Relinquished by			Method of Shipment:			
Relinquished by: <i>Chloe Gifford</i> 3-24-21 1010			Received by: <i>Chloe Gifford</i> 3/24/21 1010			
Relinquished by:			Received by:			
Relinquished by:			Received by:			
Custody Seals Intact ☐ Yes ☐ No			Custody Seal No			
Cooler Temperature(s) °C and Other Remarks:						

RUSH

S-8194, ULINE, 800-295-5510

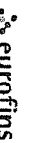
Ver 11/01/2020

Eurofins Xenco, Carlsbad

1089 N Canal St.
Carlsbad, NM 88220

Phone: 575-988-3199 Fax: 575-988-3199

Chain of Custody Record

Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):	COC No:
Client Contact:	Phone:	Simmons, Debbie			890-126.2
Shipping/Receiving	E-Mail:	debbie.simmmons@eurofins.com	State of Origin:		Page 2 of 3
Company:	Eurofins Xenco		Accreditations Required (See note):		Job #:
Address:	1211 W Florida Ave.		NELAP - Louisiana, NELAP - Texas		890-418-1
City:	Midland		Analysis Requested		
State, Zip:	TX, 79701				
Phone:	432-704-5440(Tel)				
Email:					
Project Name:	Perdomo BMO State #1				
Site:	SSOW#:				
Due Date Requested:		TAT Requested (days):			
3/29/2021					
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Type, Brand, Orientation, A=Air)
TP6-S (890-418-10)	3/23/21	13:10	Mountain		Solid
TP6-2 (890-418-11)	3/23/21	13:20	Mountain		Solid
TP7-S (890-418-12)	3/23/21	13:30	Mountain		Solid
TP7-2 (890-418-13)	3/23/21	13:40	Mountain		Solid
TP7-4 (890-418-14)	3/23/21	13:45	Mountain		Solid
TP30-S (890-418-15)	3/23/21	13:50	Mountain		Solid
TP30-2 (890-418-16)	3/23/21	13:55	Mountain		Solid
TP30-4 (890-418-17)	3/23/21	14:00	Mountain		Solid
TP28-S (890-418-18)	3/23/21	14:10	Mountain		Solid
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)			
		8021B/6035LP_Cale BTEX			
		8015MOD_NM/8015NM_S_Prep Full TPH			
		300_ORGFM_28D/DI_LEACH Chloride			
Total Number of containers		1			
Special Instructions/Note:					
Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.					
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed		☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months			
Deliverable Requested I, II, III, IV, Other (Specify)		Primary Deliverable Rank: 2		Special Instructions/QC Requirements:	
Empty Kit Relinquished by		Date	Time	Method of Shipment:	
Relinquished by: <i>Joe C. [Signature]</i>		Date/Time: 3-24-21 10:15		Received by: <i>[Signature]</i>	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:	

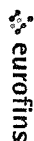
Eurofins Xenco, Carlsbad

1089 N Canal St

Carlsbad, NM 88220

Phone: 575-988-3199 Fax: 575-988-3199

Chain of Custody Record



Environment Testing
America

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-418-1

SDG Number: 11224133

Login Number: 418**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	
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	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-418-1

SDG Number: 11224133

Login Number: 418**List Number: 2****Creator: Copeland, Tatiana****List Source: Eurofins Midland****List Creation: 03/24/21 02:34 PM**

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

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-418-1

SDG Number: 11224133

Login Number: 418**List Number: 3****Creator: Teel, Brianna****List Source: Eurofins Midland****List Creation: 03/31/21 01:47 PM**

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



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-424-1

Laboratory Sample Delivery Group: 11224133

Client Project/Site: Livingston Ridge SWD System

For:

GHD Services Inc.
2135 South Loop 250 West
Midland, Texas 79703

Attn: Becky Haskell

A handwritten signature in cursive script, reading "Debbie Simmons".

Authorized for release by:
4/8/2021 5:53:20 PM

Debbie Simmons, Project Manager
(281)240-4200
debbie.simmons@eurofinset.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: Livingston Ridge SWD System

Laboratory Job ID: 890-424-1
SDG: 11224133

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Client Sample Results	5
Surrogate Summary	24
QC Sample Results	26
QC Association Summary	35
Lab Chronicle	41
Certification Summary	48
Method Summary	49
Sample Summary	50
Chain of Custody	51
Receipt Checklists	55

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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 Xenco, Carlsbad

Case Narrative

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Job ID: 890-424-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-424-1

Receipt

The samples were received on 3/25/2021 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice.

Receipt Exceptions

The following samples analyzed for method BTEX8021 were received and analyzed from an unpreserved bulk soil jar: TP14-S (890-424-1), TP14-2 (890-424-2), TP14-4 (890-424-3), TP5-S (890-424-4), TP5-2 (890-424-5), TP5-4 (890-424-6), TP5-6 (890-424-7), TP6-S (890-424-8), TP6-2 (890-424-9), TP6-4 (890-424-10), TP6-6 (890-424-11), TP6-8 (890-424-12), TP6-10 (890-424-13), TP6-12 (890-424-14), TP4-S (890-424-15), TP4-2 (890-424-16), TP4-4 (890-424-17), TP10-S (890-424-18), TP10-2 (890-424-19), TP10-4 (890-424-20), TP9-S (890-424-21), TP9-2 (890-424-22), TP9-4 (890-424-23), TP25-S (890-424-24), TP25-2 (890-424-25), TP25-4 (890-424-26), HA1-S (890-424-27), and HA1-2 (890-424-28)

The following samples were listed on the Chain of Custody (COC); however, no samples were received: HA1-4 (890-424-29), TP26-S (890-424-30) and TP26-2 (890-424-31). Samples were received in Carlsbad however were not located in the Midland laboratory for analysis. Becky Haskell was notified and allowed samples to be placed on cancel as they are doing additional sampling on this job.

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP14-S

Lab Sample ID: 890-424-1

Date Collected: 03/24/21 08:10

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
Ethylbenzene	0.00104	J	0.00201	0.000567	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
Total BTEX	0.00104	J	0.00201	0.00100	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 13:59	04/03/21 21:26	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		04/02/21 13:59	04/03/21 21:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	04/02/21 13:59	04/03/21 21:26	1
1,4-Difluorobenzene (Surr)	107		70 - 130	04/02/21 13:59	04/03/21 21:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	20.0	J B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 12:38	1
Total TPH	20.0	J B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 12:38	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 12:38	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 12:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130	04/02/21 15:25	04/03/21 12:38	1
o-Terphenyl	83		70 - 130	04/02/21 15:25	04/03/21 12:38	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.1		4.98	0.855	mg/Kg			04/07/21 17:15	1

Client Sample ID: TP14-2

Lab Sample ID: 890-424-2

Date Collected: 03/24/21 08:20

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
Ethylbenzene	0.000576	J	0.00199	0.000563	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		04/02/21 13:59	04/03/21 21:51	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		04/02/21 13:59	04/03/21 21:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	04/02/21 13:59	04/03/21 21:51	1
1,4-Difluorobenzene (Surr)	103		70 - 130	04/02/21 13:59	04/03/21 21:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	31.7	J B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 13:41	1
Total TPH	31.7	J B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 13:41	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP14-2

Lab Sample ID: 890-424-2

Date Collected: 03/24/21 08:20

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 13:41	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 13:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130				04/02/21 15:25	04/03/21 13:41	1
o-Terphenyl	91		70 - 130				04/02/21 15:25	04/03/21 13:41	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.9		4.95	0.850	mg/Kg			04/07/21 17:20	1

Client Sample ID: TP14-4

Lab Sample ID: 890-424-3

Date Collected: 03/24/21 08:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		04/02/21 13:59	04/03/21 23:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130				04/02/21 13:59	04/03/21 23:32	1
1,4-Difluorobenzene (Surr)	87		70 - 130				04/02/21 13:59	04/03/21 23:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	55.4	B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:02	1
Total TPH	55.4	B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:02	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:02	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				04/02/21 15:25	04/03/21 14:02	1
o-Terphenyl	106		70 - 130				04/02/21 15:25	04/03/21 14:02	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.9		5.05	0.867	mg/Kg			04/07/21 17:35	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP5-S

Lab Sample ID: 890-424-4

Date Collected: 03/24/21 08:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000382	U	0.00198	0.000382	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
Ethylbenzene	0.000725	J	0.00198	0.000561	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
Toluene	<0.000452	U	0.00198	0.000452	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
Total BTEX	<0.000992	U	0.00198	0.000992	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
Xylenes, Total	<0.000992	U	0.00397	0.000992	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
m-Xylene & p-Xylene	<0.00100	U	0.00397	0.00100	mg/Kg		04/02/21 13:59	04/03/21 23:57	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 13:59	04/03/21 23:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	04/02/21 13:59	04/03/21 23:57	1
1,4-Difluorobenzene (Surr)	95		70 - 130	04/02/21 13:59	04/03/21 23:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	50.5	B	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:23	1
Total TPH	50.5	B	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:23	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:23	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130	04/02/21 15:25	04/03/21 14:23	1
o-Terphenyl	98		70 - 130	04/02/21 15:25	04/03/21 14:23	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3720		24.9	4.27	mg/Kg			04/07/21 17:40	5

Client Sample ID: TP5-2

Lab Sample ID: 890-424-5

Date Collected: 03/24/21 08:50

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 13:59	04/04/21 00:22	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 13:59	04/04/21 00:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	04/02/21 13:59	04/04/21 00:22	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/02/21 13:59	04/04/21 00:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	53.2	B	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:44	1
Total TPH	53.2	B	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:44	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP5-2

Lab Sample ID: 890-424-5

Date Collected: 03/24/21 08:50

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:44	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130				04/02/21 15:25	04/03/21 14:44	1
o-Terphenyl	87		70 - 130				04/02/21 15:25	04/03/21 14:44	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	820		4.97	0.853	mg/Kg			04/07/21 17:45	1

Client Sample ID: TP5-4

Lab Sample ID: 890-424-6

Date Collected: 03/24/21 09:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		04/02/21 13:59	04/04/21 00:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130				04/02/21 13:59	04/04/21 00:47	1
1,4-Difluorobenzene (Surr)	103		70 - 130				04/02/21 13:59	04/04/21 00:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	67.9	B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 15:05	1
Total TPH	67.9	B	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 15:05	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 15:05	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:25	04/03/21 15:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130				04/02/21 15:25	04/03/21 15:05	1
o-Terphenyl	82		70 - 130				04/02/21 15:25	04/03/21 15:05	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	488		4.95	0.850	mg/Kg			04/07/21 17:50	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP5-6

Lab Sample ID: 890-424-7

Date Collected: 03/24/21 09:10

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
Ethylbenzene	<0.000568	U	0.00201	0.000568	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
Toluene	<0.000459	U	0.00201	0.000459	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
Total BTEX	<0.00101	U	0.00201	0.00101	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
Xylenes, Total	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
m-Xylene & p-Xylene	<0.00102	U	0.00402	0.00102	mg/Kg		04/02/21 13:59	04/04/21 01:12	1
o-Xylene	<0.000346	U	0.00201	0.000346	mg/Kg		04/02/21 13:59	04/04/21 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	04/02/21 13:59	04/04/21 01:12	1
1,4-Difluorobenzene (Surr)	103		70 - 130	04/02/21 13:59	04/04/21 01:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	47.2	J B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 15:27	1
Total TPH	47.2	J B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 15:27	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 15:27	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	04/02/21 15:26	04/03/21 15:27	1
o-Terphenyl	94		70 - 130	04/02/21 15:26	04/03/21 15:27	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.9		5.00	0.858	mg/Kg			04/07/21 17:55	1

Client Sample ID: TP6-S

Lab Sample ID: 890-424-8

Date Collected: 03/24/21 09:20

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000386	U	0.00200	0.000386	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
Ethylbenzene	<0.000566	U	0.00200	0.000566	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
Toluene	<0.000457	U	0.00200	0.000457	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
Xylenes, Total	<0.00100	U	0.00401	0.00100	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
m-Xylene & p-Xylene	<0.00101	U	0.00401	0.00101	mg/Kg		04/02/21 13:59	04/04/21 01:37	1
o-Xylene	<0.000345	U	0.00200	0.000345	mg/Kg		04/02/21 13:59	04/04/21 01:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	04/02/21 13:59	04/04/21 01:37	1
1,4-Difluorobenzene (Surr)	106		70 - 130	04/02/21 13:59	04/04/21 01:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	45.5	J B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 15:48	1
Total TPH	45.5	J B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 15:48	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-S

Lab Sample ID: 890-424-8

Date Collected: 03/24/21 09:20

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 15:48	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 15:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130				04/02/21 15:26	04/03/21 15:48	1
o-Terphenyl	77		70 - 130				04/02/21 15:26	04/03/21 15:48	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	106		4.96	0.851	mg/Kg			04/07/21 18:00	1

Client Sample ID: TP6-2

Lab Sample ID: 890-424-9

Date Collected: 03/24/21 09:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
Ethylbenzene	0.000764	J	0.00200	0.000564	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		04/02/21 13:59	04/04/21 01:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130				04/02/21 13:59	04/04/21 01:01	1
1,4-Difluorobenzene (Surr)	101		70 - 130				04/02/21 13:59	04/04/21 01:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	21.0	J B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:09	1
Total TPH	21.0	J B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:09	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:09	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130				04/02/21 15:26	04/03/21 16:09	1
o-Terphenyl	96		70 - 130				04/02/21 15:26	04/03/21 16:09	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	396		5.04	0.865	mg/Kg			04/07/21 18:14	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-4

Lab Sample ID: 890-424-10

Date Collected: 03/24/21 09:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 13:59	04/04/21 03:26	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		04/02/21 13:59	04/04/21 03:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	04/02/21 13:59	04/04/21 03:26	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/02/21 13:59	04/04/21 03:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	55.0	B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:30	1
Total TPH	55.0	B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:30	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:30	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130	04/02/21 15:26	04/03/21 16:30	1
o-Terphenyl	95		70 - 130	04/02/21 15:26	04/03/21 16:30	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3390		25.2	4.32	mg/Kg			04/07/21 18:19	5

Client Sample ID: TP6-6

Lab Sample ID: 890-424-11

Date Collected: 03/24/21 09:50

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 13:59	04/04/21 03:51	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		04/02/21 13:59	04/04/21 03:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/02/21 13:59	04/04/21 03:51	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/02/21 13:59	04/04/21 03:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	45.2	J B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 17:29	1
Total TPH	64.6	B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 17:29	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-6

Lab Sample ID: 890-424-11

Date Collected: 03/24/21 09:50

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	19.4	J	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 17:29	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 17:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130				04/02/21 15:26	04/03/21 17:29	1
o-Terphenyl	99		70 - 130				04/02/21 15:26	04/03/21 17:29	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4040		25.3	4.33	mg/Kg			04/07/21 18:34	5

Client Sample ID: TP6-8

Lab Sample ID: 890-424-12

Date Collected: 03/24/21 10:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000381	U	0.00198	0.000381	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
Ethylbenzene	<0.000559	U	0.00198	0.000559	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
Toluene	<0.000451	U	0.00198	0.000451	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
Total BTEX	<0.000990	U	0.00198	0.000990	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
Xylenes, Total	<0.000990	U	0.00396	0.000990	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
m-Xylene & p-Xylene	<0.00100	U	0.00396	0.00100	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 13:59	04/04/21 04:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130				04/02/21 13:59	04/04/21 04:16	1
1,4-Difluorobenzene (Surr)	101		70 - 130				04/02/21 13:59	04/04/21 04:16	1

Method: 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	J B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 17:50	1
Total TPH	49.8	J B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 17:50	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 17:50	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 17:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130				04/02/21 15:26	04/03/21 17:50	1
o-Terphenyl	99		70 - 130				04/02/21 15:26	04/03/21 17:50	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4500		25.3	4.33	mg/Kg			04/07/21 18:39	5

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-10

Date Collected: 03/24/21 10:10

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-13

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U F1	0.00199	0.000383	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		04/02/21 14:22	04/04/21 03:43	1
o-Xylene	0.000370	J F1	0.00199	0.000342	mg/Kg		04/02/21 14:22	04/04/21 03:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130	04/02/21 14:22	04/04/21 03:43	1
1,4-Difluorobenzene (Surr)	103		70 - 130	04/02/21 14:22	04/04/21 03:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	44.1	J B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 18:11	1
Total TPH	76.9	B	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 18:11	1
Diesel Range Organics (Over C10-C28)	32.8	J	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 18:11	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/02/21 15:26	04/03/21 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	101		70 - 130	04/02/21 15:26	04/03/21 18:11	1
o-Terphenyl	97		70 - 130	04/02/21 15:26	04/03/21 18:11	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5740		50.0	8.58	mg/Kg			04/07/21 18:44	10

Client Sample ID: TP6-12

Date Collected: 03/24/21 10:20

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-14

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
Ethylbenzene	<0.000568	U	0.00201	0.000568	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
Toluene	<0.000459	U	0.00201	0.000459	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
Total BTEX	<0.00101	U	0.00201	0.00101	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
Xylenes, Total	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
m-Xylene & p-Xylene	<0.00102	U	0.00402	0.00102	mg/Kg		04/02/21 14:22	04/04/21 04:03	1
o-Xylene	<0.000346	U	0.00201	0.000346	mg/Kg		04/02/21 14:22	04/04/21 04:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	04/02/21 14:22	04/04/21 04:03	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/02/21 14:22	04/04/21 04:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	47.5	J B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:32	1
Total TPH	68.0	B	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:32	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-12

Date Collected: 03/24/21 10:20

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-14

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	20.5	J	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:32	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130				04/02/21 15:26	04/03/21 18:32	1
o-Terphenyl	82		70 - 130				04/02/21 15:26	04/03/21 18:32	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5170		49.8	8.55	mg/Kg			04/07/21 18:49	10

Client Sample ID: TP4-S

Date Collected: 03/24/21 10:50

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-15

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
o-Xylene	0.000604	J	0.00200	0.000343	mg/Kg		04/02/21 14:22	04/04/21 04:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130				04/02/21 14:22	04/04/21 04:24	1
1,4-Difluorobenzene (Surr)	102		70 - 130				04/02/21 14:22	04/04/21 04:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	37.1	J B	49.7	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:53	1
Total TPH	56.1	B	49.7	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:53	1
Diesel Range Organics (Over C10-C28)	19.0	J	49.7	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:53	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.7	14.9	mg/Kg		04/02/21 15:26	04/03/21 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	70		70 - 130				04/02/21 15:26	04/03/21 18:53	1
o-Terphenyl	63	S1-	70 - 130				04/02/21 15:26	04/03/21 18:53	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55.3		4.97	0.853	mg/Kg			04/07/21 18:54	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP4-2

Lab Sample ID: 890-424-16

Date Collected: 03/24/21 11:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 14:22	04/04/21 04:44	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 14:22	04/04/21 04:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	04/02/21 14:22	04/04/21 04:44	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/02/21 14:22	04/04/21 04:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	16.6	J B	50.2	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:14	1
Total TPH	16.6	J B	50.2	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:14	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.2	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:14	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.2	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	69	S1-	70 - 130	04/02/21 15:26	04/03/21 19:14	1
o-Terphenyl	60	S1-	70 - 130	04/02/21 15:26	04/03/21 19:14	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.1		4.95	0.850	mg/Kg			04/07/21 18:59	1

Client Sample ID: TP4-4

Lab Sample ID: 890-424-17

Date Collected: 03/24/21 11:10

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000381	U	0.00198	0.000381	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
Ethylbenzene	<0.000559	U	0.00198	0.000559	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
Toluene	<0.000451	U	0.00198	0.000451	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
Total BTEX	<0.000990	U	0.00198	0.000990	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
Xylenes, Total	<0.000990	U	0.00396	0.000990	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
m-Xylene & p-Xylene	<0.00100	U	0.00396	0.00100	mg/Kg		04/02/21 14:22	04/04/21 05:05	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 14:22	04/04/21 05:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	04/02/21 14:22	04/04/21 05:05	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/02/21 14:22	04/04/21 05:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:36	1
Total TPH	17.4	J B	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:36	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP4-4

Lab Sample ID: 890-424-17

Date Collected: 03/24/21 11:10

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	17.4	J	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:36	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	79		70 - 130				04/02/21 15:26	04/03/21 19:36	1
o-Terphenyl	71		70 - 130				04/02/21 15:26	04/03/21 19:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	111		5.00	0.858	mg/Kg			04/07/21 19:04	1

Client Sample ID: TP10-S

Lab Sample ID: 890-424-18

Date Collected: 03/24/21 14:20

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
o-Xylene	<0.000345	U	0.00201	0.000345	mg/Kg		04/02/21 14:22	04/04/21 05:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130				04/02/21 14:22	04/04/21 05:25	1
1,4-Difluorobenzene (Surr)	102		70 - 130				04/02/21 14:22	04/04/21 05:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	55.3	B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:57	1
Total TPH	55.3	B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:57	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:57	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	66	S1-	70 - 130				04/02/21 15:26	04/03/21 19:57	1
o-Terphenyl	59	S1-	70 - 130				04/02/21 15:26	04/03/21 19:57	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.2		5.00	0.858	mg/Kg			04/07/21 18:16	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP10-2

Lab Sample ID: 890-424-19

Date Collected: 03/24/21 14:25

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
Ethylbenzene	<0.000570	U	0.00202	0.000570	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		04/02/21 14:22	04/04/21 05:45	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 05:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	04/02/21 14:22	04/04/21 05:45	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/02/21 14:22	04/04/21 05:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	27.0	J B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:18	1
Total TPH	27.0	J B	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:18	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:18	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	63	S1-	70 - 130	04/02/21 15:26	04/03/21 20:18	1
o-Terphenyl	55	S1-	70 - 130	04/02/21 15:26	04/03/21 20:18	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.3		5.04	0.865	mg/Kg			04/07/21 18:33	1

Client Sample ID: TP10-4

Lab Sample ID: 890-424-20

Date Collected: 03/24/21 14:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		04/02/21 14:22	04/04/21 06:06	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		04/02/21 14:22	04/04/21 06:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	04/02/21 14:22	04/04/21 06:06	1
1,4-Difluorobenzene (Surr)	100		70 - 130	04/02/21 14:22	04/04/21 06:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	34.7	J B	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:39	1
Total TPH	34.7	J B	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:39	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP10-4

Lab Sample ID: 890-424-20

Date Collected: 03/24/21 14:30

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:39	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/02/21 15:26	04/03/21 20:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	71		70 - 130				04/02/21 15:26	04/03/21 20:39	1
o-Terphenyl	65	S1-	70 - 130				04/02/21 15:26	04/03/21 20:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.9		5.02	0.862	mg/Kg			04/07/21 18:39	1

Client Sample ID: TP9-S

Lab Sample ID: 890-424-21

Date Collected: 03/24/21 14:35

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 06:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130				04/02/21 14:22	04/04/21 06:26	1
1,4-Difluorobenzene (Surr)	99		70 - 130				04/02/21 14:22	04/04/21 06:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:28	04/04/21 04:21	1
Total TPH	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:28	04/04/21 04:21	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:28	04/04/21 04:21	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:28	04/04/21 04:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130				04/03/21 10:28	04/04/21 04:21	1
o-Terphenyl	89		70 - 130				04/03/21 10:28	04/04/21 04:21	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54.2		4.98	0.855	mg/Kg			04/07/21 18:44	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP9-2

Lab Sample ID: 890-424-22

Date Collected: 03/24/21 14:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		04/02/21 14:22	04/04/21 06:47	1
o-Xylene	0.000509	J	0.00200	0.000343	mg/Kg		04/02/21 14:22	04/04/21 06:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	04/02/21 14:22	04/04/21 06:47	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/02/21 14:22	04/04/21 06:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:28	04/04/21 04:42	1
Total TPH	15.0	J B	50.2	15.0	mg/Kg		04/03/21 10:28	04/04/21 04:42	1
Diesel Range Organics (Over C10-C28)	15.0	J	50.2	15.0	mg/Kg		04/03/21 10:28	04/04/21 04:42	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:28	04/04/21 04:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	116		70 - 130	04/03/21 10:28	04/04/21 04:42	1
o-Terphenyl	103		70 - 130	04/03/21 10:28	04/04/21 04:42	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.3		4.96	0.851	mg/Kg			04/07/21 18:50	1

Client Sample ID: TP9-4

Lab Sample ID: 890-424-23

Date Collected: 03/24/21 14:45

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		04/02/21 14:22	04/04/21 08:09	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		04/02/21 14:22	04/04/21 08:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	04/02/21 14:22	04/04/21 08:09	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/02/21 14:22	04/04/21 08:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:03	1
Total TPH	15.7	J B	50.1	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:03	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP9-4

Lab Sample ID: 890-424-23

Date Collected: 03/24/21 14:45

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	15.7	J	50.1	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:03	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130				04/03/21 10:28	04/04/21 05:03	1
o-Terphenyl	99		70 - 130				04/03/21 10:28	04/04/21 05:03	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.63	J	4.95	0.850	mg/Kg			04/07/21 19:07	1

Client Sample ID: TP25-S

Lab Sample ID: 890-424-24

Date Collected: 03/24/21 14:50

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
Total BTEX	<0.00100	U	0.00201	0.00100	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
Xylenes, Total	<0.00100	U	0.00402	0.00100	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
o-Xylene	0.000473	J	0.00201	0.000345	mg/Kg		04/02/21 14:22	04/04/21 08:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130				04/02/21 14:22	04/04/21 08:29	1
1,4-Difluorobenzene (Surr)	102		70 - 130				04/02/21 14:22	04/04/21 08:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:24	1
Total TPH	16.1	J B	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:24	1
Diesel Range Organics (Over C10-C28)	16.1	J	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:24	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130				04/03/21 10:28	04/04/21 05:24	1
o-Terphenyl	90		70 - 130				04/03/21 10:28	04/04/21 05:24	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.88		5.01	0.860	mg/Kg			04/07/21 19:12	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP25-2

Lab Sample ID: 890-424-25

Date Collected: 03/24/21 14:55

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 14:22	04/04/21 08:50	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 08:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	04/02/21 14:22	04/04/21 08:50	1
1,4-Difluorobenzene (Surr)	103		70 - 130	04/02/21 14:22	04/04/21 08:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:45	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:45	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:45	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/04/21 05:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	115		70 - 130	04/03/21 10:28	04/04/21 05:45	1
o-Terphenyl	100		70 - 130	04/03/21 10:28	04/04/21 05:45	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.37		5.02	0.862	mg/Kg			04/07/21 19:18	1

Client Sample ID: TP25-4

Lab Sample ID: 890-424-26

Date Collected: 03/24/21 15:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 14:22	04/04/21 09:10	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 09:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/02/21 14:22	04/04/21 09:10	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/02/21 14:22	04/04/21 09:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U **	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:36	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:36	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP25-4

Lab Sample ID: 890-424-26

Date Collected: 03/24/21 15:00

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:36	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130				04/03/21 09:58	04/04/21 21:36	1
o-Terphenyl	113		70 - 130				04/03/21 09:58	04/04/21 21:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.1		4.97	0.853	mg/Kg			04/07/21 19:23	1

Client Sample ID: HA1-S

Lab Sample ID: 890-424-27

Date Collected: 03/24/21 15:05

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
o-Xylene	0.000589	J	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 09:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130				04/02/21 14:22	04/04/21 09:31	1
1,4-Difluorobenzene (Surr)	97		70 - 130				04/02/21 14:22	04/04/21 09:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U **	50.1	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:58	1
Total TPH	<15.0	U	50.1	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:58	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:58	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/03/21 09:58	04/04/21 21:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130				04/03/21 09:58	04/04/21 21:58	1
o-Terphenyl	90		70 - 130				04/03/21 09:58	04/04/21 21:58	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.9		4.98	0.855	mg/Kg			04/07/21 19:29	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: HA1-2

Lab Sample ID: 890-424-28

Date Collected: 03/24/21 15:10

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
Ethylbenzene	<0.000570	U	0.00202	0.000570	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		04/02/21 14:22	04/04/21 09:51	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 14:22	04/04/21 09:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	04/02/21 14:22	04/04/21 09:51	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/02/21 14:22	04/04/21 09:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U *+	50.1	15.0	mg/Kg		04/05/21 09:24	04/05/21 22:52	1
Total TPH	<15.0	U	50.1	15.0	mg/Kg		04/05/21 09:24	04/05/21 22:52	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/05/21 09:24	04/05/21 22:52	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/05/21 09:24	04/05/21 22:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	122		70 - 130	04/05/21 09:24	04/05/21 22:52	1
o-Terphenyl	116		70 - 130	04/05/21 09:24	04/05/21 22:52	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.22	J	4.96	0.851	mg/Kg			04/07/21 19:34	1

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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)
890-424-1	TP14-S	120	107
890-424-2	TP14-2	121	103
890-424-3	TP14-4	110	87
890-424-4	TP5-S	100	95
890-424-5	TP5-2	114	104
890-424-6	TP5-4	110	103
890-424-7	TP5-6	115	103
890-424-8	TP6-S	120	106
890-424-9	TP6-2	109	101
890-424-10	TP6-4	115	104
890-424-11	TP6-6	110	104
890-424-12	TP6-8	109	101
890-424-13	TP6-10	117	103
890-424-13 MS	TP6-10	124	112
890-424-13 MSD	TP6-10	132 S1+	110
890-424-14	TP6-12	106	101
890-424-15	TP4-S	114	102
890-424-16	TP4-2	115	99
890-424-17	TP4-4	109	102
890-424-18	TP10-S	114	102
890-424-19	TP10-2	114	102
890-424-20	TP10-4	112	100
890-424-21	TP9-S	118	99
890-424-22	TP9-2	107	101
890-424-23	TP9-4	109	104
890-424-24	TP25-S	114	102
890-424-25	TP25-2	112	103
890-424-26	TP25-4	110	102
890-424-27	HA1-S	114	97
890-424-28	HA1-2	112	101
LCS 880-1251/1-A	Lab Control Sample	88	99
LCS 880-1254/1-A	Lab Control Sample	103	102
LCSD 880-1251/2-A	Lab Control Sample Dup	100	98
LCSD 880-1254/2-A	Lab Control Sample Dup	98	102
MB 880-1114/5-A	Method Blank	72	84
MB 880-1142/5-A	Method Blank	103	100
MB 880-1251/5-A	Method Blank	71	83
MB 880-1254/5-A	Method Blank	105	96

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
890-424-1	TP14-S	94	83

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-424-1 MS	TP14-S	97	81
890-424-1 MSD	TP14-S	99	82
890-424-2	TP14-2	96	91
890-424-3	TP14-4	113	106
890-424-4	TP5-S	109	98
890-424-5	TP5-2	94	87
890-424-6	TP5-4	87	82
890-424-7	TP5-6	99	94
890-424-8	TP6-S	90	77
890-424-9	TP6-2	101	96
890-424-10	TP6-4	97	95
890-424-11	TP6-6	105	99
890-424-12	TP6-8	103	99
890-424-13	TP6-10	101	97
890-424-14	TP6-12	89	82
890-424-15	TP4-S	70	63 S1-
890-424-16	TP4-2	69 S1-	60 S1-
890-424-17	TP4-4	79	71
890-424-18	TP10-S	66 S1-	59 S1-
890-424-19	TP10-2	63 S1-	55 S1-
890-424-20	TP10-4	71	65 S1-
890-424-21	TP9-S	107	89
890-424-22	TP9-2	116	103
890-424-23	TP9-4	114	99
890-424-24	TP25-S	112	90
890-424-25	TP25-2	115	100
890-424-26	TP25-4	108	113
890-424-27	HA1-S	102	90
890-424-28	HA1-2	122	116
LCS 880-1261/2-A	Lab Control Sample	102	92
LCS 880-1266/2-A	Lab Control Sample	130	124
LCS 880-1271/2-A	Lab Control Sample	113	94
LCS 880-1303/2-A	Lab Control Sample	114	111
LCSD 880-1261/3-A	Lab Control Sample Dup	98	86
LCSD 880-1266/3-A	Lab Control Sample Dup	130	121
LCSD 880-1271/3-A	Lab Control Sample Dup	117	92
LCSD 880-1303/3-A	Lab Control Sample Dup	114	106
MB 880-1261/1-A	Method Blank	108	104
MB 880-1266/1-A	Method Blank	99	101
MB 880-1271/1-A	Method Blank	109	102
MB 880-1303/1-A	Method Blank	112	124

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-1114/5-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1114

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		03/31/21 14:23	04/03/21 04:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	03/31/21 14:23	04/03/21 04:02	1
1,4-Difluorobenzene (Surr)	84		70 - 130	03/31/21 14:23	04/03/21 04:02	1

Lab Sample ID: MB 880-1142/5-A

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/01/21 09:12	04/03/21 16:31	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/01/21 09:12	04/03/21 16:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	04/01/21 09:12	04/03/21 16:31	1
1,4-Difluorobenzene (Surr)	100		70 - 130	04/01/21 09:12	04/03/21 16:31	1

Lab Sample ID: MB 880-1251/5-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 13:59	04/03/21 17:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130	04/02/21 13:59	04/03/21 17:39	1
1,4-Difluorobenzene (Surr)	83		70 - 130	04/02/21 13:59	04/03/21 17:39	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: LCS 880-1251/1-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: LCSD 880-1251/2-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: MB 880-1254/5-A

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1254

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 14:22	04/04/21 03:22	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 14:22	04/04/21 03:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	04/02/21 14:22	04/04/21 03:22	1
1,4-Difluorobenzene (Surr)	96		70 - 130	04/02/21 14:22	04/04/21 03:22	1

Lab Sample ID: LCS 880-1254/1-A

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1254

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09392		mg/Kg		94	70 - 130
Ethylbenzene	0.100	0.09630		mg/Kg		96	70 - 130
Toluene	0.100	0.08901		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	0.200	0.1871		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09432		mg/Kg		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: LCSD 880-1254/2-A

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1254

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.09188		mg/Kg		92	70 - 130	2	35
Ethylbenzene	0.100	0.09078		mg/Kg		91	70 - 130	6	35
Toluene	0.100	0.08610		mg/Kg		86	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1806		mg/Kg		90	70 - 130	4	35
o-Xylene	0.100	0.09090		mg/Kg		91	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 890-424-13 MS

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: TP6-10

Prep Type: Total/NA

Prep Batch: 1254

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.000383	U F1	0.0996	0.1343	F1	mg/Kg		135	70 - 130		
Ethylbenzene	<0.000562	U	0.0996	0.1172		mg/Kg		118	70 - 130		
Toluene	<0.000453	U	0.0996	0.1181		mg/Kg		119	70 - 130		
m-Xylene & p-Xylene	<0.00100	U	0.199	0.2340		mg/Kg		117	70 - 130		
o-Xylene	0.000370	J F1	0.0996	0.1289		mg/Kg		129	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	124		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

Lab Sample ID: 890-424-13 MSD

Matrix: Solid

Analysis Batch: 1282

Client Sample ID: TP6-10

Prep Type: Total/NA

Prep Batch: 1254

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.000383	U F1	0.101	0.1361	F1	mg/Kg		135	70 - 130	1	35
Ethylbenzene	<0.000562	U	0.101	0.1213		mg/Kg		120	70 - 130	3	35
Toluene	<0.000453	U	0.101	0.1207		mg/Kg		120	70 - 130	2	35
m-Xylene & p-Xylene	<0.00100	U	0.202	0.2425		mg/Kg		120	70 - 130	4	35
o-Xylene	0.000370	J F1	0.101	0.1342	F1	mg/Kg		133	70 - 130	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	132	S1+	70 - 130
1,4-Difluorobenzene (Surr)	110		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: MB 880-1261/1-A

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	19.11	J	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 11:35	1
Total TPH	19.11	J	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 11:35	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 11:35	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/02/21 15:25	04/03/21 11:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130	04/02/21 15:25	04/03/21 11:35	1
o-Terphenyl	104		70 - 130	04/02/21 15:25	04/03/21 11:35	1

Lab Sample ID: LCS 880-1261/2-A

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1261

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1052		mg/Kg		105	70 - 130
Diesel Range Organics (Over C10-C28)	1000	882.8		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: LCSD 880-1261/3-A

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1261

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	995.7		mg/Kg		100	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	1000	827.6		mg/Kg		83	70 - 130	6	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	98		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-424-1 MS

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: TP14-S

Prep Type: Total/NA

Prep Batch: 1261

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	20.0	J B	1000	984.4		mg/Kg		96	70 - 130
Diesel Range Organics (Over C10-C28)	<15.0	U	1000	863.8		mg/Kg		86	70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: 890-424-1 MS

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: TP14-S

Prep Type: Total/NA

Prep Batch: 1261

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	97		70 - 130
o-Terphenyl	81		70 - 130

Lab Sample ID: 890-424-1 MSD

Matrix: Solid

Analysis Batch: 1269

Client Sample ID: TP14-S

Prep Type: Total/NA

Prep Batch: 1261

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	20.0	J B	998	989.7		mg/Kg		97	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<15.0	U	998	879.9		mg/Kg		88	70 - 130	2	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	82		70 - 130

Lab Sample ID: MB 880-1266/1-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1266

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		04/03/21 09:58	04/04/21 13:01	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 13:01	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 13:01	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 09:58	04/04/21 13:01	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1-Chlorooctane	99		70 - 130	04/03/21 09:58	04/04/21 13:01	1			
o-Terphenyl	101		70 - 130	04/03/21 09:58	04/04/21 13:01	1			

Lab Sample ID: LCS 880-1266/2-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1266

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1335	*+	mg/Kg		133	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1066		mg/Kg		107	70 - 130

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	130		70 - 130
o-Terphenyl	124		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: LCSD 880-1266/3-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1266

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1333	*+	mg/Kg		133	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	1000	1058		mg/Kg		106	70 - 130	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	130		70 - 130						
o-Terphenyl	121		70 - 130						

Lab Sample ID: MB 880-1271/1-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1271

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		04/03/21 10:28	04/03/21 21:22	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/03/21 21:22	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/03/21 21:22	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:28	04/03/21 21:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1-Chlorooctane	109		70 - 130	04/03/21 10:28	04/03/21 21:22	1			
o-Terphenyl	102		70 - 130	04/03/21 10:28	04/03/21 21:22	1			

Lab Sample ID: LCS 880-1271/2-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1271

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec.		
			Added	Result	Qualifier			Limits			
Gasoline Range Organics (GRO)-C6-C10			1000	1202		mg/Kg		120	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1015		mg/Kg		101	70 - 130		

Lab Sample ID: LCSD 880-1271/3-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1271

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1234		mg/Kg		123	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	1014		mg/Kg		101	70 - 130	0	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

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

Lab Sample ID: LCSD 880-1271/3-A

Matrix: Solid

Analysis Batch: 1267

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1271

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	117		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: MB 880-1303/1-A

Matrix: Solid

Analysis Batch: 1310

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1303

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Result	Qualifier								
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/05/21 09:24	04/05/21 15:03	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/05/21 09:24	04/05/21 15:03	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/05/21 09:24	04/05/21 15:03	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/05/21 09:24	04/05/21 15:03	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier					
1-Chlorooctane	112		70 - 130	04/05/21 09:24	04/05/21 15:03	1
o-Terphenyl	124		70 - 130	04/05/21 09:24	04/05/21 15:03	1

Lab Sample ID: LCS 880-1303/2-A

Matrix: Solid

Analysis Batch: 1310

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1303

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1426	*+	mg/Kg		143	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1198		mg/Kg		120	70 - 130

Surrogate	LCS	LCS	Limits
%Recovery	Qualifier		
1-Chlorooctane	114		70 - 130
o-Terphenyl	111		70 - 130

Lab Sample ID: LCSD 880-1303/3-A

Matrix: Solid

Analysis Batch: 1310

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1303

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1308	*+	mg/Kg		131	70 - 130	9	20
Diesel Range Organics (Over C10-C28)	1000	1154		mg/Kg		115	70 - 130	4	20

Surrogate	LCSD	LCSD	Limits
%Recovery	Qualifier		
1-Chlorooctane	114		70 - 130
o-Terphenyl	106		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1470/1-A

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/07/21 16:11	1

Lab Sample ID: LCS 880-1470/2-A

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	255.4		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-1470/3-A

Matrix: Solid

Analysis Batch: 1472

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	256.1		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-424-8 MS

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: TP6-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	106		248	364.5		mg/Kg		104	90 - 110

Lab Sample ID: 890-424-8 MSD

Matrix: Solid

Analysis Batch: 1472

Client Sample ID: TP6-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	106		248	365.0		mg/Kg		104	90 - 110	0	20

Lab Sample ID: MB 880-1473/1-A

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/07/21 18:00	1

Lab Sample ID: LCS 880-1473/2-A

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	252.4		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-1473/3-A

Matrix: Solid

Analysis Batch: 1474

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	254.0		mg/Kg		102	90 - 110	1	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-424-18 MS

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: TP10-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	25.2		250	267.7		mg/Kg		97	90 - 110		

Lab Sample ID: 890-424-18 MSD

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: TP10-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.2		250	268.1		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 890-424-28 MS

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: HA1-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	4.22	J	248	247.4		mg/Kg		98	90 - 110		

Lab Sample ID: 890-424-28 MSD

Matrix: Solid

Analysis Batch: 1474

Client Sample ID: HA1-2

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.22	J	248	247.4		mg/Kg		98	90 - 110	0	20

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

GC VOA

Prep Batch: 1114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1114/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 1142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1142/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 1233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Total/NA	Solid	8021B	1251
890-424-2	TP14-2	Total/NA	Solid	8021B	1251
890-424-3	TP14-4	Total/NA	Solid	8021B	1251
890-424-4	TP5-S	Total/NA	Solid	8021B	1251
890-424-5	TP5-2	Total/NA	Solid	8021B	1251
890-424-6	TP5-4	Total/NA	Solid	8021B	1251
890-424-7	TP5-6	Total/NA	Solid	8021B	1251
890-424-8	TP6-S	Total/NA	Solid	8021B	1251
890-424-9	TP6-2	Total/NA	Solid	8021B	1251
890-424-10	TP6-4	Total/NA	Solid	8021B	1251
890-424-11	TP6-6	Total/NA	Solid	8021B	1251
890-424-12	TP6-8	Total/NA	Solid	8021B	1251
MB 880-1114/5-A	Method Blank	Total/NA	Solid	8021B	1114
MB 880-1251/5-A	Method Blank	Total/NA	Solid	8021B	1251
LCS 880-1251/1-A	Lab Control Sample	Total/NA	Solid	8021B	1251
LCSD 880-1251/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1251

Prep Batch: 1251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Total/NA	Solid	5035	
890-424-2	TP14-2	Total/NA	Solid	5035	
890-424-3	TP14-4	Total/NA	Solid	5035	
890-424-4	TP5-S	Total/NA	Solid	5035	
890-424-5	TP5-2	Total/NA	Solid	5035	
890-424-6	TP5-4	Total/NA	Solid	5035	
890-424-7	TP5-6	Total/NA	Solid	5035	
890-424-8	TP6-S	Total/NA	Solid	5035	
890-424-9	TP6-2	Total/NA	Solid	5035	
890-424-10	TP6-4	Total/NA	Solid	5035	
890-424-11	TP6-6	Total/NA	Solid	5035	
890-424-12	TP6-8	Total/NA	Solid	5035	
MB 880-1251/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1251/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1251/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 1254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-13	TP6-10	Total/NA	Solid	5035	
890-424-14	TP6-12	Total/NA	Solid	5035	
890-424-15	TP4-S	Total/NA	Solid	5035	
890-424-16	TP4-2	Total/NA	Solid	5035	
890-424-17	TP4-4	Total/NA	Solid	5035	
890-424-18	TP10-S	Total/NA	Solid	5035	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

GC VOA (Continued)

Prep Batch: 1254 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-19	TP10-2	Total/NA	Solid	5035	
890-424-20	TP10-4	Total/NA	Solid	5035	
890-424-21	TP9-S	Total/NA	Solid	5035	
890-424-22	TP9-2	Total/NA	Solid	5035	
890-424-23	TP9-4	Total/NA	Solid	5035	
890-424-24	TP25-S	Total/NA	Solid	5035	
890-424-25	TP25-2	Total/NA	Solid	5035	
890-424-26	TP25-4	Total/NA	Solid	5035	
890-424-27	HA1-S	Total/NA	Solid	5035	
890-424-28	HA1-2	Total/NA	Solid	5035	
MB 880-1254/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1254/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1254/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-424-13 MS	TP6-10	Total/NA	Solid	5035	
890-424-13 MSD	TP6-10	Total/NA	Solid	5035	

Analysis Batch: 1282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-13	TP6-10	Total/NA	Solid	8021B	1254
890-424-14	TP6-12	Total/NA	Solid	8021B	1254
890-424-15	TP4-S	Total/NA	Solid	8021B	1254
890-424-16	TP4-2	Total/NA	Solid	8021B	1254
890-424-17	TP4-4	Total/NA	Solid	8021B	1254
890-424-18	TP10-S	Total/NA	Solid	8021B	1254
890-424-19	TP10-2	Total/NA	Solid	8021B	1254
890-424-20	TP10-4	Total/NA	Solid	8021B	1254
890-424-21	TP9-S	Total/NA	Solid	8021B	1254
890-424-22	TP9-2	Total/NA	Solid	8021B	1254
890-424-23	TP9-4	Total/NA	Solid	8021B	1254
890-424-24	TP25-S	Total/NA	Solid	8021B	1254
890-424-25	TP25-2	Total/NA	Solid	8021B	1254
890-424-26	TP25-4	Total/NA	Solid	8021B	1254
890-424-27	HA1-S	Total/NA	Solid	8021B	1254
890-424-28	HA1-2	Total/NA	Solid	8021B	1254
MB 880-1142/5-A	Method Blank	Total/NA	Solid	8021B	1142
MB 880-1254/5-A	Method Blank	Total/NA	Solid	8021B	1254
LCS 880-1254/1-A	Lab Control Sample	Total/NA	Solid	8021B	1254
LCSD 880-1254/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1254
890-424-13 MS	TP6-10	Total/NA	Solid	8021B	1254
890-424-13 MSD	TP6-10	Total/NA	Solid	8021B	1254

GC Semi VOA

Prep Batch: 1261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Total/NA	Solid	8015NM Prep	
890-424-2	TP14-2	Total/NA	Solid	8015NM Prep	
890-424-3	TP14-4	Total/NA	Solid	8015NM Prep	
890-424-4	TP5-S	Total/NA	Solid	8015NM Prep	
890-424-5	TP5-2	Total/NA	Solid	8015NM Prep	
890-424-6	TP5-4	Total/NA	Solid	8015NM Prep	

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

GC Semi VOA (Continued)

Prep Batch: 1261 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-7	TP5-6	Total/NA	Solid	8015NM Prep	
890-424-8	TP6-S	Total/NA	Solid	8015NM Prep	
890-424-9	TP6-2	Total/NA	Solid	8015NM Prep	
890-424-10	TP6-4	Total/NA	Solid	8015NM Prep	
890-424-11	TP6-6	Total/NA	Solid	8015NM Prep	
890-424-12	TP6-8	Total/NA	Solid	8015NM Prep	
890-424-13	TP6-10	Total/NA	Solid	8015NM Prep	
890-424-14	TP6-12	Total/NA	Solid	8015NM Prep	
890-424-15	TP4-S	Total/NA	Solid	8015NM Prep	
890-424-16	TP4-2	Total/NA	Solid	8015NM Prep	
890-424-17	TP4-4	Total/NA	Solid	8015NM Prep	
890-424-18	TP10-S	Total/NA	Solid	8015NM Prep	
890-424-19	TP10-2	Total/NA	Solid	8015NM Prep	
890-424-20	TP10-4	Total/NA	Solid	8015NM Prep	
MB 880-1261/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1261/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1261/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-424-1 MS	TP14-S	Total/NA	Solid	8015NM Prep	
890-424-1 MSD	TP14-S	Total/NA	Solid	8015NM Prep	

Prep Batch: 1266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-26	TP25-4	Total/NA	Solid	8015NM Prep	
890-424-27	HA1-S	Total/NA	Solid	8015NM Prep	
MB 880-1266/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1266/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1266/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-21	TP9-S	Total/NA	Solid	8015B NM	1271
890-424-22	TP9-2	Total/NA	Solid	8015B NM	1271
890-424-23	TP9-4	Total/NA	Solid	8015B NM	1271
890-424-24	TP25-S	Total/NA	Solid	8015B NM	1271
890-424-25	TP25-2	Total/NA	Solid	8015B NM	1271
MB 880-1271/1-A	Method Blank	Total/NA	Solid	8015B NM	1271
LCS 880-1271/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1271
LCSD 880-1271/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1271

Analysis Batch: 1269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Total/NA	Solid	8015B NM	1261
890-424-2	TP14-2	Total/NA	Solid	8015B NM	1261
890-424-3	TP14-4	Total/NA	Solid	8015B NM	1261
890-424-4	TP5-S	Total/NA	Solid	8015B NM	1261
890-424-5	TP5-2	Total/NA	Solid	8015B NM	1261
890-424-6	TP5-4	Total/NA	Solid	8015B NM	1261
890-424-7	TP5-6	Total/NA	Solid	8015B NM	1261
890-424-8	TP6-S	Total/NA	Solid	8015B NM	1261
890-424-9	TP6-2	Total/NA	Solid	8015B NM	1261
890-424-10	TP6-4	Total/NA	Solid	8015B NM	1261

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

GC Semi VOA (Continued)

Analysis Batch: 1269 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-11	TP6-6	Total/NA	Solid	8015B NM	1261
890-424-12	TP6-8	Total/NA	Solid	8015B NM	1261
890-424-13	TP6-10	Total/NA	Solid	8015B NM	1261
890-424-14	TP6-12	Total/NA	Solid	8015B NM	1261
890-424-15	TP4-S	Total/NA	Solid	8015B NM	1261
890-424-16	TP4-2	Total/NA	Solid	8015B NM	1261
890-424-17	TP4-4	Total/NA	Solid	8015B NM	1261
890-424-18	TP10-S	Total/NA	Solid	8015B NM	1261
890-424-19	TP10-2	Total/NA	Solid	8015B NM	1261
890-424-20	TP10-4	Total/NA	Solid	8015B NM	1261
MB 880-1261/1-A	Method Blank	Total/NA	Solid	8015B NM	1261
LCS 880-1261/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1261
LCSD 880-1261/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1261
890-424-1 MS	TP14-S	Total/NA	Solid	8015B NM	1261
890-424-1 MSD	TP14-S	Total/NA	Solid	8015B NM	1261

Prep Batch: 1271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-21	TP9-S	Total/NA	Solid	8015NM Prep	
890-424-22	TP9-2	Total/NA	Solid	8015NM Prep	
890-424-23	TP9-4	Total/NA	Solid	8015NM Prep	
890-424-24	TP25-S	Total/NA	Solid	8015NM Prep	
890-424-25	TP25-2	Total/NA	Solid	8015NM Prep	
MB 880-1271/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1271/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1271/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-26	TP25-4	Total/NA	Solid	8015B NM	1266
890-424-27	HA1-S	Total/NA	Solid	8015B NM	1266
MB 880-1266/1-A	Method Blank	Total/NA	Solid	8015B NM	1266
LCS 880-1266/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1266
LCSD 880-1266/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1266

Prep Batch: 1303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-28	HA1-2	Total/NA	Solid	8015NM Prep	
MB 880-1303/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1303/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1303/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-28	HA1-2	Total/NA	Solid	8015B NM	1303
MB 880-1303/1-A	Method Blank	Total/NA	Solid	8015B NM	1303
LCS 880-1303/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1303
LCSD 880-1303/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1303

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

HPLC/IC

Leach Batch: 1470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Soluble	Solid	DI Leach	
890-424-2	TP14-2	Soluble	Solid	DI Leach	
890-424-3	TP14-4	Soluble	Solid	DI Leach	
890-424-4	TP5-S	Soluble	Solid	DI Leach	
890-424-5	TP5-2	Soluble	Solid	DI Leach	
890-424-6	TP5-4	Soluble	Solid	DI Leach	
890-424-7	TP5-6	Soluble	Solid	DI Leach	
890-424-8	TP6-S	Soluble	Solid	DI Leach	
890-424-9	TP6-2	Soluble	Solid	DI Leach	
890-424-10	TP6-4	Soluble	Solid	DI Leach	
890-424-11	TP6-6	Soluble	Solid	DI Leach	
890-424-12	TP6-8	Soluble	Solid	DI Leach	
890-424-13	TP6-10	Soluble	Solid	DI Leach	
890-424-14	TP6-12	Soluble	Solid	DI Leach	
890-424-15	TP4-S	Soluble	Solid	DI Leach	
890-424-16	TP4-2	Soluble	Solid	DI Leach	
890-424-17	TP4-4	Soluble	Solid	DI Leach	
MB 880-1470/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1470/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1470/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-424-8 MS	TP6-S	Soluble	Solid	DI Leach	
890-424-8 MSD	TP6-S	Soluble	Solid	DI Leach	

Analysis Batch: 1472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-1	TP14-S	Soluble	Solid	300.0	1470
890-424-2	TP14-2	Soluble	Solid	300.0	1470
890-424-3	TP14-4	Soluble	Solid	300.0	1470
890-424-4	TP5-S	Soluble	Solid	300.0	1470
890-424-5	TP5-2	Soluble	Solid	300.0	1470
890-424-6	TP5-4	Soluble	Solid	300.0	1470
890-424-7	TP5-6	Soluble	Solid	300.0	1470
890-424-8	TP6-S	Soluble	Solid	300.0	1470
890-424-9	TP6-2	Soluble	Solid	300.0	1470
890-424-10	TP6-4	Soluble	Solid	300.0	1470
890-424-11	TP6-6	Soluble	Solid	300.0	1470
890-424-12	TP6-8	Soluble	Solid	300.0	1470
890-424-13	TP6-10	Soluble	Solid	300.0	1470
890-424-14	TP6-12	Soluble	Solid	300.0	1470
890-424-15	TP4-S	Soluble	Solid	300.0	1470
890-424-16	TP4-2	Soluble	Solid	300.0	1470
890-424-17	TP4-4	Soluble	Solid	300.0	1470
MB 880-1470/1-A	Method Blank	Soluble	Solid	300.0	1470
LCS 880-1470/2-A	Lab Control Sample	Soluble	Solid	300.0	1470
LCSD 880-1470/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1470
890-424-8 MS	TP6-S	Soluble	Solid	300.0	1470
890-424-8 MSD	TP6-S	Soluble	Solid	300.0	1470

Leach Batch: 1473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-18	TP10-S	Soluble	Solid	DI Leach	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

HPLC/IC (Continued)

Leach Batch: 1473 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-19	TP10-2	Soluble	Solid	DI Leach	
890-424-20	TP10-4	Soluble	Solid	DI Leach	
890-424-21	TP9-S	Soluble	Solid	DI Leach	
890-424-22	TP9-2	Soluble	Solid	DI Leach	
890-424-23	TP9-4	Soluble	Solid	DI Leach	
890-424-24	TP25-S	Soluble	Solid	DI Leach	
890-424-25	TP25-2	Soluble	Solid	DI Leach	
890-424-26	TP25-4	Soluble	Solid	DI Leach	
890-424-27	HA1-S	Soluble	Solid	DI Leach	
890-424-28	HA1-2	Soluble	Solid	DI Leach	
MB 880-1473/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1473/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1473/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-424-18 MS	TP10-S	Soluble	Solid	DI Leach	
890-424-18 MSD	TP10-S	Soluble	Solid	DI Leach	
890-424-28 MS	HA1-2	Soluble	Solid	DI Leach	
890-424-28 MSD	HA1-2	Soluble	Solid	DI Leach	

Analysis Batch: 1474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-424-18	TP10-S	Soluble	Solid	300.0	1473
890-424-19	TP10-2	Soluble	Solid	300.0	1473
890-424-20	TP10-4	Soluble	Solid	300.0	1473
890-424-21	TP9-S	Soluble	Solid	300.0	1473
890-424-22	TP9-2	Soluble	Solid	300.0	1473
890-424-23	TP9-4	Soluble	Solid	300.0	1473
890-424-24	TP25-S	Soluble	Solid	300.0	1473
890-424-25	TP25-2	Soluble	Solid	300.0	1473
890-424-26	TP25-4	Soluble	Solid	300.0	1473
890-424-27	HA1-S	Soluble	Solid	300.0	1473
890-424-28	HA1-2	Soluble	Solid	300.0	1473
MB 880-1473/1-A	Method Blank	Soluble	Solid	300.0	1473
LCS 880-1473/2-A	Lab Control Sample	Soluble	Solid	300.0	1473
LCSD 880-1473/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1473
890-424-18 MS	TP10-S	Soluble	Solid	300.0	1473
890-424-18 MSD	TP10-S	Soluble	Solid	300.0	1473
890-424-28 MS	HA1-2	Soluble	Solid	300.0	1473
890-424-28 MSD	HA1-2	Soluble	Solid	300.0	1473

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP14-S

Date Collected: 03/24/21 08:10

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 21:26	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 12:38	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:15	WP	XM

Client Sample ID: TP14-2

Date Collected: 03/24/21 08:20

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 21:51	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 13:41	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:20	WP	XM

Client Sample ID: TP14-4

Date Collected: 03/24/21 08:30

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 23:32	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 14:02	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:35	WP	XM

Client Sample ID: TP5-S

Date Collected: 03/24/21 08:40

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 23:57	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 14:23	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		5	1472	04/07/21 17:40	WP	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP5-2

Lab Sample ID: 890-424-5

Date Collected: 03/24/21 08:50

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 00:22	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 14:44	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:45	WP	XM

Client Sample ID: TP5-4

Lab Sample ID: 890-424-6

Date Collected: 03/24/21 09:00

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 00:47	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:25	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 15:05	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:50	WP	XM

Client Sample ID: TP5-6

Lab Sample ID: 890-424-7

Date Collected: 03/24/21 09:10

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 01:12	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 15:27	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 17:55	WP	XM

Client Sample ID: TP6-S

Lab Sample ID: 890-424-8

Date Collected: 03/24/21 09:20

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 01:37	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 15:48	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 18:00	WP	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-2

Lab Sample ID: 890-424-9

Date Collected: 03/24/21 09:30

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 01:01	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 16:09	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 18:14	WP	XM

Client Sample ID: TP6-4

Lab Sample ID: 890-424-10

Date Collected: 03/24/21 09:40

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 03:26	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 16:30	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		5	1472	04/07/21 18:19	WP	XM

Client Sample ID: TP6-6

Lab Sample ID: 890-424-11

Date Collected: 03/24/21 09:50

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 03:51	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 17:29	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		5	1472	04/07/21 18:34	WP	XM

Client Sample ID: TP6-8

Lab Sample ID: 890-424-12

Date Collected: 03/24/21 10:00

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/04/21 04:16	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 17:50	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		5	1472	04/07/21 18:39	WP	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP6-10

Date Collected: 03/24/21 10:10

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 03:43	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 18:11	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		10	1472	04/07/21 18:44	WP	XM

Client Sample ID: TP6-12

Date Collected: 03/24/21 10:20

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 04:03	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 18:32	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		10	1472	04/07/21 18:49	WP	XM

Client Sample ID: TP4-S

Date Collected: 03/24/21 10:50

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 04:24	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 18:53	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 18:54	WP	XM

Client Sample ID: TP4-2

Date Collected: 03/24/21 11:00

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-16

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 04:44	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 19:14	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 18:59	WP	XM

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Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP4-4

Lab Sample ID: 890-424-17

Date Collected: 03/24/21 11:10

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 05:05	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 19:36	AJ	XM
Soluble	Leach	DI Leach			1470	04/07/21 14:50	CH	XM
Soluble	Analysis	300.0		1	1472	04/07/21 19:04	WP	XM

Client Sample ID: TP10-S

Lab Sample ID: 890-424-18

Date Collected: 03/24/21 14:20

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 05:25	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 19:57	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 18:16	CH	XM

Client Sample ID: TP10-2

Lab Sample ID: 890-424-19

Date Collected: 03/24/21 14:25

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 05:45	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 20:18	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 18:33	CH	XM

Client Sample ID: TP10-4

Lab Sample ID: 890-424-20

Date Collected: 03/24/21 14:30

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 06:06	KL	XM
Total/NA	Prep	8015NM Prep			1261	04/02/21 15:26	DM	XM
Total/NA	Analysis	8015B NM		1	1269	04/03/21 20:39	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 18:39	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP9-S

Date Collected: 03/24/21 14:35

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-21

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 06:26	KL	XM
Total/NA	Prep	8015NM Prep			1271	04/03/21 10:28	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/04/21 04:21	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 18:44	CH	XM

Client Sample ID: TP9-2

Date Collected: 03/24/21 14:40

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-22

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 06:47	KL	XM
Total/NA	Prep	8015NM Prep			1271	04/03/21 10:28	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/04/21 04:42	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 18:50	CH	XM

Client Sample ID: TP9-4

Date Collected: 03/24/21 14:45

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-23

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 08:09	KL	XM
Total/NA	Prep	8015NM Prep			1271	04/03/21 10:28	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/04/21 05:03	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:07	CH	XM

Client Sample ID: TP25-S

Date Collected: 03/24/21 14:50

Date Received: 03/25/21 09:30

Lab Sample ID: 890-424-24

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 08:29	KL	XM
Total/NA	Prep	8015NM Prep			1271	04/03/21 10:28	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/04/21 05:24	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:12	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Client Sample ID: TP25-2

Lab Sample ID: 890-424-25

Date Collected: 03/24/21 14:55

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 08:50	KL	XM
Total/NA	Prep	8015NM Prep			1271	04/03/21 10:28	DM	XM
Total/NA	Analysis	8015B NM		1	1267	04/04/21 05:45	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:18	CH	XM

Client Sample ID: TP25-4

Lab Sample ID: 890-424-26

Date Collected: 03/24/21 15:00

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 09:10	KL	XM
Total/NA	Prep	8015NM Prep			1266	04/03/21 09:58	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/04/21 21:36	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:23	CH	XM

Client Sample ID: HA1-S

Lab Sample ID: 890-424-27

Date Collected: 03/24/21 15:05

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 09:31	KL	XM
Total/NA	Prep	8015NM Prep			1266	04/03/21 09:58	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/04/21 21:58	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:29	CH	XM

Client Sample ID: HA1-2

Lab Sample ID: 890-424-28

Date Collected: 03/24/21 15:10

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1254	04/02/21 14:22	KL	XM
Total/NA	Analysis	8021B		1	1282	04/04/21 09:51	KL	XM
Total/NA	Prep	8015NM Prep			1303	04/05/21 09:24	DM	XM
Total/NA	Analysis	8015B NM		1	1310	04/05/21 22:52	AJ	XM
Soluble	Leach	DI Leach			1473	04/07/21 15:31	CH	XM
Soluble	Analysis	300.0		1	1474	04/07/21 19:34	CH	XM

Laboratory References:

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

Eurofins Xenco, Carlsbad

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21
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
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
5035	Closed System Purge and Trap	SW846	XM
8015NM Prep	Microextraction	SW846	XM
DI Leach	Deionized Water Leaching Procedure	ASTM	XM

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.

Laboratory References:

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

Eurofins Xenco, Carlsbad

Sample Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-424-1
SDG: 11224133

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
890-424-1	TP14-S	Solid	03/24/21 08:10	03/25/21 09:30	
890-424-2	TP14-2	Solid	03/24/21 08:20	03/25/21 09:30	
890-424-3	TP14-4	Solid	03/24/21 08:30	03/25/21 09:30	
890-424-4	TP5-S	Solid	03/24/21 08:40	03/25/21 09:30	
890-424-5	TP5-2	Solid	03/24/21 08:50	03/25/21 09:30	
890-424-6	TP5-4	Solid	03/24/21 09:00	03/25/21 09:30	
890-424-7	TP5-6	Solid	03/24/21 09:10	03/25/21 09:30	
890-424-8	TP6-S	Solid	03/24/21 09:20	03/25/21 09:30	
890-424-9	TP6-2	Solid	03/24/21 09:30	03/25/21 09:30	
890-424-10	TP6-4	Solid	03/24/21 09:40	03/25/21 09:30	
890-424-11	TP6-6	Solid	03/24/21 09:50	03/25/21 09:30	
890-424-12	TP6-8	Solid	03/24/21 10:00	03/25/21 09:30	
890-424-13	TP6-10	Solid	03/24/21 10:10	03/25/21 09:30	
890-424-14	TP6-12	Solid	03/24/21 10:20	03/25/21 09:30	
890-424-15	TP4-S	Solid	03/24/21 10:50	03/25/21 09:30	
890-424-16	TP4-2	Solid	03/24/21 11:00	03/25/21 09:30	
890-424-17	TP4-4	Solid	03/24/21 11:10	03/25/21 09:30	
890-424-18	TP10-S	Solid	03/24/21 14:20	03/25/21 09:30	
890-424-19	TP10-2	Solid	03/24/21 14:25	03/25/21 09:30	
890-424-20	TP10-4	Solid	03/24/21 14:30	03/25/21 09:30	
890-424-21	TP9-S	Solid	03/24/21 14:35	03/25/21 09:30	
890-424-22	TP9-2	Solid	03/24/21 14:40	03/25/21 09:30	
890-424-23	TP9-4	Solid	03/24/21 14:45	03/25/21 09:30	
890-424-24	TP25-S	Solid	03/24/21 14:50	03/25/21 09:30	
890-424-25	TP25-2	Solid	03/24/21 14:55	03/25/21 09:30	
890-424-26	TP25-4	Solid	03/24/21 15:00	03/25/21 09:30	
890-424-27	HA1-S	Solid	03/24/21 15:05	03/25/21 09:30	
890-424-28	HA1-2	Solid	03/24/21 15:10	03/25/21 09:30	

Eurofins Xenco, Carlsbad

4/8/2021

Page 51 of 57

CHAIN OF CUSTODY

4/8/2021

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes													
Company Name / Branch: GHD/Midland				Project Name/Number: Livingston Ridge SWD System / 11224133																					
Company Address: 2136 S. Loop 260 West Midland TX				Project Location: Eddy County, New Mexico																					
Email: becky.haskell@ghd.com glenn.quinney@ghd.com				Invoice To: EOG / James Kennedy																					
Phone No: (432)566-7917 zach.comino@ghd.com tom.larson@ghd.com																									
Project Contact: Becky Haskell / Glenn Quinney				PO Number: N/A																					
Samplers Name Zach Comino																									
No. Field ID / Point of Collection				Collection				Number of preserved bottles				Field Comments													
				Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH By 8015 Mod (GRO, DRO & MRO)	BTEX 8021 B	Chloride 600	(					
1				TP6-6	03/23/06	0950	S	1								X	X	X	X						
2				TP6-8													X	X							
3				TP6-10													X	X							
4				TP6-12													X	X							
5				TP4-5													X	X							
6				TP4-2													X	X							
7				TP4-4													X	X							
8				TP10-5													X	X							
9				TP10-2													X	X							
10				TP10-4													X	X							
Turnaround Time (Business days)																									
Same Day TAT				☒	6 Day TAT																				
Next Day EMERGENCY				☐	7 Day TAT																				
2 Day EMERGENCY				☐	Contract TAT																				
3 Day EMERGENCY				☐																					
TAT Starts Day received by Lab, if received by 5:00 pm																									
Relinquished by Sampler:					Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:
Relinquished by:					Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:
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Service Center - San Antonio, Texas (210-509-3334)

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Page ~~1~~ 3 of 4

CHAIN OF CUSTODY

Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

4/8/2021

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: GHD/Midland				Project Name/Number: Livingston Ridge SWD System / 11224133											
Company Address: 2135 S. Loop 280 West Midland TX				Project Location: Eddy County, New Mexico											
Email: becky.haskell@ghd.com glenn.quinney@ghd.com				Invoice To: EOG / James Kennedy											
Phone No: (432)260-7917 zach.comino@ghd.com jon.larson@ghd.com															
Project Contact: Becky Haskell / Glenn Quinney				PO Number: NA											
Samplers Name Zach Comino															
No.		Field ID / Point of Collection		Collection		Number of Preserved bottles									
		Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	
1		TP9-S	03/26/14	435	S	1									
2		TP9-2		1440											
3		TP9-4		1445											
4		TP25-S		1450											
5		TP25-2		1455											
6		TP25-4		1500											
7		HAI-5		1505											
8		HAI-2		1510											
9		HAI-4		1515											
10		TP26-S		1520											
		Turnaround Time (Business days)													
		Data Deliverable Information													
☐ Same Day TAT		☒ 5 Day TAT		☐ Level II Std QC		☐ Level IV / Full Data Plg / raw data)									
☐ Next Day EMERGENCY		☐ 7 Day TAT		☐ Level III Std QC+ Forms		☐ TRRP Level IV									
☐ 2 Day EMERGENCY		☐ Contract TAT		☐ Level 3 (CLP Forms)		☐ UST / RG -411									
☐ 3 Day EMERGENCY				☐ TRRP Checklist											
TAT Starts Day received by Lab, if received by 5:00 pm				Report MDLs and J values.											
Relinquished by Sampler:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:	
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Norcross, Georgia (770-449-8800)

Tampa, Florida (813-620-2000)

Xenon Quote #

Xenoco Job #

4/8/2021

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: GHD/Midland				Project Name/Number: Livingston Ridge SWD System / 11224133											
Company Address: 2135 S. Loop 280 West Midland TX				Project Location: Eddy County, New Mexico											
Email: becky.haskell@ghd.com glenn.quinney@ghd.com				Phone No: (432)265-7917 Zach.comino@ghd.com tom.larson@ghd.com				Invoice To: EOG / James Kennedy							
Project Contact: Becky Haskell / Glenn Quinney				PO Number: NA											
Samplers Name Zach Comino															
No.		Field ID / Point of Collection		Collection		Number of preserved bottles									
		Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	
1		TP26-2	03/20/2024	1525	S	1								X	TPH By 8015 Mod (GRO, DRO & MRO)
2														X	BTEX 8021 B
3														X	Chloride 600
4															
5															
6															
7															
8															
9															
10															
Turnaround Time (Business days)				Data Deliverable information											
☐ Same Day TAT				☒ 5 Day TAT				☐ Level II Std QC				☐ Level IV (Full Data Plg / raw data)			
☐ Next Day EMERGENCY				☐ 7 Day TAT				☐ Level III Std QC+ Forms				☐ TRRP Level IV			
☐ 2 Day EMERGENCY				☐ Contract TAT				☐ Level 3 (CLP Forms)				☐ UST / RG 411			
☐ 3 Day EMERGENCY				☐ TRRP Checklist											
TAT Starts Day received by Lab, if received by 5:00 pm				Report MDLs and J values.											
Relinquished by Sampler: <i>Becky Haskell</i>				Date Time: <i>03/20/24 10:21</i>				Received By: <i>Zach Comino</i>				Date Time: <i>3/26/24 10:09</i>			
Relinquished by: <i>Zach Comino</i>				Date Time: <i>03/20/24 10:21</i>				Received By: <i>Zach Comino</i>				Date Time: <i>3/26/24 10:09</i>			
Relinquished by:				Date Time:				Received By:				Date Time:			
3				3				4				4			
Relinquished by:				Date Time:				Received By:				Date Time:			
5				5				6				6			

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-424-1

SDG Number: 11224133

Login Number: 424

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	
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	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-424-1

SDG Number: 11224133

Login Number: 424**List Number: 2****Creator: Copeland, Tatiana****List Source: Eurofins Midland****List Creation: 03/26/21 09:09 AM**

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

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-424-1

SDG Number: 11224133

Login Number: 424

List Number: 3

Creator: Johnson, Allison

List Source: Eurofins Midland

List Creation: 04/03/21 12:32 PM

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



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-423-1

Laboratory Sample Delivery Group: 11224133

Client Project/Site: Livingston Ridge SWD System

For:

GHD Services Inc.
2135 South Loop 250 West
Midland, Texas 79703

Attn: Becky Haskell

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

Authorized for release by:
4/8/2021 4:34:59 PM

Debbie Simmons, Project Manager
(281)240-4200
debbie.simmons@eurofinset.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: Livingston Ridge SWD System

Laboratory Job ID: 890-423-1
SDG: 11224133

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Client Sample Results	5
Surrogate Summary	13
QC Sample Results	15
QC Association Summary	20
Lab Chronicle	23
Certification Summary	26
Method Summary	27
Sample Summary	28
Chain of Custody	29
Receipt Checklists	34

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Qualifiers

GC 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.

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
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

Eurofins Xenco, Carlsbad

Case Narrative

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Job ID: 890-423-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

ob Narrative
890-423-1

Receipt

The samples were received on 3/25/2021 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.2°C

Receipt Exceptions

The following samples analyzed for method BTEX8021 were received and analyzed from an unpreserved bulk soil jar: TP2-S (890-423-1), TP2-2 (890-423-2), TP2-4 (890-423-3), TP1-S (890-423-4), TP1-2 (890-423-5), TP1-4 (890-423-6), TP1-6 (890-423-7), TP1-8 (890-423-8), TP1-10 (890-423-9), TP3-S (890-423-10), TP3-2 (890-423-11) and TP3-4 (890-423-12).

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP2-S

Lab Sample ID: 890-423-1

Date Collected: 03/24/21 11:20

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 13:51	04/04/21 13:28	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 13:51	04/04/21 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	04/02/21 13:51	04/04/21 13:28	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/02/21 13:51	04/04/21 13:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 02:55	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 02:55	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 02:55	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 02:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130	04/03/21 10:56	04/05/21 02:55	1
o-Terphenyl	93		70 - 130	04/03/21 10:56	04/05/21 02:55	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	147		5.00	0.858	mg/Kg			04/06/21 22:03	1

Client Sample ID: TP2-2

Lab Sample ID: 890-423-2

Date Collected: 03/24/21 11:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000382	U	0.00198	0.000382	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
Ethylbenzene	<0.000561	U	0.00198	0.000561	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
Toluene	<0.000452	U	0.00198	0.000452	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
Total BTEX	<0.000992	U	0.00198	0.000992	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
Xylenes, Total	<0.000992	U	0.00397	0.000992	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
m-Xylene & p-Xylene	<0.00100	U	0.00397	0.00100	mg/Kg		04/02/21 13:51	04/04/21 13:48	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 13:51	04/04/21 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	04/02/21 13:51	04/04/21 13:48	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/02/21 13:51	04/04/21 13:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:16	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:16	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP2-2

Lab Sample ID: 890-423-2

Date Collected: 03/24/21 11:30

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:16	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130				04/03/21 10:56	04/05/21 03:16	1
o-Terphenyl	96		70 - 130				04/03/21 10:56	04/05/21 03:16	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	268		5.04	0.865	mg/Kg			04/06/21 22:18	1

Client Sample ID: TP2-4

Lab Sample ID: 890-423-3

Date Collected: 03/24/21 11:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 13:51	04/04/21 14:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130				04/02/21 13:51	04/04/21 14:08	1
1,4-Difluorobenzene (Surr)	100		70 - 130				04/02/21 13:51	04/04/21 14:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:37	1
Total TPH	16.5	J B	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:37	1
Diesel Range Organics (Over C10-C28)	16.5	J	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:37	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 03:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130				04/03/21 10:56	04/05/21 03:37	1
o-Terphenyl	107		70 - 130				04/03/21 10:56	04/05/21 03:37	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	534		5.02	0.862	mg/Kg			04/06/21 22:23	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-S

Lab Sample ID: 890-423-4

Date Collected: 03/24/21 12:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
Ethylbenzene	0.000580	J	0.00202	0.000570	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		04/02/21 13:51	04/04/21 14:29	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 13:51	04/04/21 14:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		70 - 130	04/02/21 13:51	04/04/21 14:29	1
1,4-Difluorobenzene (Surr)	98		70 - 130	04/02/21 13:51	04/04/21 14:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 04:19	1
Total TPH	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 04:19	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 04:19	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 04:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	04/03/21 10:56	04/05/21 04:19	1
o-Terphenyl	93		70 - 130	04/03/21 10:56	04/05/21 04:19	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	105		4.96	0.851	mg/Kg			04/06/21 22:37	1

Client Sample ID: TP1-2

Lab Sample ID: 890-423-5

Date Collected: 03/24/21 12:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		04/02/21 13:59	04/03/21 18:04	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		04/02/21 13:59	04/03/21 18:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		70 - 130	04/02/21 13:59	04/03/21 18:04	1
1,4-Difluorobenzene (Surr)	89		70 - 130	04/02/21 13:59	04/03/21 18:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 04:40	1
Total TPH	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 04:40	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-2

Lab Sample ID: 890-423-5

Date Collected: 03/24/21 12:40

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 04:40	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 04:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	117		70 - 130				04/03/21 10:56	04/05/21 04:40	1
o-Terphenyl	120		70 - 130				04/03/21 10:56	04/05/21 04:40	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	825		4.95	0.850	mg/Kg			04/06/21 22:42	1

Client Sample ID: TP1-4

Lab Sample ID: 890-423-6

Date Collected: 03/24/21 12:50

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000382	U	0.00198	0.000382	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
Ethylbenzene	<0.000561	U	0.00198	0.000561	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
Toluene	<0.000452	U	0.00198	0.000452	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
Total BTEX	<0.000992	U	0.00198	0.000992	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
Xylenes, Total	<0.000992	U	0.00397	0.000992	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
m-Xylene & p-Xylene	<0.00100	U	0.00397	0.00100	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 13:59	04/03/21 18:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130				04/02/21 13:59	04/03/21 18:29	1
1,4-Difluorobenzene (Surr)	97		70 - 130				04/02/21 13:59	04/03/21 18:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:01	1
Total TPH	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:01	1
Diesel Range Organics (Over C10-C28)	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:01	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.8	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130				04/03/21 10:56	04/05/21 05:01	1
o-Terphenyl	118		70 - 130				04/03/21 10:56	04/05/21 05:01	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1140		25.2	4.33	mg/Kg			04/06/21 22:47	5

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-6

Lab Sample ID: 890-423-7

Date Collected: 03/24/21 13:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000382	U	0.00198	0.000382	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
Ethylbenzene	<0.000561	U	0.00198	0.000561	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
Toluene	<0.000452	U	0.00198	0.000452	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
Total BTEX	<0.000992	U	0.00198	0.000992	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
Xylenes, Total	<0.000992	U	0.00397	0.000992	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
m-Xylene & p-Xylene	<0.00100	U	0.00397	0.00100	mg/Kg		04/02/21 13:59	04/03/21 18:54	1
o-Xylene	<0.000341	U	0.00198	0.000341	mg/Kg		04/02/21 13:59	04/03/21 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/02/21 13:59	04/03/21 18:54	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/02/21 13:59	04/03/21 18:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	15.1	J B	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 05:22	1
Total TPH	15.1	J B	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 05:22	1
Diesel Range Organics (Over C10-C28)	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 05:22	1
Oil Range Organics (Over C28-C36)	<15.0	U	49.9	15.0	mg/Kg		04/03/21 10:56	04/05/21 05:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	133	S1+	70 - 130	04/03/21 10:56	04/05/21 05:22	1
o-Terphenyl	123		70 - 130	04/03/21 10:56	04/05/21 05:22	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2950		25.0	4.28	mg/Kg			04/06/21 22:52	5

Client Sample ID: TP1-8

Lab Sample ID: 890-423-8

Date Collected: 03/24/21 13:10

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
Total BTEX	<0.000998	U	0.00200	0.000998	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
Xylenes, Total	<0.000998	U	0.00399	0.000998	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		04/02/21 13:59	04/03/21 19:20	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		04/02/21 13:59	04/03/21 19:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	04/02/21 13:59	04/03/21 19:20	1
1,4-Difluorobenzene (Surr)	103		70 - 130	04/02/21 13:59	04/03/21 19:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:43	1
Total TPH	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:43	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-8

Lab Sample ID: 890-423-8

Date Collected: 03/24/21 13:10

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:43	1
Oil Range Organics (Over C28-C36)	<14.9	U	49.7	14.9	mg/Kg		04/03/21 10:56	04/05/21 05:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130				04/03/21 10:56	04/05/21 05:43	1
o-Terphenyl	121		70 - 130				04/03/21 10:56	04/05/21 05:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7470		50.0	8.58	mg/Kg			04/06/21 22:57	10

Client Sample ID: TP1-10

Lab Sample ID: 890-423-9

Date Collected: 03/24/21 13:30

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000388	U	0.00202	0.000388	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
Ethylbenzene	<0.000570	U	0.00202	0.000570	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
Toluene	<0.000460	U	0.00202	0.000460	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
Xylenes, Total	<0.00101	U	0.00403	0.00101	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
m-Xylene & p-Xylene	<0.00102	U	0.00403	0.00102	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 13:59	04/03/21 19:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130				04/02/21 13:59	04/03/21 19:45	1
1,4-Difluorobenzene (Surr)	102		70 - 130				04/02/21 13:59	04/03/21 19:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:04	1
Total TPH	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:04	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:04	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.2	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130				04/03/21 10:56	04/05/21 06:04	1
o-Terphenyl	123		70 - 130				04/03/21 10:56	04/05/21 06:04	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13700		100	17.2	mg/Kg			04/06/21 23:02	20

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP3-S

Lab Sample ID: 890-423-10

Date Collected: 03/24/21 13:40

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000389	U	0.00202	0.000389	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
Ethylbenzene	<0.000571	U	0.00202	0.000571	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
Toluene	<0.000461	U	0.00202	0.000461	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
Total BTEX	<0.00101	U	0.00202	0.00101	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
Xylenes, Total	<0.00101	U	0.00404	0.00101	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
m-Xylene & p-Xylene	<0.00102	U	0.00404	0.00102	mg/Kg		04/02/21 13:59	04/03/21 20:10	1
o-Xylene	<0.000347	U	0.00202	0.000347	mg/Kg		04/02/21 13:59	04/03/21 20:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130	04/02/21 13:59	04/03/21 20:10	1
1,4-Difluorobenzene (Surr)	106		70 - 130	04/02/21 13:59	04/03/21 20:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:26	1
Total TPH	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:26	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:26	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	04/03/21 10:56	04/05/21 06:26	1
o-Terphenyl	100		70 - 130	04/03/21 10:56	04/05/21 06:26	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	73.7		5.00	0.858	mg/Kg			04/06/21 23:07	1

Client Sample ID: TP3-2

Lab Sample ID: 890-423-11

Date Collected: 03/24/21 13:50

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
Ethylbenzene	<0.000563	U	0.00199	0.000563	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
Toluene	<0.000454	U	0.00199	0.000454	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
Total BTEX	<0.000996	U	0.00199	0.000996	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
Xylenes, Total	<0.000996	U	0.00398	0.000996	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
m-Xylene & p-Xylene	<0.00101	U	0.00398	0.00101	mg/Kg		04/02/21 13:59	04/03/21 20:35	1
o-Xylene	<0.000343	U	0.00199	0.000343	mg/Kg		04/02/21 13:59	04/03/21 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	04/02/21 13:59	04/03/21 20:35	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/02/21 13:59	04/03/21 20:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:47	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:47	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP3-2

Lab Sample ID: 890-423-11

Date Collected: 03/24/21 13:50

Matrix: Solid

Date Received: 03/25/21 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:47	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 06:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130				04/03/21 10:56	04/05/21 06:47	1
o-Terphenyl	96		70 - 130				04/03/21 10:56	04/05/21 06:47	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.02		4.97	0.853	mg/Kg			04/05/21 16:32	1

Client Sample ID: TP3-4

Lab Sample ID: 890-423-12

Date Collected: 03/24/21 14:00

Matrix: Solid

Date Received: 03/25/21 09:30

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U	0.00199	0.000383	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
Ethylbenzene	<0.000562	U	0.00199	0.000562	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
Toluene	<0.000453	U	0.00199	0.000453	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
Total BTEX	<0.000994	U	0.00199	0.000994	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
Xylenes, Total	<0.000994	U	0.00398	0.000994	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
m-Xylene & p-Xylene	<0.00100	U	0.00398	0.00100	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
o-Xylene	<0.000342	U	0.00199	0.000342	mg/Kg		04/02/21 13:59	04/03/21 21:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130				04/02/21 13:59	04/03/21 21:00	1
1,4-Difluorobenzene (Surr)	102		70 - 130				04/02/21 13:59	04/03/21 21:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 07:09	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 07:09	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 07:09	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/05/21 07:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130				04/03/21 10:56	04/05/21 07:09	1
o-Terphenyl	102		70 - 130				04/03/21 10:56	04/05/21 07:09	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11.8		4.97	0.853	mg/Kg			04/05/21 16:37	1

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1	DFBZ1
		(70-130)	(70-130)
890-423-1	TP2-S	114	101
890-423-2	TP2-2	112	101
890-423-3	TP2-4	110	100
890-423-4	TP1-S	121	98
890-423-5	TP1-2	116	89
890-423-5 MS	TP1-2	104	101
890-423-5 MSD	TP1-2	100	99
890-423-6	TP1-4	102	97
890-423-7	TP1-6	110	102
890-423-8	TP1-8	114	103
890-423-9	TP1-10	112	102
890-423-10	TP3-S	119	106
890-423-11	TP3-2	113	104
890-423-12	TP3-4	118	102
LCS 880-1250/1-A	Lab Control Sample	102	98
LCS 880-1251/1-A	Lab Control Sample	88	99
LCSD 880-1250/2-A	Lab Control Sample Dup	101	99
LCSD 880-1251/2-A	Lab Control Sample Dup	100	98
MB 880-1114/5-A	Method Blank	72	84
MB 880-1250/5-A	Method Blank	106	96
MB 880-1251/5-A	Method Blank	71	83
MB 880-1284/5-A	Method Blank	106	99
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	OTPH1
		(70-130)	(70-130)
890-423-1	TP2-S	104	93
890-423-2	TP2-2	104	96
890-423-3	TP2-4	112	107
890-423-4	TP1-S	103	93
890-423-5	TP1-2	117	120
890-423-6	TP1-4	119	118
890-423-7	TP1-6	133 S1+	123
890-423-8	TP1-8	119	121
890-423-9	TP1-10	118	123
890-423-10	TP3-S	106	100
890-423-11	TP3-2	112	96
890-423-12	TP3-4	109	102
LCS 880-1274/2-A	Lab Control Sample	119	116
LCSD 880-1274/3-A	Lab Control Sample Dup	127	119
MB 880-1274/1-A	Method Blank	103	102
Surrogate Legend			
1CO = 1-Chlorooctane			

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System
OTPH = o-Terphenyl

Job ID: 890-423-1
SDG: 11224133

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-1114/5-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1114

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		03/31/21 14:23	04/03/21 04:02	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		03/31/21 14:23	04/03/21 04:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		70 - 130	03/31/21 14:23	04/03/21 04:02	1
1,4-Difluorobenzene (Surr)	84		70 - 130	03/31/21 14:23	04/03/21 04:02	1

Lab Sample ID: MB 880-1250/5-A

Matrix: Solid

Analysis Batch: 1285

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 13:51	04/04/21 06:02	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 13:51	04/04/21 06:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	04/02/21 13:51	04/04/21 06:02	1
1,4-Difluorobenzene (Surr)	96		70 - 130	04/02/21 13:51	04/04/21 06:02	1

Lab Sample ID: LCS 880-1250/1-A

Matrix: Solid

Analysis Batch: 1285

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09809		mg/Kg		98	70 - 130
Ethylbenzene	0.100	0.1046		mg/Kg		105	70 - 130
Toluene	0.100	0.1003		mg/Kg		100	70 - 130
m-Xylene & p-Xylene	0.200	0.2104		mg/Kg		105	70 - 130
o-Xylene	0.100	0.1069		mg/Kg		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

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

Lab Sample ID: LCSD 880-1250/2-A

Matrix: Solid

Analysis Batch: 1285

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1250

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.1002		mg/Kg		100	70 - 130	2	35
Ethylbenzene	0.100	0.1072		mg/Kg		107	70 - 130	2	35
Toluene	0.100	0.1018		mg/Kg		102	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.2165		mg/Kg		108	70 - 130	3	35
o-Xylene	0.100	0.1082		mg/Kg		108	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: MB 880-1251/5-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1251

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/02/21 13:59	04/03/21 17:39	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/02/21 13:59	04/03/21 17:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130	04/02/21 13:59	04/03/21 17:39	1
1,4-Difluorobenzene (Surr)	83		70 - 130	04/02/21 13:59	04/03/21 17:39	1

Lab Sample ID: LCS 880-1251/1-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: LCSD 880-1251/2-A

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

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

Lab Sample ID: 890-423-5 MS

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: TP1-2

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 890-423-5 MSD

Matrix: Solid

Analysis Batch: 1233

Client Sample ID: TP1-2

Prep Type: Total/NA

Prep Batch: 1251

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: MB 880-1284/5-A

Matrix: Solid

Analysis Batch: 1285

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1284

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
Total BTEX	<0.00100	U	0.00200	0.00100	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
Xylenes, Total	<0.00100	U	0.00400	0.00100	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		04/03/21 13:57	04/03/21 18:01	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		04/03/21 13:57	04/03/21 18:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	04/03/21 13:57	04/03/21 18:01	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/03/21 13:57	04/03/21 18:01	1

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

Lab Sample ID: MB 880-1274/1-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1274

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		04/03/21 10:56	04/04/21 22:41	1
Total TPH	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/04/21 22:41	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/04/21 22:41	1
Oil Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		04/03/21 10:56	04/04/21 22:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	04/03/21 10:56	04/04/21 22:41	1
o-Terphenyl	102		70 - 130	04/03/21 10:56	04/04/21 22:41	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

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

Lab Sample ID: LCS 880-1274/2-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1274

Analyte			Spike	LCS	LCS				%Rec.		
			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1071		mg/Kg		107	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	993.1		mg/Kg		99	70 - 130		
		LCS	LCS								
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	119		70 - 130								
o-Terphenyl	116		70 - 130								

Lab Sample ID: LCSD 880-1274/3-A

Matrix: Solid

Analysis Batch: 1289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1274

Top Bottom											
Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1155		mg/Kg		116	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	1044		mg/Kg		104	70 - 130	5	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
1-Chlorooctane	127		70 - 130								
o-Terphenyl	119		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1299/1-A

Matrix: Solid

Analysis Batch: 1329

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/05/21 14:27	1

Lab Sample ID: LCS 880-1299/2-A

Matrix: Solid

Analysis Batch: 1329

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	251.3		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-1299/3-A

Matrix: Solid

Analysis Batch: 1329

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	251.5		mg/Kg		101	90 - 110	0	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 880-1180/1-A

Matrix: Solid

Analysis Batch: 1408

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.858	U	5.00	0.858	mg/Kg			04/06/21 20:39	1

Lab Sample ID: LCS 880-1180/2-A

Matrix: Solid

Analysis Batch: 1408

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	261.1		mg/Kg		104	90 - 110

Lab Sample ID: LCSD 880-1180/3-A

Matrix: Solid

Analysis Batch: 1408

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	261.2		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-423-1 MS

Matrix: Solid

Analysis Batch: 1408

Client Sample ID: TP2-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	147		250	416.8		mg/Kg		108	90 - 110

Lab Sample ID: 890-423-1 MSD

Matrix: Solid

Analysis Batch: 1408

Client Sample ID: TP2-S

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	147		250	416.5		mg/Kg		108	90 - 110	0	20

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

GC VOA

Prep Batch: 1114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1114/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 1233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-5	TP1-2	Total/NA	Solid	8021B	1251
890-423-6	TP1-4	Total/NA	Solid	8021B	1251
890-423-7	TP1-6	Total/NA	Solid	8021B	1251
890-423-8	TP1-8	Total/NA	Solid	8021B	1251
890-423-9	TP1-10	Total/NA	Solid	8021B	1251
890-423-10	TP3-S	Total/NA	Solid	8021B	1251
890-423-11	TP3-2	Total/NA	Solid	8021B	1251
890-423-12	TP3-4	Total/NA	Solid	8021B	1251
MB 880-1114/5-A	Method Blank	Total/NA	Solid	8021B	1114
MB 880-1251/5-A	Method Blank	Total/NA	Solid	8021B	1251
LCS 880-1251/1-A	Lab Control Sample	Total/NA	Solid	8021B	1251
LCSD 880-1251/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1251
890-423-5 MS	TP1-2	Total/NA	Solid	8021B	1251
890-423-5 MSD	TP1-2	Total/NA	Solid	8021B	1251

Prep Batch: 1250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Total/NA	Solid	5035	
890-423-2	TP2-2	Total/NA	Solid	5035	
890-423-3	TP2-4	Total/NA	Solid	5035	
890-423-4	TP1-S	Total/NA	Solid	5035	
MB 880-1250/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1250/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1250/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 1251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-5	TP1-2	Total/NA	Solid	5035	
890-423-6	TP1-4	Total/NA	Solid	5035	
890-423-7	TP1-6	Total/NA	Solid	5035	
890-423-8	TP1-8	Total/NA	Solid	5035	
890-423-9	TP1-10	Total/NA	Solid	5035	
890-423-10	TP3-S	Total/NA	Solid	5035	
890-423-11	TP3-2	Total/NA	Solid	5035	
890-423-12	TP3-4	Total/NA	Solid	5035	
MB 880-1251/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1251/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1251/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-423-5 MS	TP1-2	Total/NA	Solid	5035	
890-423-5 MSD	TP1-2	Total/NA	Solid	5035	

Prep Batch: 1284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-1284/5-A	Method Blank	Total/NA	Solid	5035	

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

GC VOA

Analysis Batch: 1285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Total/NA	Solid	8021B	1250
890-423-2	TP2-2	Total/NA	Solid	8021B	1250
890-423-3	TP2-4	Total/NA	Solid	8021B	1250
890-423-4	TP1-S	Total/NA	Solid	8021B	1250
MB 880-1250/5-A	Method Blank	Total/NA	Solid	8021B	1250
MB 880-1284/5-A	Method Blank	Total/NA	Solid	8021B	1284
LCS 880-1250/1-A	Lab Control Sample	Total/NA	Solid	8021B	1250
LCSD 880-1250/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1250

GC Semi VOA

Prep Batch: 1274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Total/NA	Solid	8015NM Prep	
890-423-2	TP2-2	Total/NA	Solid	8015NM Prep	
890-423-3	TP2-4	Total/NA	Solid	8015NM Prep	
890-423-4	TP1-S	Total/NA	Solid	8015NM Prep	
890-423-5	TP1-2	Total/NA	Solid	8015NM Prep	
890-423-6	TP1-4	Total/NA	Solid	8015NM Prep	
890-423-7	TP1-6	Total/NA	Solid	8015NM Prep	
890-423-8	TP1-8	Total/NA	Solid	8015NM Prep	
890-423-9	TP1-10	Total/NA	Solid	8015NM Prep	
890-423-10	TP3-S	Total/NA	Solid	8015NM Prep	
890-423-11	TP3-2	Total/NA	Solid	8015NM Prep	
890-423-12	TP3-4	Total/NA	Solid	8015NM Prep	
MB 880-1274/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1274/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1274/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Total/NA	Solid	8015B NM	1274
890-423-2	TP2-2	Total/NA	Solid	8015B NM	1274
890-423-3	TP2-4	Total/NA	Solid	8015B NM	1274
890-423-4	TP1-S	Total/NA	Solid	8015B NM	1274
890-423-5	TP1-2	Total/NA	Solid	8015B NM	1274
890-423-6	TP1-4	Total/NA	Solid	8015B NM	1274
890-423-7	TP1-6	Total/NA	Solid	8015B NM	1274
890-423-8	TP1-8	Total/NA	Solid	8015B NM	1274
890-423-9	TP1-10	Total/NA	Solid	8015B NM	1274
890-423-10	TP3-S	Total/NA	Solid	8015B NM	1274
890-423-11	TP3-2	Total/NA	Solid	8015B NM	1274
890-423-12	TP3-4	Total/NA	Solid	8015B NM	1274
MB 880-1274/1-A	Method Blank	Total/NA	Solid	8015B NM	1274
LCS 880-1274/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1274
LCSD 880-1274/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1274

HPLC/IC

Leach Batch: 1180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Soluble	Solid	DI Leach	

Eurofins Xenco, Carlsbad

QC Association Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

HPLC/IC (Continued)

Leach Batch: 1180 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-2	TP2-2	Soluble	Solid	DI Leach	
890-423-3	TP2-4	Soluble	Solid	DI Leach	
890-423-4	TP1-S	Soluble	Solid	DI Leach	
890-423-5	TP1-2	Soluble	Solid	DI Leach	
890-423-6	TP1-4	Soluble	Solid	DI Leach	
890-423-7	TP1-6	Soluble	Solid	DI Leach	
890-423-8	TP1-8	Soluble	Solid	DI Leach	
890-423-9	TP1-10	Soluble	Solid	DI Leach	
890-423-10	TP3-S	Soluble	Solid	DI Leach	
MB 880-1180/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1180/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1180/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-423-1 MS	TP2-S	Soluble	Solid	DI Leach	
890-423-1 MSD	TP2-S	Soluble	Solid	DI Leach	

Leach Batch: 1299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-11	TP3-2	Soluble	Solid	DI Leach	
890-423-12	TP3-4	Soluble	Solid	DI Leach	
MB 880-1299/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1299/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1299/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 1329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-11	TP3-2	Soluble	Solid	300.0	1299
890-423-12	TP3-4	Soluble	Solid	300.0	1299
MB 880-1299/1-A	Method Blank	Soluble	Solid	300.0	1299
LCS 880-1299/2-A	Lab Control Sample	Soluble	Solid	300.0	1299
LCSD 880-1299/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1299

Analysis Batch: 1408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-423-1	TP2-S	Soluble	Solid	300.0	1180
890-423-2	TP2-2	Soluble	Solid	300.0	1180
890-423-3	TP2-4	Soluble	Solid	300.0	1180
890-423-4	TP1-S	Soluble	Solid	300.0	1180
890-423-5	TP1-2	Soluble	Solid	300.0	1180
890-423-6	TP1-4	Soluble	Solid	300.0	1180
890-423-7	TP1-6	Soluble	Solid	300.0	1180
890-423-8	TP1-8	Soluble	Solid	300.0	1180
890-423-9	TP1-10	Soluble	Solid	300.0	1180
890-423-10	TP3-S	Soluble	Solid	300.0	1180
MB 880-1180/1-A	Method Blank	Soluble	Solid	300.0	1180
LCS 880-1180/2-A	Lab Control Sample	Soluble	Solid	300.0	1180
LCSD 880-1180/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1180
890-423-1 MS	TP2-S	Soluble	Solid	300.0	1180
890-423-1 MSD	TP2-S	Soluble	Solid	300.0	1180

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP2-S

Date Collected: 03/24/21 11:20

Date Received: 03/25/21 09:30

Lab Sample ID: 890-423-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1250	04/02/21 13:51	KL	XM
Total/NA	Analysis	8021B		1	1285	04/04/21 13:28	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 02:55	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 22:03	CH	XM

Client Sample ID: TP2-2

Date Collected: 03/24/21 11:30

Date Received: 03/25/21 09:30

Lab Sample ID: 890-423-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1250	04/02/21 13:51	KL	XM
Total/NA	Analysis	8021B		1	1285	04/04/21 13:48	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 03:16	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 22:18	CH	XM

Client Sample ID: TP2-4

Date Collected: 03/24/21 11:40

Date Received: 03/25/21 09:30

Lab Sample ID: 890-423-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1250	04/02/21 13:51	KL	XM
Total/NA	Analysis	8021B		1	1285	04/04/21 14:08	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 03:37	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 22:23	CH	XM

Client Sample ID: TP1-S

Date Collected: 03/24/21 12:30

Date Received: 03/25/21 09:30

Lab Sample ID: 890-423-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1250	04/02/21 13:51	KL	XM
Total/NA	Analysis	8021B		1	1285	04/04/21 14:29	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 04:19	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 22:37	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-2

Lab Sample ID: 890-423-5

Date Collected: 03/24/21 12:40

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 18:04	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 04:40	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 22:42	CH	XM

Client Sample ID: TP1-4

Lab Sample ID: 890-423-6

Date Collected: 03/24/21 12:50

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 18:29	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 05:01	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		5	1408	04/06/21 22:47	CH	XM

Client Sample ID: TP1-6

Lab Sample ID: 890-423-7

Date Collected: 03/24/21 13:00

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 18:54	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 05:22	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		5	1408	04/06/21 22:52	CH	XM

Client Sample ID: TP1-8

Lab Sample ID: 890-423-8

Date Collected: 03/24/21 13:10

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 19:20	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 05:43	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		10	1408	04/06/21 22:57	CH	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Client Sample ID: TP1-10

Lab Sample ID: 890-423-9

Date Collected: 03/24/21 13:30

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 19:45	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 06:04	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		20	1408	04/06/21 23:02	CH	XM

Client Sample ID: TP3-S

Lab Sample ID: 890-423-10

Date Collected: 03/24/21 13:40

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 20:10	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 06:26	AJ	XM
Soluble	Leach	DI Leach			1180	04/01/21 12:18	CH	XM
Soluble	Analysis	300.0		1	1408	04/06/21 23:07	CH	XM

Client Sample ID: TP3-2

Lab Sample ID: 890-423-11

Date Collected: 03/24/21 13:50

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 20:35	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 06:47	AJ	XM
Soluble	Leach	DI Leach			1299	04/04/21 15:20	SC	XM
Soluble	Analysis	300.0		1	1329	04/05/21 16:32	CH	XM

Client Sample ID: TP3-4

Lab Sample ID: 890-423-12

Date Collected: 03/24/21 14:00

Matrix: Solid

Date Received: 03/25/21 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1251	04/02/21 13:59	KL	XM
Total/NA	Analysis	8021B		1	1233	04/03/21 21:00	KL	XM
Total/NA	Prep	8015NM Prep			1274	04/03/21 10:56	DM	XM
Total/NA	Analysis	8015B NM		1	1289	04/05/21 07:09	AJ	XM
Soluble	Leach	DI Leach			1299	04/04/21 15:20	SC	XM
Soluble	Analysis	300.0		1	1329	04/05/21 16:37	CH	XM

Laboratory References:

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

Eurofins Xenco, Carlsbad

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Laboratory: Eurofins Xenco, Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21
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
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
5035	Closed System Purge and Trap	SW846	XM
8015NM Prep	Microextraction	SW846	XM
DI Leach	Deionized Water Leaching Procedure	ASTM	XM

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.

Laboratory References:

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

Eurofins Xenco, Carlsbad

Sample Summary

Client: GHD Services Inc.
Project/Site: Livingston Ridge SWD System

Job ID: 890-423-1
SDG: 11224133

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
890-423-1	TP2-S	Solid	03/24/21 11:20	03/25/21 09:30	
890-423-2	TP2-2	Solid	03/24/21 11:30	03/25/21 09:30	
890-423-3	TP2-4	Solid	03/24/21 11:40	03/25/21 09:30	
890-423-4	TP1-S	Solid	03/24/21 12:30	03/25/21 09:30	
890-423-5	TP1-2	Solid	03/24/21 12:40	03/25/21 09:30	
890-423-6	TP1-4	Solid	03/24/21 12:50	03/25/21 09:30	
890-423-7	TP1-6	Solid	03/24/21 13:00	03/25/21 09:30	
890-423-8	TP1-8	Solid	03/24/21 13:10	03/25/21 09:30	
890-423-9	TP1-10	Solid	03/24/21 13:30	03/25/21 09:30	
890-423-10	TP3-S	Solid	03/24/21 13:40	03/25/21 09:30	
890-423-11	TP3-2	Solid	03/24/21 13:50	03/25/21 09:30	
890-423-12	TP3-4	Solid	03/24/21 14:00	03/25/21 09:30	

Eurofins Xenco, Carlsbad



Setting the Standard since 1990

Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

Service Center - San Antonio, Texas (210-509-3334)

www.xenco.com

Page 1 Of 2

CHAIN OF CUSTODY

Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

4/8/2021

Service Center - San Antonio, Texas (210-509-3334)

XENO XENCO.COM

Xenoco Quote #

Xenoco Job #

Matrix Codes

S = Soil/Sediment
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW = Ocean/Sea Water
W = Wipe
O = Oil
WW = Waste Water
A = Air

Analytical Information

Project Information

Client / Reporting Information
Company Name / Branch:
GHD/Midland
Company Address: 2135 S. Loop 280 West Midland TX

Project Name/Number:
Livingston Ridge SWD System / 11224133
Project Location:
Eddy County, New Mexico
Invoice To: EOG / James Kennedy

Email: becky.haskell@ghd.com
glenn.quinney@ghd.com
Phone No: (432)260-7917
zach.comino@ghd.com
tom.larson@ghd.com

PO Number: NA

Sample's Name Zach Comino

Field ID / Point of Collection

Field Comments

No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH By 8015 Mod (GRO, DRO & MRO)	BTEX 8021 B	Chloride 600
1	TP2-S		08/16/20	1120	5	1							X	X	X	X
2	TP2-2															
3	TP2-4															
4	TP1-S															
5	TP1-2															
6	TP1-4															
7	TP1-6															
8	TP1-8															
9	TP1-10															
10	TP3-S															

Data Deliverable information

☐ Same Day TAT
☐ Next Day EMERGENCY
☐ 2 Day EMERGENCY
☐ 3 Day EMERGENCY

☒ 5 Day TAT
☐ 7 Day TAT
☐ Contract TAT

☐ Level II Std QC
☐ Level III Std QC+ Forms
☐ Level 3 (CLP Forms)
☐ TRRP Checklist

☐ Level IV (Full Data Pkg / raw data)
☐ TRRP Level IV
☐ UST / RG 411

TAT Starts Day received by Lab, if received by 5:00 pm

Report MDLs and J values.

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:

Date Time:

Received By:

Relinquished By:

Date Time:

Received By:

Relinquished by:

Date Time:

Received By:

Relinquished By:

Date Time:

Received By:

Relinquished by:

Date Time:

Received By:

Custody Seal #

Preserved where applicable

On Ice

Cooler Temp.

Thermo Corr. Factor

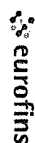
890-423 Chain of Custody

Page 29 of 35

[illegible]

**1089 N Canal St.
Carlsbad, NM 88220**

Chain of Custody Record



Environment Testing America

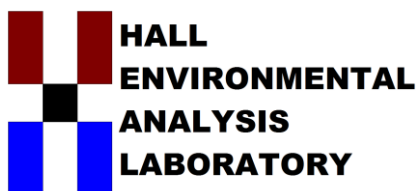
Ver. 11/01/2020

Phone. 575-988-3199 Fax. 575-988-3199

Chain of Custody Record

El vivor: ment testing
America

Var. 11/01/7070



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 18, 2022

Nate Reece
GHD Midland
2135 S Loop 250 W
Midland, TX 79703
TEL: (432) 686-0086
FAX

RE: Livingston SWD System

OrderNo.: 2211462

Dear Nate Reece:

Hall Environmental Analysis Laboratory received 29 sample(s) on 11/9/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: TP00

Project: Livingston SWD System

Collection Date: 11/7/2022 12:00:00 PM

Lab ID: 2211462-001

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	ND	60		mg/Kg	20	11/14/2022 5:52:33 PM	71469
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 2:42:49 PM	71411
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 2:42:49 PM	71411
Surr: DNOP	102	21-129		%Rec	1	11/11/2022 2:42:49 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/10/2022 8:33:54 PM	71393
Surr: BFB	90.6	37.7-212		%Rec	1	11/10/2022 8:33:54 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/10/2022 8:33:54 PM	71393
Toluene	ND	0.049		mg/Kg	1	11/10/2022 8:33:54 PM	71393
Ethylbenzene	ND	0.049		mg/Kg	1	11/10/2022 8:33:54 PM	71393
Xylenes, Total	ND	0.098		mg/Kg	1	11/10/2022 8:33:54 PM	71393
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	11/10/2022 8:33:54 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 1 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: TP02

Project: Livingston SWD System

Collection Date: 11/7/2022 12:05:00 PM

Lab ID: 2211462-002

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	ND	60		mg/Kg	20	11/14/2022 6:04:57 PM	71469
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 2:53:28 PM	71411
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 2:53:28 PM	71411
Surr: DNOP	99.0	21-129		%Rec	1	11/11/2022 2:53:28 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 8:57:22 PM	71393
Surr: BFB	88.8	37.7-212		%Rec	1	11/10/2022 8:57:22 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/10/2022 8:57:22 PM	71393
Toluene	ND	0.048		mg/Kg	1	11/10/2022 8:57:22 PM	71393
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 8:57:22 PM	71393
Xylenes, Total	ND	0.096		mg/Kg	1	11/10/2022 8:57:22 PM	71393
Surr: 4-Bromofluorobenzene	93.4	70-130		%Rec	1	11/10/2022 8:57:22 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: TP04

Project: Livingston SWD System

Collection Date: 11/7/2022 12:10:00 PM

Lab ID: 2211462-003

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	ND	60		mg/Kg	20	11/14/2022 2:16:57 PM	71467
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 3:04:16 PM	71411
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/11/2022 3:04:16 PM	71411
Surr: DNOP	105	21-129		%Rec	1	11/11/2022 3:04:16 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/10/2022 9:44:28 PM	71393
Surr: BFB	91.2	37.7-212		%Rec	1	11/10/2022 9:44:28 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	11/10/2022 9:44:28 PM	71393
Toluene	ND	0.047		mg/Kg	1	11/10/2022 9:44:28 PM	71393
Ethylbenzene	ND	0.047		mg/Kg	1	11/10/2022 9:44:28 PM	71393
Xylenes, Total	ND	0.094		mg/Kg	1	11/10/2022 9:44:28 PM	71393
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	11/10/2022 9:44:28 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 3 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH1

Project: Livingston SWD System

Collection Date: 11/7/2022 12:15:00 PM

Lab ID: 2211462-004

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	750	60		mg/Kg	20	11/14/2022 3:18:58 PM	71467
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 3:15:03 PM	71411
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 3:15:03 PM	71411
Surr: DNOP	104	21-129		%Rec	1	11/11/2022 3:15:03 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/10/2022 10:07:59 PM	71393
Surr: BFB	86.7	37.7-212		%Rec	1	11/10/2022 10:07:59 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	11/10/2022 10:07:59 PM	71393
Toluene	ND	0.047		mg/Kg	1	11/10/2022 10:07:59 PM	71393
Ethylbenzene	ND	0.047		mg/Kg	1	11/10/2022 10:07:59 PM	71393
Xylenes, Total	ND	0.093		mg/Kg	1	11/10/2022 10:07:59 PM	71393
Surr: 4-Bromofluorobenzene	91.6	70-130		%Rec	1	11/10/2022 10:07:59 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 4 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH2

Project: Livingston SWD System

Collection Date: 11/7/2022 12:20:00 PM

Lab ID: 2211462-005

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	730	60		mg/Kg	20	11/14/2022 3:56:12 PM	71467
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 3:25:51 PM	71411
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 3:25:51 PM	71411
Surr: DNOP	110	21-129		%Rec	1	11/11/2022 3:25:51 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/10/2022 10:31:29 PM	71393
Surr: BFB	88.0	37.7-212		%Rec	1	11/10/2022 10:31:29 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/10/2022 10:31:29 PM	71393
Toluene	ND	0.049		mg/Kg	1	11/10/2022 10:31:29 PM	71393
Ethylbenzene	ND	0.049		mg/Kg	1	11/10/2022 10:31:29 PM	71393
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 10:31:29 PM	71393
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	11/10/2022 10:31:29 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 5 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH3

Project: Livingston SWD System

Collection Date: 11/7/2022 12:25:00 PM

Lab ID: 2211462-006

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	750	60		mg/Kg	20	11/14/2022 4:08:36 PM	71467
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 3:36:37 PM	71411
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/11/2022 3:36:37 PM	71411
Surr: DNOP	115	21-129		%Rec	1	11/11/2022 3:36:37 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 10:55:00 PM	71393
Surr: BFB	88.5	37.7-212		%Rec	1	11/10/2022 10:55:00 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/10/2022 10:55:00 PM	71393
Toluene	ND	0.048		mg/Kg	1	11/10/2022 10:55:00 PM	71393
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 10:55:00 PM	71393
Xylenes, Total	ND	0.096		mg/Kg	1	11/10/2022 10:55:00 PM	71393
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	11/10/2022 10:55:00 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 6 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH4

Project: Livingston SWD System

Collection Date: 11/7/2022 12:30:00 PM

Lab ID: 2211462-007

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	1400	60		mg/Kg	20	11/14/2022 4:21:00 PM	71467
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 3:47:22 PM	71411
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 3:47:22 PM	71411
Surr: DNOP	114	21-129		%Rec	1	11/11/2022 3:47:22 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/10/2022 11:18:28 PM	71393
Surr: BFB	89.9	37.7-212		%Rec	1	11/10/2022 11:18:28 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/10/2022 11:18:28 PM	71393
Toluene	ND	0.049		mg/Kg	1	11/10/2022 11:18:28 PM	71393
Ethylbenzene	ND	0.049		mg/Kg	1	11/10/2022 11:18:28 PM	71393
Xylenes, Total	ND	0.098		mg/Kg	1	11/10/2022 11:18:28 PM	71393
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	11/10/2022 11:18:28 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 7 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW1

Project: Livingston SWD System

Collection Date: 11/7/2022 12:35:00 PM

Lab ID: 2211462-008

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	1100	60		mg/Kg	20	11/14/2022 4:33:25 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 3:58:05 PM	71411
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 3:58:05 PM	71411
Surr: DNOP	108	21-129		%Rec	1	11/11/2022 3:58:05 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/10/2022 11:41:57 PM	71393
Surr: BFB	88.6	37.7-212		%Rec	1	11/10/2022 11:41:57 PM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/10/2022 11:41:57 PM	71393
Toluene	ND	0.049		mg/Kg	1	11/10/2022 11:41:57 PM	71393
Ethylbenzene	ND	0.049		mg/Kg	1	11/10/2022 11:41:57 PM	71393
Xylenes, Total	ND	0.098		mg/Kg	1	11/10/2022 11:41:57 PM	71393
Surr: 4-Bromofluorobenzene	92.5	70-130		%Rec	1	11/10/2022 11:41:57 PM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 8 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW2

Project: Livingston SWD System

Collection Date: 11/7/2022 12:40:00 PM

Lab ID: 2211462-009

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	180	60		mg/Kg	20	11/14/2022 4:45:50 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 4:08:50 PM	71411
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 4:08:50 PM	71411
Surr: DNOP	112	21-129		%Rec	1	11/11/2022 4:08:50 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/11/2022 12:05:23 AM	71393
Surr: BFB	91.9	37.7-212		%Rec	1	11/11/2022 12:05:23 AM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/11/2022 12:05:23 AM	71393
Toluene	ND	0.049		mg/Kg	1	11/11/2022 12:05:23 AM	71393
Ethylbenzene	ND	0.049		mg/Kg	1	11/11/2022 12:05:23 AM	71393
Xylenes, Total	ND	0.099		mg/Kg	1	11/11/2022 12:05:23 AM	71393
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	11/11/2022 12:05:23 AM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 9 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH5

Project: Livingston SWD System

Collection Date: 11/7/2022 12:45:00 PM

Lab ID: 2211462-010

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	970	60		mg/Kg	20	11/14/2022 6:12:40 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 4:19:33 PM	71411
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 4:19:33 PM	71411
Surr: DNOP	115	21-129		%Rec	1	11/11/2022 4:19:33 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/11/2022 12:28:49 AM	71393
Surr: BFB	88.2	37.7-212		%Rec	1	11/11/2022 12:28:49 AM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/11/2022 12:28:49 AM	71393
Toluene	ND	0.048		mg/Kg	1	11/11/2022 12:28:49 AM	71393
Ethylbenzene	ND	0.048		mg/Kg	1	11/11/2022 12:28:49 AM	71393
Xylenes, Total	ND	0.096		mg/Kg	1	11/11/2022 12:28:49 AM	71393
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	11/11/2022 12:28:49 AM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 10 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH6

Project: Livingston SWD System

Collection Date: 11/7/2022 12:50:00 PM

Lab ID: 2211462-011

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	4500	150		mg/Kg	50	11/15/2022 4:16:10 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 4:30:14 PM	71411
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 4:30:14 PM	71411
Surr: DNOP	109	21-129		%Rec	1	11/11/2022 4:30:14 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/11/2022 12:52:13 AM	71393
Surr: BFB	87.6	37.7-212		%Rec	1	11/11/2022 12:52:13 AM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/11/2022 12:52:13 AM	71393
Toluene	ND	0.050		mg/Kg	1	11/11/2022 12:52:13 AM	71393
Ethylbenzene	ND	0.050		mg/Kg	1	11/11/2022 12:52:13 AM	71393
Xylenes, Total	ND	0.099		mg/Kg	1	11/11/2022 12:52:13 AM	71393
Surr: 4-Bromofluorobenzene	93.6	70-130		%Rec	1	11/11/2022 12:52:13 AM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 11 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH7

Project: Livingston SWD System

Collection Date: 11/7/2022 12:55:00 PM

Lab ID: 2211462-012

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	1300	60		mg/Kg	20	11/14/2022 6:37:28 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 4:40:55 PM	71411
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 4:40:55 PM	71411
Surr: DNOP	108	21-129		%Rec	1	11/11/2022 4:40:55 PM	71411
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/11/2022 1:15:33 AM	71393
Surr: BFB	87.4	37.7-212		%Rec	1	11/11/2022 1:15:33 AM	71393
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/11/2022 1:15:33 AM	71393
Toluene	ND	0.048		mg/Kg	1	11/11/2022 1:15:33 AM	71393
Ethylbenzene	ND	0.048		mg/Kg	1	11/11/2022 1:15:33 AM	71393
Xylenes, Total	ND	0.097		mg/Kg	1	11/11/2022 1:15:33 AM	71393
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	11/11/2022 1:15:33 AM	71393

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 12 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH8

Project: Livingston SWD System

Collection Date: 11/7/2022 1:00:00 PM

Lab ID: 2211462-013

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	1600	60		mg/Kg	20	11/14/2022 6:49:52 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	11/11/2022 5:23:23 PM	71413
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	11/11/2022 5:23:23 PM	71413
Surr: DNOP	93.9	21-129		%Rec	1	11/11/2022 5:23:23 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 12:21:00 AM	71401
Surr: BFB	99.1	37.7-212		%Rec	1	11/12/2022 12:21:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 12:21:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 12:21:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 12:21:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 12:21:00 AM	71401
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	11/12/2022 12:21:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 13 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH9

Project: Livingston SWD System

Collection Date: 11/7/2022 1:05:00 PM

Lab ID: 2211462-014

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	360	60		mg/Kg	20	11/14/2022 7:02:17 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 5:33:59 PM	71413
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/11/2022 5:33:59 PM	71413
Surr: DNOP	130	21-129	S	%Rec	1	11/11/2022 5:33:59 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 1:20:00 AM	71401
Surr: BFB	98.3	37.7-212		%Rec	1	11/12/2022 1:20:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 1:20:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 1:20:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 1:20:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 1:20:00 AM	71401
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	11/12/2022 1:20:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 14 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH10

Project: Livingston SWD System

Collection Date: 11/7/2022 1:10:00 PM

Lab ID: 2211462-015

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	4800	300		mg/Kg	100	11/17/2022 6:51:03 AM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 6:05:42 PM	71413
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 6:05:42 PM	71413
Surr: DNOP	103	21-129		%Rec	1	11/11/2022 6:05:42 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 2:19:00 AM	71401
Surr: BFB	98.5	37.7-212		%Rec	1	11/12/2022 2:19:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 2:19:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 2:19:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 2:19:00 AM	71401
Xylenes, Total	ND	0.099		mg/Kg	1	11/12/2022 2:19:00 AM	71401
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	11/12/2022 2:19:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 15 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH11

Project: Livingston SWD System

Collection Date: 11/7/2022 1:15:00 PM

Lab ID: 2211462-016

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	230	60		mg/Kg	20	11/14/2022 7:51:53 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 6:16:12 PM	71413
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 6:16:12 PM	71413
Surr: DNOP	104	21-129		%Rec	1	11/11/2022 6:16:12 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 2:38:00 AM	71401
Surr: BFB	95.1	37.7-212		%Rec	1	11/12/2022 2:38:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 2:38:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 2:38:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 2:38:00 AM	71401
Xylenes, Total	ND	0.099		mg/Kg	1	11/12/2022 2:38:00 AM	71401
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	11/12/2022 2:38:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 16 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH12

Project: Livingston SWD System

Collection Date: 11/7/2022 1:20:00 PM

Lab ID: 2211462-017

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	2700	150		mg/Kg	50	11/15/2022 4:28:35 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 6:26:40 PM	71413
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 6:26:40 PM	71413
Surr: DNOP	105	21-129		%Rec	1	11/11/2022 6:26:40 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 2:58:00 AM	71401
Surr: BFB	96.4	37.7-212		%Rec	1	11/12/2022 2:58:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 2:58:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 2:58:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 2:58:00 AM	71401
Xylenes, Total	ND	0.098		mg/Kg	1	11/12/2022 2:58:00 AM	71401
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	11/12/2022 2:58:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 17 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH13

Project: Livingston SWD System

Collection Date: 11/7/2022 1:25:00 PM

Lab ID: 2211462-018

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	140	61		mg/Kg	20	11/14/2022 8:16:43 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 6:37:08 PM	71413
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 6:37:08 PM	71413
Surr: DNOP	106	21-129		%Rec	1	11/11/2022 6:37:08 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 3:17:00 AM	71401
Surr: BFB	96.7	37.7-212		%Rec	1	11/12/2022 3:17:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 3:17:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 3:17:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 3:17:00 AM	71401
Xylenes, Total	ND	0.098		mg/Kg	1	11/12/2022 3:17:00 AM	71401
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	11/12/2022 3:17:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 18 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH14

Project: Livingston SWD System

Collection Date: 11/7/2022 1:30:00 PM

Lab ID: 2211462-019

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	620	59		mg/Kg	20	11/14/2022 8:29:07 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 6:47:35 PM	71413
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 6:47:35 PM	71413
Surr: DNOP	107	21-129		%Rec	1	11/11/2022 6:47:35 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/12/2022 3:37:00 AM	71401
Surr: BFB	94.6	37.7-212		%Rec	1	11/12/2022 3:37:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 3:37:00 AM	71401
Toluene	ND	0.050		mg/Kg	1	11/12/2022 3:37:00 AM	71401
Ethylbenzene	ND	0.050		mg/Kg	1	11/12/2022 3:37:00 AM	71401
Xylenes, Total	ND	0.099		mg/Kg	1	11/12/2022 3:37:00 AM	71401
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	11/12/2022 3:37:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 19 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH15

Project: Livingston SWD System

Collection Date: 11/7/2022 1:35:00 PM

Lab ID: 2211462-020

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	230	60		mg/Kg	20	11/14/2022 8:41:32 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 6:58:00 PM	71413
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 6:58:00 PM	71413
Surr: DNOP	108	21-129		%Rec	1	11/11/2022 6:58:00 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 3:56:00 AM	71401
Surr: BFB	100	37.7-212		%Rec	1	11/12/2022 3:56:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 3:56:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 3:56:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 3:56:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 3:56:00 AM	71401
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	11/12/2022 3:56:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 20 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH16

Project: Livingston SWD System

Collection Date: 11/7/2022 1:40:00 PM

Lab ID: 2211462-021

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	65	59		mg/Kg	20	11/14/2022 8:53:56 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	12		mg/Kg	1	11/11/2022 7:18:45 PM	71413
Motor Oil Range Organics (MRO)	ND	41		mg/Kg	1	11/11/2022 7:18:45 PM	71413
Surr: DNOP	106	21-129		%Rec	1	11/11/2022 7:18:45 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 4:16:00 AM	71401
Surr: BFB	96.3	37.7-212		%Rec	1	11/12/2022 4:16:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 4:16:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 4:16:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 4:16:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 4:16:00 AM	71401
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	11/12/2022 4:16:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 21 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH17

Project: Livingston SWD System

Collection Date: 11/7/2022 1:45:00 PM

Lab ID: 2211462-022

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	ND	60		mg/Kg	20	11/14/2022 9:06:20 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 7:29:08 PM	71413
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/11/2022 7:29:08 PM	71413
Surr: DNOP	106	21-129		%Rec	1	11/11/2022 7:29:08 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 4:35:00 AM	71401
Surr: BFB	95.9	37.7-212		%Rec	1	11/12/2022 4:35:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 4:35:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 4:35:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 4:35:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 4:35:00 AM	71401
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	11/12/2022 4:35:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 22 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: BH18

Project: Livingston SWD System

Collection Date: 11/7/2022 1:50:00 PM

Lab ID: 2211462-023

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	90	60		mg/Kg	20	11/14/2022 9:18:45 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 7:39:33 PM	71413
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 7:39:33 PM	71413
Surr: DNOP	106	21-129		%Rec	1	11/11/2022 7:39:33 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/12/2022 5:14:00 AM	71401
Surr: BFB	93.0	37.7-212		%Rec	1	11/12/2022 5:14:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 5:14:00 AM	71401
Toluene	ND	0.050		mg/Kg	1	11/12/2022 5:14:00 AM	71401
Ethylbenzene	ND	0.050		mg/Kg	1	11/12/2022 5:14:00 AM	71401
Xylenes, Total	ND	0.10		mg/Kg	1	11/12/2022 5:14:00 AM	71401
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	11/12/2022 5:14:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 23 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW3

Project: Livingston SWD System

Collection Date: 11/7/2022 1:55:00 PM

Lab ID: 2211462-024

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	77	60		mg/Kg	20	11/14/2022 9:31:09 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 7:49:58 PM	71413
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 7:49:58 PM	71413
Surr: DNOP	108	21-129		%Rec	1	11/11/2022 7:49:58 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/12/2022 5:34:00 AM	71401
Surr: BFB	95.6	37.7-212		%Rec	1	11/12/2022 5:34:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 5:34:00 AM	71401
Toluene	ND	0.050		mg/Kg	1	11/12/2022 5:34:00 AM	71401
Ethylbenzene	ND	0.050		mg/Kg	1	11/12/2022 5:34:00 AM	71401
Xylenes, Total	ND	0.10		mg/Kg	1	11/12/2022 5:34:00 AM	71401
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	11/12/2022 5:34:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 24 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW4

Project: Livingston SWD System

Collection Date: 11/7/2022 2:00:00 PM

Lab ID: 2211462-025

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	2700	150		mg/Kg	50	11/15/2022 4:40:59 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 8:00:21 PM	71413
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 8:00:21 PM	71413
Surr: DNOP	109	21-129		%Rec	1	11/11/2022 8:00:21 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 5:53:00 AM	71401
Surr: BFB	101	37.7-212		%Rec	1	11/12/2022 5:53:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 5:53:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 5:53:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 5:53:00 AM	71401
Xylenes, Total	ND	0.096		mg/Kg	1	11/12/2022 5:53:00 AM	71401
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	11/12/2022 5:53:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 25 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW5

Project: Livingston SWD System

Collection Date: 11/7/2022 2:05:00 PM

Lab ID: 2211462-026

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	4300	150		mg/Kg	50	11/15/2022 4:53:24 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 8:10:44 PM	71413
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 8:10:44 PM	71413
Surr: DNOP	104	21-129		%Rec	1	11/11/2022 8:10:44 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 6:12:00 AM	71401
Surr: BFB	97.8	37.7-212		%Rec	1	11/12/2022 6:12:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 6:12:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 6:12:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 6:12:00 AM	71401
Xylenes, Total	ND	0.098		mg/Kg	1	11/12/2022 6:12:00 AM	71401
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	11/12/2022 6:12:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 26 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW6

Project: Livingston SWD System

Collection Date: 11/7/2022 2:10:00 PM

Lab ID: 2211462-027

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JTT
Chloride	63	60		mg/Kg	20	11/14/2022 10:33:11 PM	71468
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 8:21:05 PM	71413
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/11/2022 8:21:05 PM	71413
Surr: DNOP	115	21-129		%Rec	1	11/11/2022 8:21:05 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 6:32:00 AM	71401
Surr: BFB	96.4	37.7-212		%Rec	1	11/12/2022 6:32:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 6:32:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 6:32:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 6:32:00 AM	71401
Xylenes, Total	ND	0.098		mg/Kg	1	11/12/2022 6:32:00 AM	71401
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	11/12/2022 6:32:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 27 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW7

Project: Livingston SWD System

Collection Date: 11/7/2022 2:15:00 PM

Lab ID: 2211462-028

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	66	61		mg/Kg	20	11/14/2022 9:35:59 PM	71490
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	11/11/2022 8:31:25 PM	71413
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	11/11/2022 8:31:25 PM	71413
Surr: DNOP	114	21-129		%Rec	1	11/11/2022 8:31:25 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/12/2022 6:51:00 AM	71401
Surr: BFB	93.8	37.7-212		%Rec	1	11/12/2022 6:51:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	11/12/2022 6:51:00 AM	71401
Toluene	ND	0.049		mg/Kg	1	11/12/2022 6:51:00 AM	71401
Ethylbenzene	ND	0.049		mg/Kg	1	11/12/2022 6:51:00 AM	71401
Xylenes, Total	ND	0.099		mg/Kg	1	11/12/2022 6:51:00 AM	71401
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	11/12/2022 6:51:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 28 of 37

Analytical Report

Lab Order 2211462

Date Reported: 11/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW8

Project: Livingston SWD System

Collection Date: 11/7/2022 2:20:00 PM

Lab ID: 2211462-029

Matrix: SOIL

Received Date: 11/9/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: NAI
Chloride	960	60		mg/Kg	20	11/14/2022 9:48:25 PM	71490
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	11/11/2022 8:41:46 PM	71413
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	11/11/2022 8:41:46 PM	71413
Surr: DNOP	106	21-129		%Rec	1	11/11/2022 8:41:46 PM	71413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/12/2022 7:11:00 AM	71401
Surr: BFB	100	37.7-212		%Rec	1	11/12/2022 7:11:00 AM	71401
EPA METHOD 8021B: VOLATILES							Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	11/12/2022 7:11:00 AM	71401
Toluene	ND	0.048		mg/Kg	1	11/12/2022 7:11:00 AM	71401
Ethylbenzene	ND	0.048		mg/Kg	1	11/12/2022 7:11:00 AM	71401
Xylenes, Total	ND	0.097		mg/Kg	1	11/12/2022 7:11:00 AM	71401
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	11/12/2022 7:11:00 AM	71401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 29 of 37

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2211462

18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: MB-71467	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 71467	RunNo: 92554								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329199 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-71467	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 71467	RunNo: 92554								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329200 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.5	90	110			

Sample ID: MB-71468	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 71468	RunNo: 92554								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329201 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-71468	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 71468	RunNo: 92554								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329202 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.5	90	110			

Sample ID: MB-71469	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 71469	RunNo: 92581								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329299 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-71469	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 71469	RunNo: 92581								
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329300 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2211462
18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: MB-71490	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 71490	RunNo: 92581
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329330 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-71490	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 71490	RunNo: 92581
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329331 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	15	1.5 15.00 0 97.6 90 110

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of standard limits. If undiluted results may be estimated.
- B

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2211462

18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: LCS-71411	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 71411			RunNo: 92519						
Prep Date: 11/10/2022	Analysis Date: 11/11/2022			SeqNo: 3325799			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.1	64.4	127			
Surr: DNOP	5.6		5.000		111	21	129			

Sample ID: MB-71411	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 71411			RunNo: 92519						
Prep Date: 11/10/2022	Analysis Date: 11/11/2022			SeqNo: 3325801			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		108	21	129			

Sample ID: 2211462-014AMS	SampType: MS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: BH9	Batch ID: 71413			RunNo: 92519						
Prep Date: 11/10/2022	Analysis Date: 11/11/2022			SeqNo: 3327379			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	13	43.71	0	92.5	36.1	154			
Surr: DNOP	5.1		4.371		116	21	129			

Sample ID: 2211462-014AMSD	SampType: MSD			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: BH9	Batch ID: 71413			RunNo: 92519						
Prep Date: 11/10/2022	Analysis Date: 11/11/2022			SeqNo: 3327380			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	14	47.26	0	103	36.1	154	18.1	33.9	
Surr: DNOP	6.0		4.726		127	21	129	0	0	

Sample ID: LCS-71413	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 71413			RunNo: 92519						
Prep Date: 11/10/2022	Analysis Date: 11/11/2022			SeqNo: 3327399			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.00	0	101	64.4	127			
Surr: DNOP	6.1		5.000		121	21	129			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2211462
18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: MB-71413	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71413	RunNo: 92519								
Prep Date: 11/10/2022	Analysis Date: 11/11/2022	SeqNo: 3327400		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		117	21	129			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of standard limits. If undiluted results may be estimated.
- B

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2211462

18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: mb-71393	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 71393			RunNo: 92479						
Prep Date: 11/9/2022	Analysis Date: 11/10/2022			SeqNo: 3327238		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.0	37.7	212			

Sample ID: LCS-71393	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 71393			RunNo: 92479						
Prep Date: 11/9/2022	Analysis Date: 11/10/2022			SeqNo: 3327239		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.7	72.3	137			
Surr: BFB	1800		1000		184	37.7	212			

Sample ID: lcs-71366	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 71366			RunNo: 92550						
Prep Date: 11/8/2022	Analysis Date: 11/11/2022			SeqNo: 3327598		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2100		1000		211	37.7	212			

Sample ID: mb-71366	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 71366			RunNo: 92550						
Prep Date: 11/8/2022	Analysis Date: 11/11/2022			SeqNo: 3327599		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		100	37.7	212			

Sample ID: lcs-71401	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 71401			RunNo: 92550						
Prep Date: 11/9/2022	Analysis Date: 11/11/2022			SeqNo: 3327603		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	72.3	137			
Surr: BFB	2200		1000		223	37.7	212			S

Sample ID: mb-71401	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 71401			RunNo: 92550						
Prep Date: 11/9/2022	Analysis Date: 11/12/2022			SeqNo: 3327604		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.1	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2211462

18-Nov-22

Client: GHD Midland

Project: Livingston SWD System

Sample ID: 2211462-013ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH8	Batch ID: 71401		RunNo: 92550							
Prep Date: 11/9/2022	Analysis Date: 11/12/2022		SeqNo: 3327606		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.11	0	103	70	130			
Surr: BFB	2200		964.3		230	37.7	212			S

Sample ID: 2211462-013amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH8	Batch ID: 71401		RunNo: 92550							
Prep Date: 11/9/2022	Analysis Date: 11/12/2022		SeqNo: 3327607		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.68	0	104	70	130	3.00	20	
Surr: BFB	2200		987.2		222	37.7	212	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2211462

18-Nov-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: mb-71393	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 71393	RunNo: 92479								
Prep Date: 11/9/2022	Analysis Date: 11/10/2022	SeqNo: 3327270 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	70	130			

Sample ID: lcs-71393	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 71393	RunNo: 92479								
Prep Date: 11/9/2022	Analysis Date: 11/10/2022	SeqNo: 3327271 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.9	80	120			
Toluene	0.95	0.050	1.000	0	95.4	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.7	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	70	130			

Sample ID: lcs-71401	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 71401	RunNo: 92550								
Prep Date: 11/9/2022	Analysis Date: 11/11/2022	SeqNo: 3327631 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	105	80	120			
Toluene	1.1	0.050	1.000	0	105	80	120			
Ethylbenzene	1.0	0.050	1.000	0	105	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: mb-71401	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 71401	RunNo: 92550								
Prep Date: 11/9/2022	Analysis Date: 11/12/2022	SeqNo: 3327632 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.4	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2211462

18-Nov-22

Client: GHD Midland**Project:** Livingston SWD System

Sample ID: 2211462-014ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH9	Batch ID: 71401	RunNo: 92550								
Prep Date: 11/9/2022	Analysis Date: 11/12/2022	SeqNo: 3327635	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9891	0	103	68.8	120			
Toluene	1.0	0.049	0.9891	0	104	73.6	124			
Ethylbenzene	1.0	0.049	0.9891	0	104	72.7	129			
Xylenes, Total	3.1	0.099	2.967	0	104	75.7	126			
Surr: 4-Bromofluorobenzene	0.98		0.9891		99.1	70	130			

Sample ID: 2211462-014amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH9	Batch ID: 71401	RunNo: 92550								
Prep Date: 11/9/2022	Analysis Date: 11/12/2022	SeqNo: 3327636	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.024	0.9709	0	102	68.8	120	2.02	20	
Toluene	1.0	0.049	0.9709	0	103	73.6	124	3.28	20	
Ethylbenzene	1.0	0.049	0.9709	0	103	72.7	129	3.72	20	
Xylenes, Total	3.0	0.097	2.913	0	101	75.7	126	4.09	20	
Surr: 4-Bromofluorobenzene	0.96		0.9709		99.4	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **GHD Midland**

Work Order Number: **2211462**

RcptNo: 1

Received By: **Juan Rojas** 11/9/2022 7:10:00 AM

Completed By: **Cheyenne Cason** 11/9/2022 7:31:33 AM

Reviewed By: **SW 11/9/22**

Juan Rojas

Cheyenne Cason

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: **SW 11/9/22**

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

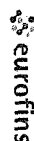
17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Not Present			

Eurofins Xenco, Carlsbad

1089 N Canal St.
Carlsbad, NM 88220
Phone: 575-988-3199 Fax: 575-988-3199

Chain of Custody Record



Environmental Testing
America

Client Information (Sub Contract Lab)				Sampler		Lab P/N:		Carrier Tracking No(s):		CUC No:	
Client Contact: Shipping/Receiving				Phone:		E-Mail: Kramer, Jessica		State of Origin: New Mexico		Page 2 of 2	
Company: Eurofins Xenco				Address: 1211 W Florida Ave.		Due Date Requested: 3/30/2021		Accreditations Required (See note): NELAP - Louisiana, NELAP - Texas		Job #: 890-422-1	
City: Midland				State, Zip: TX, 79701		TAT Requested (days):		Analysis Requested			
Phone: 432-704-5440(Te)				PO #:		PO #:					
Email: 432-704-5440(Te)				Project Name: RDX 21-23		Project #:		Preservation Codes:			
Site: SSOW#				Project #:		SSOW#:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4-5 Z - other (Specify)			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=other)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D/DI_LEACH Chloride	8016MOD_NM/8016NM_S_Prep Full TPH	8021B/6035FP_Calc BTEX	Total Number of containers	Special Instructions/Note:
DS04B (890-422-12)	3/24/21	11 25		Solid		X	X	X	X		1	
DS05 (890-422-13)	3/24/21	11 30		Solid		X	X	X	X		1	
DS05A (890-422-14)	3/24/21	11 35		Solid		X	X	X	X		1	
DS05B (890-422-15)	3/24/21	11 40		Solid		X	X	X	X		1	
DS06 (890-422-16)	3/24/21	11 45		Solid		X	X	X	X		1	
DS06A (890-422-17)	3/24/21	11 50		Solid		X	X	X	X		1	
DS06B (890-422-18)	3/24/21	11 55		Solid		X	X	X	X		1	

Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (Specify)				Primary Deliverable Rank: 2 Date:				Time:			
Relinquished by: Joe C. [Signature]				Date/Time: 3.25.21				Company:			
Relinquished by:				Date/Time:				Company:			
Relinquished by:				Date/Time:				Company:			

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months				Special Instructions/QC Requirements:				Method of Shipment:			
Relinquished by: Joe C. [Signature]				Date/Time: 3/25/21 5:00pm				Company:			
Relinquished by:				Date/Time:				Company:			
Relinquished by:				Date/Time:				Company:			

Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyze & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/shipment, being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-423-1

SDG Number: 11224133

Login Number: 423

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	
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	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 890-423-1

SDG Number: 11224133

Login Number: 423

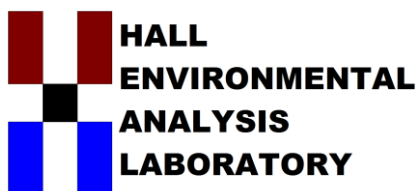
List Number: 2

Creator: Copeland, Tatiana

List Source: Eurofins Midland

List Creation: 03/26/21 09:08 AM

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



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 21, 2022

Nate Reece
GHD Midland
2135 S Loop 250 W
Midland, TX 79703
TEL: (432) 686-0086
FAX:

RE: Livingston SWD System

OrderNo.: 2212A77

Dear Nate Reece:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/17/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2212A77

Date Reported: 12/21/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW 8 A

Project: Livingston SWD System

Collection Date: 12/14/2022 10:30:00 AM

Lab ID: 2212A77-001

Matrix: MEOH (SOIL)

Received Date: 12/17/2022 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: CAS
Chloride	190	60		mg/Kg	20	12/20/2022 2:42:08 AM	72198
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/18/2022 4:51:20 PM	72164
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/18/2022 4:51:20 PM	72164
Surr: DNOP	104	21-129		%Rec	1	12/18/2022 4:51:20 PM	72164
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	12/18/2022 6:47:30 PM	A93375
Surr: BFB	88.4	37.7-212		%Rec	1	12/18/2022 6:47:30 PM	A93375
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.016		mg/Kg	1	12/18/2022 6:47:30 PM	C93375
Toluene	ND	0.031		mg/Kg	1	12/18/2022 6:47:30 PM	C93375
Ethylbenzene	ND	0.031		mg/Kg	1	12/18/2022 6:47:30 PM	C93375
Xylenes, Total	ND	0.062		mg/Kg	1	12/18/2022 6:47:30 PM	C93375
Surr: 4-Bromofluorobenzene	87.8	70-130		%Rec	1	12/18/2022 6:47:30 PM	C93375

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 1 of 5

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2212A77
21-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: MB-72198	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 72198	RunNo: 93415
Prep Date: 12/19/2022	Analysis Date: 12/20/2022	SeqNo: 3368975 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-72198	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 72198	RunNo: 93415
Prep Date: 12/19/2022	Analysis Date: 12/20/2022	SeqNo: 3368976 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	15	1.5 15.00 0 97.6 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212A77

21-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: LCS-72164	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72164		RunNo: 93383							
Prep Date: 12/18/2022	Analysis Date: 12/18/2022		SeqNo: 3367600		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	15	50.00	0	82.0	64.4	127			
Surr: DNOP	5.2		5.000		104	21	129			

Sample ID: MB-72164	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72164		RunNo: 93383							
Prep Date: 12/18/2022	Analysis Date: 12/18/2022		SeqNo: 3367602		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		97.3	21	129			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2212A77
21-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: A93375			RunNo: 93375						
Prep Date:	Analysis Date: 12/18/2022			SeqNo: 3367045		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.8	37.7	212			

Sample ID: 2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: A93375			RunNo: 93375						
Prep Date:	Analysis Date: 12/18/2022			SeqNo: 3367046		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	1900		1000		185	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212A77

21-Dec-22

Client: GHD Midland**Project:** Livingston SWD System

Sample ID: mb	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: C93375		RunNo: 93375							
Prep Date:	Analysis Date: 12/18/2022		SeqNo: 3367082		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		90.0	70	130			

Sample ID: 100ng btex lcs	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: C93375		RunNo: 93375							
Prep Date:	Analysis Date: 12/18/2022		SeqNo: 3367083		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.5	80	120			
Toluene	0.94	0.050	1.000	0	94.2	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.6	80	120			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.9	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: GHD Midland

Work Order Number: 2212A77

RcptNo: 1

Received By: Desiree Dominguez 12/17/2022 10:00:00 AM

Completed By: Desiree Dominguez 12/17/2022 10:28:18 AM

Reviewed By: *Ch* 12/17/22

DD

DD

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4$ " for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: *DAD 12/17/22*

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.4	Good				

Chain-of-Custody Record	
Client: <u>GHD</u>	
Turn-Around Time:	☐ Standard ☒ Rush <u>1 day</u>

Artesia, NM 88216

email or Fax#: natp.rece@ghd.com

☐ Standard ☐ Level 4 (Full Validation)

☐ NEAC ☐ Other _____

☐ EDD (Type) _____

12/4	1030	Soil	SW84
------	------	------	------

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Date:	Time:	Relinquished by:

Date:	Time:	Relinquished by:
12/1		

Released to **AMU** on **09/20/2016** at **09:00:00** by **60321**

Project Name:

Project #: 117001133

Project Manager: Nate Reel

7-10-19

of Coolers: 1

Container	Preservative	HEAL No.

Jar	1ce	-001
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[illegible]

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Received by: _____ Via: _____ Date: _____ Time: _____

Received by:	Via:	Date	Time

contracted to other accredited laboratories. This serves as notice of this

www.hallenvironmental.com

Tel. 505-345-3975 Fax 505-345-4107

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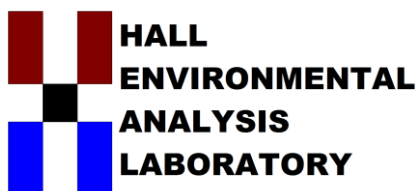
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Remarks: Please email inc@nrc.ca before

reghd.com / i.am.giersdorf @ghd.com

possibility. Any sub-contracted data will be clearly notated on the analytical report.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 28, 2022

Nate Reece
GHD Midland
2135 S Loop 250 W
Midland, TX 79703
TEL: (432) 686-0086
FAX:

RE: Livingston SWD System

OrderNo.: 2212B24

Dear Nate Reece:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/20/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2212B24

Date Reported: 12/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW1A

Project: Livingston SWD System

Collection Date: 12/16/2022 11:00:00 AM

Lab ID: 2212B24-001

Matrix: MEOH (SOIL)

Received Date: 12/20/2022 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	200	60		mg/Kg	20	12/20/2022 11:27:23 PM	72237
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/22/2022 6:02:58 AM	72228
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/22/2022 6:02:58 AM	72228
Surr: DNOP	135	21-129	S	%Rec	1	12/22/2022 6:02:58 AM	72228
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	12/21/2022 4:46:58 AM	G93433
Surr: BFB	81.9	37.7-212		%Rec	1	12/21/2022 4:46:58 AM	G93433
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.016		mg/Kg	1	12/21/2022 4:46:58 AM	R93433
Toluene	ND	0.033		mg/Kg	1	12/21/2022 4:46:58 AM	R93433
Ethylbenzene	ND	0.033		mg/Kg	1	12/21/2022 4:46:58 AM	R93433
Xylenes, Total	ND	0.066		mg/Kg	1	12/21/2022 4:46:58 AM	R93433
Surr: 4-Bromofluorobenzene	83.8	70-130		%Rec	1	12/21/2022 4:46:58 AM	R93433

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 1 of 9

Analytical Report

Lab Order 2212B24

Date Reported: 12/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW4A

Project: Livingston SWD System

Collection Date: 12/16/2022 11:30:00 AM

Lab ID: 2212B24-002

Matrix: MEOH (SOIL)

Received Date: 12/20/2022 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	500	60		mg/Kg	20	12/20/2022 11:39:47 PM	72237
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/22/2022 6:13:31 AM	72228
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/22/2022 6:13:31 AM	72228
Surr: DNOP	112	21-129		%Rec	1	12/22/2022 6:13:31 AM	72228
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.0		mg/Kg	1	12/21/2022 8:51:14 AM	A93454
Surr: BFB	88.1	37.7-212		%Rec	1	12/21/2022 8:51:14 AM	A93454
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.015		mg/Kg	1	12/21/2022 8:51:14 AM	C93454
Toluene	ND	0.030		mg/Kg	1	12/21/2022 8:51:14 AM	C93454
Ethylbenzene	ND	0.030		mg/Kg	1	12/21/2022 8:51:14 AM	C93454
Xylenes, Total	ND	0.060		mg/Kg	1	12/21/2022 8:51:14 AM	C93454
Surr: 4-Bromofluorobenzene	88.0	70-130		%Rec	1	12/21/2022 8:51:14 AM	C93454

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 2 of 9

Analytical Report

Lab Order 2212B24

Date Reported: 12/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD Midland

Client Sample ID: SW5A

Project: Livingston SWD System

Collection Date: 12/16/2022 11:35:00 AM

Lab ID: 2212B24-003

Matrix: MEOH (SOIL)

Received Date: 12/20/2022 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	170	60		mg/Kg	20	12/21/2022 11:08:43 AM	72246
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	12/22/2022 6:24:09 AM	72228
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/22/2022 6:24:09 AM	72228
Surr: DNOP	113	21-129		%Rec	1	12/22/2022 6:24:09 AM	72228
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	2.8		mg/Kg	1	12/21/2022 9:14:46 AM	A93454
Surr: BFB	88.9	37.7-212		%Rec	1	12/21/2022 9:14:46 AM	A93454
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.014		mg/Kg	1	12/21/2022 9:14:46 AM	C93454
Toluene	ND	0.028		mg/Kg	1	12/21/2022 9:14:46 AM	C93454
Ethylbenzene	ND	0.028		mg/Kg	1	12/21/2022 9:14:46 AM	C93454
Xylenes, Total	ND	0.056		mg/Kg	1	12/21/2022 9:14:46 AM	C93454
Surr: 4-Bromofluorobenzene	89.1	70-130		%Rec	1	12/21/2022 9:14:46 AM	C93454

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 3 of 9

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212B24

28-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: MB-72237	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 72237		RunNo: 93446							
Prep Date: 12/20/2022	Analysis Date: 12/20/2022		SeqNo: 3370463		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72237	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 72237		RunNo: 93446							
Prep Date: 12/20/2022	Analysis Date: 12/20/2022		SeqNo: 3370464		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.5	90	110			

Sample ID: MB-72246	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 72246		RunNo: 93460							
Prep Date: 12/21/2022	Analysis Date: 12/21/2022		SeqNo: 3372167		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72246	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 72246		RunNo: 93460							
Prep Date: 12/21/2022	Analysis Date: 12/21/2022		SeqNo: 3372168		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212B24

28-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: LCS-72228	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72228		RunNo: 93461							
Prep Date: 12/20/2022	Analysis Date: 12/22/2022		SeqNo: 3372867		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	15	50.00	0	92.5	64.4	127			
Surr: DNOP	6.2		5.000		125	21	129			

Sample ID: MB-72228	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72228		RunNo: 93461							
Prep Date: 12/20/2022	Analysis Date: 12/22/2022		SeqNo: 3372868		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	21	129			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212B24

28-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: G93433			RunNo: 93433						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3369863		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		86.3	37.7	212			

Sample ID: 2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: G93433			RunNo: 93433						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3369864		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.1	72.3	137			
Surr: BFB	1800		1000		180	37.7	212			

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: A93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371088		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	890		1000		88.8	37.7	212			

Sample ID: 2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: A93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371089		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.5	72.3	137			
Surr: BFB	1800		1000		178	37.7	212			

Sample ID: 2212b24-002ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: SW4A	Batch ID: A93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371105		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	15	3.0	14.92	0	101	70	130			
Surr: BFB	1200		596.7		195	37.7	212			

Sample ID: 2212b24-002amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: SW4A	Batch ID: A93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371106		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212B24

28-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: 2212b24-002amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: SW4A	Batch ID: A93454	RunNo: 93454								
Prep Date:	Analysis Date: 12/21/2022	SeqNo: 3371106 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	15	3.0	14.92	0	101	70	130	0.119	20	
Surr: BFB	1100		596.7		192	37.7	212	0	0	

Sample ID: mb-II	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: B93454	RunNo: 93454								
Prep Date:	Analysis Date: 12/21/2022	SeqNo: 3371107 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	880		1000		88.2	37.7	212			

Sample ID: 2.5ug gro lcs-II	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: B93454	RunNo: 93454								
Prep Date:	Analysis Date: 12/21/2022	SeqNo: 3371108 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1800		1000		182	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212B24

28-Dec-22

Client: GHD Midland
Project: Livingston SWD System

Sample ID: mb	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: R93433		RunNo: 93433							
Prep Date:	Analysis Date: 12/21/2022		SeqNo: 3369909		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		87.0	70	130			

Sample ID: 100ng btex lcs	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: R93433		RunNo: 93433							
Prep Date:	Analysis Date: 12/21/2022		SeqNo: 3369910		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.5	80	120			
Toluene	0.93	0.050	1.000	0	93.4	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.5	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.7	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		90.1	70	130			

Sample ID: mb	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: C93454		RunNo: 93454							
Prep Date:	Analysis Date: 12/21/2022		SeqNo: 3371152		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.2	70	130			

Sample ID: 100ng btex lcs	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: C93454		RunNo: 93454							
Prep Date:	Analysis Date: 12/21/2022		SeqNo: 3371153		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	89.1	80	120			
Toluene	0.91	0.050	1.000	0	91.5	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.9	80	120			
Xylenes, Total	2.8	0.10	3.000	0	91.8	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.5	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2212B24

28-Dec-22

Client: GHD Midland**Project:** Livingston SWD System

Sample ID: 2212b24-003ams	SampType: MS			TestCode: EPA Method 8021B: Volatiles						
Client ID: SW5A	Batch ID: C93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371169			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.49	0.014	0.5593	0	87.8	68.8	120			
Toluene	0.50	0.028	0.5593	0	90.0	73.6	124			
Ethylbenzene	0.50	0.028	0.5593	0	89.9	72.7	129			
Xylenes, Total	1.5	0.056	1.678	0	90.4	75.7	126			
Surr: 4-Bromofluorobenzene	0.51		0.5593		91.2	70	130			

Sample ID: 2212b24-003amsd	SampType: MSD			TestCode: EPA Method 8021B: Volatiles						
Client ID: SW5A	Batch ID: C93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371170			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.50	0.014	0.5593	0	89.4	68.8	120	1.81	20	
Toluene	0.52	0.028	0.5593	0	92.3	73.6	124	2.52	20	
Ethylbenzene	0.52	0.028	0.5593	0	92.9	72.7	129	3.22	20	
Xylenes, Total	1.6	0.056	1.678	0	93.5	75.7	126	3.36	20	
Surr: 4-Bromofluorobenzene	0.54		0.5593		96.1	70	130	0	0	

Sample ID: mb-II	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: D93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371171			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.8	70	130			

Sample ID: 100ng btex lcs-II	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: D93454			RunNo: 93454						
Prep Date:	Analysis Date: 12/21/2022			SeqNo: 3371172			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		87.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: GHD Midland

Work Order Number: 2212B24

RcptNo: 1

Received By: Sean Livingston 12/20/2022 7:50:00 AM

Completed By: Sean Livingston 12/20/2022 8:58:37 AM

Reviewed By: *ju 12/20/22*

Sean Livingston

Sean Livingston

Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: *KPC 12-20-22*

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.4	Good				

Chain-of-Custody Record

Client: GHDMailing Address: 324 W Main St.Artesia, NM 88210Phone #: (505) 377-4218email or Fax#: nate.rece@ghd.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)Accreditation: ☐ AZ Compliance☐ NELAC ☐ Other☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush1 day

Project Name:

Livingston SWD System

Project #:

11224133Project Manager: Nate ReceST MarneySampler: Liam GiersdorfOn Ice: ☒ Yes ☐ No

of Coolers:

Cooler Temp (including cap): 0.4°C (°C)

Container Type and #

Preservative Type

HEAL No.

2212324001002003

8081 Pesticides/8082 PCBs

TPH:8015D(GRO / DRO / MRO)

BTX / MTBE / TMBs (8021)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

CF, BF, NO₃, NO₂, PO₄, SO₄

Analysis Request

Remarks: Please email James Kennedy at recep@ghd.com, jtmurray@ghd.com, liam.giersdorf@ghd.com. Bill to James Kennedy, EOGDate: 12/19/2023Time: 0800Relinquished by: Liam GiersdorfRelinquished by: Liam GiersdorfReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST MarneyReceived by: ST Marney

Attachment D Photographic Log



View of southern excavation facing southwest.



View of southern excavation facing northwest.

Site Photograph

EOG Livingston Ridge SWD System Release Site.





View of northern excavation facing northeast



View of northern excavation facing southwest.



Site Photograph

EOG Livingston Ridge SWD System Release Site.

GHD | Report for EOG | 11224133

Attachment E Sampling Notifications

Nate Reece

From: Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>
Sent: Wednesday, November 2, 2022 11:13 AM
To: Nate Reece
Cc: Bratcher, Michael, EMNRD
Subject: FW: [EXTERNAL] Sampling Notification

You don't often get email from jennifer.nobui@emnrd.nm.gov. [Learn why this is important](#)

Nate

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks,
Jennifer Nobui

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Wednesday, November 2, 2022 9:20 AM
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Subject: FW: [EXTERNAL] Sampling Notification

Jocelyn Harimon • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@state.nm.us
<http://www.emnrd.nm.gov>



From: Nate Reece <Nate.Reece@ghd.com>
Sent: Wednesday, November 2, 2022 8:38 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: J.T. Murrey <JT.Murrey@ghd.com>; Liam Giersdorf <Liam.Giersdorf@ghd.com>; James Plaster <James.Plaster@ghd.com>
Subject: [EXTERNAL] Sampling Notification

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

To Whom it May Concern,

GHD on behalf of EOG Resources, respectfully submits notification of sampling to be conducted at the below locations:.

Hunt APO State #1
L-4-21S-34E
Lea County, NM
1RP-4892

Livingston Ridge SWD System
H-35-22S-31E
Eddy County, NM
2RP-3486

Sampling will begin at 7:00 a.m. on Monday, November 7 - November 11, 2022.

Thank You,

Nate Reece
Environmental Scientist

GHD

Proudly employee-owned | ghd.com

11451 Katy Fwy #400, Houston, TX 77079 United States

M +1 281 386 7158 | E nate.reece@ghd.com

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Nate Reece

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Wednesday, December 7, 2022 9:19 AM
To: Nate Reece
Cc: Bratcher, Michael, EMNRD; Billings, Bradford, EMNRD
Subject: RE: [EXTERNAL] Sampling Notifications

You don't often get email from ocd.enviro@emnrd.nm.gov. [Learn why this is important](#)

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Jocelyn Harimon • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov
<http://www.emnrd.nm.gov>



From: Nate Reece <Nate.Reece@ghd.com>
Sent: Wednesday, December 7, 2022 7:35 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: J.T. Murrey <JT.Murrey@ghd.com>; Liam Giersdorf <Liam.Giersdorf@ghd.com>; James Kennedy <james_kennedy@eogresources.com>
Subject: [EXTERNAL] Sampling Notifications

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

To Whom it May Concern,

GHD on behalf of EOG Resources, respectfully submits notification of tentative sampling to be conducted at the below locations:

Hunt APO State #1
L-4-21S-34E
Lea County, NM
1RP-4892

Livingston Ridge SWD System
H-35-22S-31E
Eddy County, NM
2RP-3486

Unocal AHU Federal #1
J-1-22S-31E

Eddy County, NM
2RP-321

Sampling will begin at 7:00 a.m. on Monday, December 12 – December 16, 2022.

Thank You,

Nate Reece
Environmental Scientist

GHD
Proudly employee-owned | ghd.com
11451 Katy Fwy #400, Houston, TX 77079 United States
M +1 281 386 7158 | E nate.reece@ghd.com

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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 225070

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 225070
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	6/23/2023