



2023
Glenmore Landfill Annual Report
Operational Certificate MR 12218
EMS reference # E104956

Table of Contents

1. EXECUTIVE SUMMARY	3
2. STATISTICS	4
3. OPERATIONAL PLAN FOR THE NEXT 12 MONTHS (SECTION 8 – CSDP).....	5
4. DATA AND INFORMATION	8
5. LIST OF APPENDICES	16

1. EXECUTIVE SUMMARY

This 2023 annual report is to provide information relevant to **Operational Certificate MR 12218 (OC)** for the Glenmore Landfill. Under the provisions of the Waste Management Act and in accordance with the approved *Regional District of Central Okanagan Solid Waste Management Plan (SWMP)*, the City of Kelowna is authorized to manage recyclable materials and to discharge waste to the ground at the Glenmore Landfill, located at 2720 John Hindle Drive, in the City of Kelowna. In 2023, the Glenmore Landfill operated in compliance with the current SWMP.

An Operational Certificate amendment was published in 2022 with Consultation performed through February of 2023. This amendment was approved by the Province and the updated Operational Certificate finalized on May 30, 2023. Updates centered primarily around the following items:

- Increase the annual volume of garbage that may be disposed.
- Allow for contaminated soils other than hydrocarbon contaminated soils to be received and used on site.
- Specifically name International Waste received at the Kelowna Airport as an approved waste for disposal.
- Correct some typographical errors.
- Update references to the Design, Operations and Closure; and
- Update some of the clauses at the request of the Province.

These two OC's have slightly different reporting requirements, and due to the transition from the 2015 to the 2023 OC mid-year, not all reporting data was tracked and is not available. As such, this 2023 Annual Report will follow the formats of the 2015 Operational Certificate and the 2024 Annual Report will transition to the new reporting requirements.

On Friday August 18, 2023, the McKinley-Clifton Wildfire jumped Glenmore Road and portions of the landfill caught fire as embers were blown onto the site. The site was evacuated while BC Wildfire and the Kelowna Fire Department did an initial suppression of the fires. Site staff with contractors and Fire Services worked 24 hours a day for the next week to complete firefighting measures. During this week, the site was closed and waste from the Central Okanagan was diverted to other landfills in the Okanagan Valley. The site was re-opened for garbage disposal and limited residential recycling while additional site clean-up and remedial efforts continued. The site returned to full operations on Saturday September 2, 2023. Clean fill from existing stockpiles was used to place additional intermediate cover across the western and southern portions of the site that burned. Approximately one third of the landfill gas system (wellheads and sub headers) was damaged or destroyed and fire related debris will need to be relocated within the site. These remedial works and repairs are expected to be completed in the first half of 2024.

GHD Canada (GHD) completed the 5-year updates to the Design, Operations and Closure Plan (DOCP). These updates, along with some additional supporting studies, were completed and submitted to the Province in December of 2023. Additional comments on the 2023 progress of the Upgrading Plan can be found in *Appendix 1 – Upgrading Plan Update, City of Kelowna, March 23, 2024*. All requirements of the Upgrading Plan are completed or are multiyear projects and this will be the last submission of this Upgrading Plan.

The estimated population contributing to the municipal solid waste managed at the Glenmore Landfill in 2023 was 247,216 based on the BC Government Statistics website (<https://www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates> accessed on March 16, 2024).

This population disposed of 146,911 tonnes of waste (including contaminated soil) at the Glenmore Landfill in 2023. In addition to this volume of waste disposed, an additional 44,501 tonnes of organics and 23,745 tonnes of recyclables such as concrete, shingles, metal, and other materials were recycled for a diversion rate of 31.72%. Waste volume decreases in 2023 are likely related to multiple factors, primarily associated with the impacts of regional wildfires. Approximately 1,450 tonnes of garbage were shipped out of the region while the landfill was closed, and waste production from contaminated soils, tourism and construction activities also decreased. An estimated 1,683 tonnes of fire debris were disposed from the homes that were damaged or destroyed by the wildfires.

Tipping fees were reviewed as part of the overall site development and 10-year Capital Plan and selected wastes had rates increases in 2023. There were no other changes to the City Solid Waste Management Bylaw No 10106 in 2023. An "Express and Go" return it location for bottle returns became operational in early 2023.

2. STATISTICS

The City of Kelowna Glenmore Landfill and Administration Building are located at 2720 John Hindle Drive, Kelowna, BC V1V 2C5. The Scale House has the civic address of 2710 John Hindle Drive.

a. Table 1 – Waste Discharge Quantity (tonnes):

Year	Amount Discharged
2019	156,566
2020	145,704
2021	154,079
2022	158,114
2023	146,911

b. Table 2 - Service Population (all annual numbers updated March 16, 2024)

Year	Population
2019	219,288
2020	224,434
2021	230,074
2022	237,113
2023	247,216

Service population data is obtained annually from the BC Statistics Population Estimates of the Central Okanagan Regional District.

c. Table 3 - Waste Discharge Rate (tonnes/capita updated March 16, 2024):

Year	Waste Discharge Rate (tonnes/capita)
2019	0.714
2020	0.649
2021	0.670
2022	0.667
2023*	0.594

* - does not include waste shipped out of region during the wildfires

d. Authorized design volume:

An updated Fill Plan was prepared for the City of Kelowna by CH2M Hill (now Jacobs Engineering Group) in 2014. This design volume was approximately 40,000,000m³ as of 2014. This design meets Criteria in the 2016 BC Landfill Criteria for Municipal Solid Waste and is the basis for the updated DOCP.

e. Remaining Site Life and Capacity:

Details of the estimated site life were reviewed in the 2023 DOCP updates. Using a survey from July 11, 2023, the remaining Landfill capacity was 36,507,715 m³. An airspace consumption rate of 0.63 tonnes of MSW per cubic meter of airspace (T/m³) was used to estimate annual airspace consumption. Based on the waste received from July through December, the estimated remaining airspace as of December 31, 2023, was 36,391,569m³.

The fill rate is projected to increase based on population growth rate projections in the City from 2022-2023 to 2045-2046. The population growth projections are based on the BC Stats tool for Population Estimates & Projections for British Columbia for Regional District of Central Okanagan. No population growth was assumed beyond 2046. The estimated site life based on the projected fill rates is approximately 100 years.

f. Complaints

The landfill received 3 service requests related to landfill operations in 2023. One complaint was related to customer service issues (i.e., waiting time at the scale house or fees charged) and two complaints were received about nuisance items, specifically noise and odours. The remaining requests were information requests related to waste pick up, or questions regarding recycling and composting. Any additional complaints that were received by phone or in person were not tabulated. Typically, issues in the Service Request System were addressed within two business days.

3. OPERATIONAL PLAN FOR THE NEXT 12 MONTHS

a. Operational and Filling Plan

Filling operations have alternated between AREA 1 and AREA 2, which are located on the western and northern sections of the site, respectively. Filling operations in the AREA 2 G lift were completed in May. At that time, the AREA 1 G lift was started and filled between the months of May to December. Some of the remedial work, including debris and wastes burned in the McKinley Fire, were placed in AREA 2 and monitored for a number of weeks to ensure the waste was extinguished before being placed and covered. A small area was also prepared on the north end of Phase 1 (just

south of AREA 2) to allow for the dedicated disposal of lined bins containing debris from the wildfires.

While filling progresses in these two locations, earthworks and sub-grade preparation has started for the AREA 3 liner preparation. This included two phases of blasting in 2022, selected earthworks, and construction of additional lay down areas and working pads. The AREA 3 liner installation final design is completed, and construction is expected to start in 2024. The waste recovery operations currently performed in the AREA 3 footprint will be relocated to new pads being completed at the southern end of the site in 2023. Any wastes found during the AREA 3 subgrade preparations will be relocated to the Sliver Fill or existing active face of the landfill.

Work in the “Sliver Fill,” consisting of filling a thin wedge between AREA 1 and AREA 2 will also start in 2023. The Sliver Fill will bring the existing side slope on the western side of the site up from the historic 5:1 slope to be consistent with the 3:1 slope in the approved DOCP. Additional landfill gas header work and end of life replacement of leachate manholes and wet wells will be incorporated into this Sliver Fill preparation with construction in early 2024.

An estimated 70,728 tonnes of clean fill were received in 2023 and used as cover. Acceptance of clean fill will be limited in 2024 as the soil stockpile is nearing capacity.

b. Landfilling Method

The area method was used to place and compact waste in cells of approximately 20,000 m³. A 0.3 meter intermediate soil cover was applied on the lift and alternate daily cover was applied on the sloped working face. Waste was spread in thin layers (0.6 meters or less) and compacted.

c. Glengrow

The production of Glengrow compost is located at the 10-hectare site constructed to the south of the Phase 3 area of the landfill. Stockpiling and grinding of yard waste feed stock is still performed in the receiving area east of Phase 2. Plans for relocating the organics and recyclable receiving area adjacent to the composting facility to the south of the Phase 3 slough are proceeding.

The city designed and purchased an Aerated Static Pile (ASP) system for the Glengrow composting operations in 2022. Preliminary earthworks, including installation of a 10,000m² asphalt pad was started in 2021, with the ASP scheduled to be constructed in 2023. The ASP system is designed to improve composting efficiency and accommodate future composting volumes growth. The final design of the entire ASP work area was completed in 2022 and construction started in the spring of 2023. Due to supply chain delays for selected components and the wildfires impacts, construction will be completed in Q2 of 2024 with commissioning of the operations shortly after completion.

d. Controls

- *Litter* is controlled by compaction of the waste and minimizing the working face. Fencing for litter control is placed around the fill area as required. In the Spring of 2023, a contractor was also retained to do a one-week litter pick on the landfill and roadways immediately adjacent to the site.
- *Dust control* will continue by applying water to access roads, paving additional major roads, and seeding of exposed soil areas.

- *Vector control* will continue by using a combination of distress calls, harassment, and daily cover. A falconer continues to assist in reducing the impact of nuisance birds and for the Starling control program.
- *Mud control* for internal roads will be accomplished through the construction and maintenance of all-weather access roads to the working face. Crushed shale or ground wood chips will be used as a pad at the tipping area. A wheel wash system is in place to minimize mud tracking coming off-site.
- *Weeds* have been mitigated primarily by gas powered weed eaters, mowing, and using an excavator to clear any overgrown areas.
- *Visual aesthetics* have been addressed by the planting of additional trees and shrubs in the berm along John Hindle Drive and on the hillside to the east of the residential drop off transfer station. Further landscaping along the western side of the landfill along Glenmore Road will be incorporated into other site projects in future years.

e. Heavy Equipment Utilized for Landfill Operations

- Two -TANA E520 Landfill Compactor
- Volvo D7E Electric Hybrid Dozer
- Case 921 FXR Front End Loader
- Two -Volvo L110H Front End Loader
- Komatsu PC220 Excavator
- Two -International 7500 Roll-off bin trucks
- Additional Rental equipment as required.

f. Landfill Personnel

- 8 Equipment Operators
- 8 Landfill Attendants/Spotter
- 3 Landfill Environmental Technicians
- Two full time and 6-part time Scale Operators
- 2 Supervisors
- 1 Manager
- 1 Operations Clerk
- 1 Design Technician

Additional City of Kelowna staff and equipment were brought onsite from other departments to support the landfill operations as needed.

The landfill has 3 staff members that are SWANA Manager of Landfill Operations Certified, including the Manager, one Supervisor, and one of the senior Environmental Technicians. One Supervisor is SWANA Landfill Operations Basics Certified. Details of this are available upon request by the Ministry.

g. Scale House Operations

A total of 232,210 vehicles accessed the site through the scale house in 2023. This is a slight increase from 2022. In Q3 2023 there was significantly lower traffic due to closures from the wildfires, however; this was offset by significantly higher vehicle traffic in Q4. Green waste and other organics volumes in Q4 2023 were 32% higher than Q4 2022 when early and unseasonably cold temperatures eliminated green waste recovery in the region.

4. DATA AND INFORMATION

a. Waste Reduction Accomplishments

Table 4 - Material Diverted from Landfill Disposal On-site (tonnes)

Year	Material Diverted
2019	79,880
2020	70,767
2021	71,330
2022	66,184
2023	68,246

Most of the material diverted (44,501 tonnes) was organics such as yard waste, prunings and clean wood waste (pallets and other dimensional lumber). These green wastes are composted on-site and sold as soil amendment marketed under the name of GlenGrow. Clean dimensional lumber and branches were ground and supplied to Tolko Industries in exchange for hog fuel that was utilized in the production of OgoGrow, a biosolids based compost produced at another City of Kelowna facility. The ground white wood and branches were also used in the production of OgoGrow.

Selected painted lumber is chipped and beneficially re-used on-site as padding material for mud and dust control and is not included in the volume recovered. This re-use was halted after the wildfires to minimize potential fuels on site.

A total of 5,942.39 tonnes of drywall was received at the Glenmore Landfill in 2023, with 3,291.95 tonnes shipped off-site for recycling.

b. Leachate Management

The leachate collection system at the Glenmore Landfill consists of force mains and gravity drains that feed two leachate lift stations. Leachate is then combined with sewage from the City's residential sewer system prior to discharge off-site. Leachate and the combined leachate/sewage effluent are treated with BIOXIDE®, a Calcium Ammonium Nitrate salt solution, and aerated to reduce hydrogen sulfide generation. The treated effluent is discharged into the municipal sanitary sewer system on Glenmore Road and is processed at the City's Wastewater Treatment Facility. Due to site conditions, additional bioxide treatment has been initiated in the wet well at Lift Station 2, which has resulted in a precipitate build up that is being cleaned periodically.

Leachate discharge volumes are reflective of the amount of leachate generated via precipitation and decreased slightly in 2023. It should be noted that leachate discharged from the site does not equal leachate generated as pumping rates are dependent on surface water levels, and potential leachate is recirculated in the landfill. Discharge volumes are summarized in the table below.

Table 5 – Leachate Discharge to Wastewater Treatment Facility (WWTF) in m³

Year	Quantity Discharged
2019	126,300
2020	160,310
2021	118,740
2022	135,492
2023	128,744

c. Leachate Recirculation

The purpose of leachate recirculation is to pump leachate collected on site back into the covered waste cells through landfill gas collection trenches in Phase 1. The concept is recirculated leachate will increase the in-situ moisture content of the waste. This would further encourage anaerobic decomposition in the buried waste cells, generating increased amounts of methane (and other landfill gases) which would result in increased throughput of landfill gas to the FORTIS BC Biogas Plant.

A potential added benefit of the accelerated decomposition of in-situ waste is that the decomposing material will increase settlement volume in the landfill resulting in increased air space for continued landfilling activities.

Landfill personnel performed no leachate recirculation in 2023. A new pump was purchased for this project and will be installed as part of a wet well retrofit and replacement in 2024.

d. Landfill Gas Review

The 2023 highlights related to the landfill gas (LFG) management system included the installation of 6 new horizontal collector runs consisting of 535 m of new pipe. Four previously installed runs were connected to the header system, and 6 wells were extended to accommodate filling activities. In addition to the ongoing 2024 collection work, additional connections are planned to be added on the east side of the site in 2024 to improve overall collection efficiency.

Table 6 – 2023 Landfill Gas Volume Summary

Flare Flow volume	960,374 m³ at 59.7% CH ₄
FORTIS BC Biogas Plant Flow volume	2,476,598 m³ at 59.7% CH ₄
Total LFG Destroyed by Flare/Biogas	3,436,972 m³ at 59.7% CH ₄
Calculated methane captured (tonnes)	1,345 tonnes
Collection Efficiency (%)	67%

The FORTIS BC biogas plant was the primary method of managing recovered landfill gas for 2023 with 72% of total landfill gas captured being beneficially re-used as renewable natural gas.

When the wildfire hit the landfill, the landfill gas system was temporarily shut down. Approximately one third of the landfill gas collection wellheads and sub header on the southwest portion of the system were damaged or destroyed in the wildfires. Damage to the system was controlled by pumping a grout slurry into the affected well connection to prevent landfill gas emissions and minimize oxygen intrusion into the waste mass. After the fires, the entire landfill gas system was inspected, an initial damage assessment was completed, and the system was methodically brought back online with the assistance of landfill gas technicians from the City of Vancouver. Flow rates

from August to the end of the year were below historical volumes and will remain that way until repairs are completed. A re-design of the southern sub headers and connections was completed, and the repairs are scheduled to be completed in the first half of 2024.

The Landfill Gas Management System had 30 callouts and a total downtime of 272.83 hours for both scheduled and non-scheduled events. This downtime is approximately 3.11% of total operations time compared to 41.66 hours (0.47%) downtime in 2022. The majority of downtime in 2023 was from two events. First was the shutdown of the system due to the wildfires, and second was the planned downtime for connection of the header and laterals to the existing system.

A summary of downtime hours collected from the SCADA system and field notes is included in Tables 7a and 7b below. Scheduled flare maintenance was performed while the FORTIS BC Biogas Plant was operational to minimize downtime as much as possible. The site had no system shutdowns due to incidents involving pipe damage from heavy equipment work while installing new connections.

After hour callouts for unscheduled outages were typically less than two hours. Scheduled maintenance included items such as exercising all valves, filling P-Traps, new gas run connections to the system and flare maintenance which were completed when FORTIS BC was not operational.

Table 7a – 2023 Landfill gas system unscheduled outage summary

Date	Outage Time	Total Downtime	Reason
February 1, 2023	08:31 to 10:41	1h 49m	pipe damage by machinery
February 21, 2023	08:33 to 10:05	92m	issues with maintenance event
February 23, 2023	01:27 to 07:57	6h 30m	alarming/controls issue
March 16, 2023	08:15 to 08:40	25m	Variable Frequency Drive fault
March 17, 2023	20:04 to 20:52	48m	pressure transmitter issue
May 3, 2023	03:29 to 03:53	24m	biogas plant failure
	08:03 to 08:37	34m	biogas plant failure
May 19, 2023	18:29 to 19:21	52m	biogas plant failure
June 10, 2023	15:14 to 16:19	1h 5m	biogas plant failure
July 10, 2023	05:36 to 07:25	1h 49m	biogas plant failure
	12:00 to 12:18	18m	instrumentation issue
	12:51 to 13:03	12m	instrumentation issue
	15:29 to 15:38	9m	instrumentation issue
	20:00 to 09:05	13h 5m	fire
July 11, 2023	09:54 to 10:09	15m	Variable Frequency Drive fault
July 17, 2023	12:30 to 12:54	24m	instrumentation issue
July 27, 2023	16:47 to 17:15	28m	biogas plant failure
August 11, 2023	00:52 to 07:36	6h 44m	controls/alarms issue
August 12, 2023	00:30 to 08:11	7h 41m	controls/alarms issue
August 14, 2023	06:47 to 06:58	11m	analyzer issue
	07:03 to 07:14	11m	analyzer issue
	07:24 to 07:39	15m	analyzer issue

August 17, 2023	22:40 to 15:40	6d 17h	wildfire
October 8, 2023	08:46 to 10:04	1h 18m	controls/alarms issue
December 2, 2023	19:21 to 20:16	55m	low flow alarm
	20:22 to 20:36	14m	low flow alarm
	09:20 to 09:34	14m	instrumentation issue
December 8, 2023	08:30 to 08:46	14m	instrumentation issue
December 9, 2023	11:04 to 11:18	14m	instrumentation issue
	00:56 to 01:52	56m	Variable Frequency Drive fault
TOTAL		197h 46m	

Table 7b - 2023 Landfill Gas Management System Downtime

Total Annual hours	8760h
Total run time hours – FORTIS BC or Flare	8487h 10m
Hours of downtime	272h 50m
Percentage of Time operational	96.9%

The details of the flare efficiency and overall collection efficiency for the LFG system can be found in the Landfill Gas Collection Efficiency Technical Memo completed by Jacobs of Calgary, AB. This Technical Memo is based on the model and requirements of the BC Landfill Gas Facilities Design Guidelines, 2010, and is attached to this Annual Report as Appendix 2 – *2023 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site, JACOBS, March 19, 2024*. Landfill Gas Collection Efficiency was calculated to be 67% for 2023. This 67% Collection Efficiency was a positive result considering the wildfire damage to the overall collection system. The city continues to make progress to achieve the Provincial performance target of 75% with the help of further collection system refinements and enhancements to our monitoring program.

Landfill gas was monitored and adjusted at the wellheads at least once per month in compliance with the requirements of the Landfill Gas Management Regulation. As per the Environmental Management Plan, the City installed eleven new perimeter soil vapour monitoring wells in 2022. These soil vapour wells were incorporated into the DOCP's Environmental Management Plan and monitored quarterly in 2023. No results were over the regulatory limit, with only one detectable methane reading found at the instrument detection limit. This baseline level result was not found in the next sampling event.

Gas quality at the flare and upstream of the FORTIS BC Biogas Plant was monitored on a continual basis with alarming and emergency system shutdowns in place. Design and planning is underway for a flare system replacement in 2025. In preparation, a pre-design capacity and options assessment was completed by Jacobs in 2023.

Surface emissions monitoring was performed on an on-going basis with a Landtec SEM5000 Portable Methane Detector as a Best Management Practice.

e. Groundwater

Groundwater sampling events took place in the Spring (May/June) and the Fall (September/October) as per the recommendations of the *2022 Glenmore Landfill Annual Water Quality Report (Keltech 2022)*. Groundwater wells, surface water and leachate were sampled for the parameters of concern by Landfill Environmental Technicians or Keltech Environmental Ltd. (Keltech) personnel.

Samples were submitted to Caro Analytical Services of Kelowna, BC for analysis, and the data reporting and corresponding interpretation was completed by Keltech of Kelowna, BC. The Keltech findings for the water monitoring program are attached to this report in *Appendix 3 – 2023 Glenmore Landfill Annual Water Quality Report, Keltech Environmental Ltd., March 27, 2024*. As noted in the Keltech report, no significant changes to water quality were noted in the results from the 2023 water monitoring program. Certain leachate indicator parameters continue to be elevated at some wells in locations adjacent to or south of the Phase 3 Slough. These are generally consistent with historical concentrations. The 2023 water levels were generally consistent with previous years.

Three groundwater monitoring wells were decommissioned in March 2023 by Keltech as per the *Groundwater Protection Regulation* in preparation for future site development. Keltech also performed inspections of 7 wells that were damaged by the McDougal Creek Wildfire. As noted in the Keltech report, impacted sample results were not used for analysis.

See the Hydrogeological Review (Section h below) for further details on groundwater assessments.

f. Surface Water

Surface water samples were collected from the four on-site surface water bodies in March, May, September, and November. Additional samples were also collected from Bubna Slough and Slough #2, located north of the landfill, as well as Little Robert Lake and Robert Lake, located south of the landfill, in the same months to aid with assessing background water quality in the region. As noted in the Keltech 2023 water report, surface water quality in 2023 was generally consistent with previous years programs.

As part of the surface water management process, Tutt Pond was used as an irrigation source during the agricultural season. In 2023, sprinkling occurred intermittently in May through October. This irrigation process has been used at the site for decades to manage surface water. Based upon recommendations from Golder Associates in previous years, water levels were not pumped below a specified elevation in Tutt Pond to eliminate the risk of leachate from being drawn into the pond.

In 2023, GHD completed a Site-Specific Background and Compliance Water Quality Review (GHD, December 7, 2023) to determine background surface concentrations and assess water quality compliance at the Landfill. The report recommends using the guidance provided in CSR Protocol 9, calculate 95th percentile background surface water concentrations and if surface water quality from the on-site ponds is less than the 95th percentile background concentrations then water could be used for irrigation as part of stormwater management.

See the Hydrogeological Review (Section h below) for further details on surface water assessments.

g. Leachate Sampling

Leachate samples were collected at four locations on the Landfill site quarterly. Bioxide addition at the south wet well collection point continued in 2023. Samples representative of AREA 1, AREA 2, and Phase 1 were taken upstream of Bioxide addition. Combined leachate samples and samples from the south leachate wet well were representative of leachate with added Bioxide.

The results of the leachate sampling can be found in the Keltech report in Appendix 3.

h. Hydrogeological Review

As part of the 2023 DOCP updates, the Qualified Professionals from GHD also prepared a Hydrogeology and Hydrology Characterization Report (HHCR). This report includes the information specified in Section 10.1 Hydrogeology and Hydrology Characterization Report of the BCMOE Second Edition of Landfill Criteria For Municipal Solid Waste (June 2016) and was submitted to the BCMOE with the updated DOCP in December of 2023. The HHCR is a comprehensive review of landfill hydrology using the most current information, including data from groundwater wells and expanded surface water monitoring as environmental monitoring programs continue to evolve. In 2023, the HHCR also included a Background Groundwater Quality and Compliance Assessment

The Conclusions and Recommendations Sections of the HHCR are italicized below.

Conclusions

The following conclusions are summarized based on the findings of this report:

- 1. Based on the subsurface field activities, the interpretation of the geologic framework for the Site includes the following major geologic and hydrogeologic units. The hydrogeologic units are in brackets.
 - a. Glaciolacustrine silt and clay deposits (Clay Unit - acts as a leaky aquitard)
 - b. Glaciolacustrine silt and clay deposits (Clay Unit - acts as a leaky aquitard)
 - c. Glaciofluvial sand and gravel (Sand and Gravel Unit - Aquifer 469)
 - d. Glacial till (Till Unit - acts as a leaky aquitard) e. Bedrock - (Bedrock Unit - Aquifer 470)*
- 2. Single well response tests were not completed in wells screened in the Clay Unit. The hydraulic conductivity ranges for the remaining hydrogeologic units, include:
 - a. Sand and Gravel Unit ranges from 1.5×10^{-9} m/sec to 9.6×10^{-6} m/sec
 - b. Till Unit ranges from 4.3×10^{-10} m/sec to 1.0×10^{-3} m/sec
 - c. Bedrock Unit ranges from 3.5×10^{-9} m/sec to 1.4×10^{-6} m/sec.*
- 3. Groundwater flows horizontally towards the centre of the Site from the walls of the valley following topography. Once groundwater reaches the vicinity of the Site, it flows from north to south towards the mouth of Glenmore Valley.*
- 4. The Sand and Gravel Unit is discontinuous throughout the Site. The Till Unit has a varying geologic composition and hydraulic conductivity throughout the Site. For this reason, the Till Unit is considered a leaky aquitard; where the unit is more permeable downward flow to the underlying Bedrock Unit may occur.*
- 5. Generally, groundwater is flowing upward in well nests near the ridge walls and within the Landfill vicinity. Downward groundwater flow occurs in the vicinity of the Slough. Artesian conditions were observed at the 09BHo6 well nest (west of Robert Lake) during the March and June 2022 events.*
- 6. Alkalinity, chloride, nitrate and/or ammonia, sulphate, TDS, boron, iron, and manganese were selected as leachate indicator parameters for the Site.*
- 7. Upgradient groundwater is generally of poor quality with elevated concentrations of many leachate indicator parameters.*
- 8. The majority of the wells in the Landfill vicinity and compost AREA overburden wells contain moderate to elevated concentrations of chloride, sulphate, and TDS.*
- 9. Groundwater in the Sand and Gravel and Till Unit overburden compliance wells have elevated concentrations of sulphate, TDS, nitrate, lithium, and uranium that exceed the CSR DW or IW standards. These concentrations were compared against landfill leachate concentrations, to assess whether exceedances are likely landfill derived or not. Results indicate that sulphate exceedances are Landfill related. However, impacts are relatively minor.*

10. *The current monitoring network does not include an upgradient monitoring well in the Clay Unit or a Bedrock Unit monitoring well at the downgradient boundary. Thus, a compliance assessment cannot be completed following Protocol 9.*
11. *Upstream/background surface water is of poor quality with elevated concentrations of many leachate indicator parameters.*
12. *Some evidence for minor landfill derived impact is present in Tutt Pond. Concentrations are exceeding the IW standards and thus surface water should not be used to irrigate the adjacent farm field.*
13. *Several lines of evidence suggest that Little Robert Lake and Robert Lake have been impacted by the landfill; however, water quality in both water bodies shows influence from evaporative effects. It is unclear what portion of water quality impacts are related to the Site and what can be attributed to evaporative effects or other non-Landfill related sources. Additional monitoring has been recommended.*

Recommendations

Based on the conclusions of the HHCR, the following recommendations can be made:

Environmental Monitoring Program

1. *Continue the EMP with the following changes:*
 - a. *Monitor Little Robert Lake and Robert Lake as part of the downgradient/compliance surface water monitoring network instead of background. The 2022 EMP (2022 City of Kelowna Annual Monitoring Report) includes Little Robert Lake and Robert Lake as part of the background surface water monitoring network. This change is recommended because it is unclear what portion of water quality issues is related to the Landfill.*
 - i. *The monitoring point within Robert Lake should be relocated to the north end of the lake closest to the Landfill.*
 - ii. *Two additional surface water monitoring points should be added to the EMP to identify potential surface water impacts originating from the ditching along John Hindle Drive and/or from the stormwater management system that services the administration buildings. There is limited surface water flow coming from both AREAs and thus, sampling/monitoring will need to be completed during or shortly after a precipitation event. One monitoring location should be added along the ditching just upstream of the Site. The second at the discharge point (culvert) which drains stormwater in the southeast corner of the Site.*
 - b. *An upgradient Clay Unit monitoring well should be added to the routine water quality monitoring program.*
 - c. *An additional Bedrock Unit monitoring well should be completed along the southern, downgradient Site boundary. This well should be added to the routine water quality monitoring program.*
 - d. *To better understand the spatial distribution of groundwater quality impacts south of the Site boundary, monitoring well nest 09BHo5S/D and monitoring well 09BHo4 should be added to the routine water quality monitoring program. GHD understands that well nest 09BHo5S/D may not be accessible. The City should consider replacing the well nest with well to the east of Little Robert Lake.*

Future HHCR and Water Quality Assessments

2. *As per Section 3.2 of the OC, this HHCR should be submitted the ENV before December 31, 2024.*
3. *An updated HHCR should be submitted once every ten years (i.e. December 31, 2034).*

4. Future annual monitoring reports should include a more detailed assessment of surface water and potential landfill related impacts in Little Robert Lake and Robert Lake. Assessments should incorporate the additional monitoring data recommended above. Future reports should also include an assessment of groundwater quality compliance following Protocol 9.

Operations

5. Upgrade the Compost facility so runoff from the facility is directed to the Site leachate management system, instead of overland flowing into the Slough.

6. Continue to work towards installing a surface water bypass system to eliminate the need for Tutt Farm irrigation with Tutt Pond water.

The City has already initiated planning for the implementation of these HHCR recommendations.

i. Vegetation Analysis

Observations of vegetation at the landfill perimeter were conducted monthly. There were no visible indications of adverse effects on plants due to leachate or landfill gas migrating to the root zones outside the landfill limit of waste. The landscaped berms along Glenmore Road historically lost many trees due to a failure in the irrigation system. This section of landscaping was further damaged in the 2023 wildfires and will be inspected in the spring of 2024 for additional wildfire damage and dead or danger trees to be removed. This Glenmore Road landscaping is scheduled to be replaced when internal road alignment work and surface water management infrastructure is addressed in the next two to four years.

In 2023, clearing and mowing of the 15m vegetative buffer surrounding the landfill was completed to ensure there was a fire break to meet regulatory requirements. This work likely assisted in mitigating the spread of the wildfires on the site.

j. Financial Security

The updated Financial Security Plan was completed in the updated DOCP to meet the requirements of the Second Edition of Landfill Criteria For Municipal Solid Waste (June 2016). The Financial Security Plan was calculated based on estimated closure costs plus post-closure Operations and Monitoring of 80 years as determined by the Contaminating Lifespan Analysis. The Financial Closure Fund will be updated with the assistance of the City Financial department based on the required Accounting Principles.

Tipping fee rates for garbage remained unchanged at \$104/tonne in 2023, however; some selected wastes such as shingles, clean wood and green wastes had rate adjustments to reflect current costs to process these wastes. The city performs ongoing financial analysis to ensure funding for projects based on the 2023 DOCP and the City's 10-year Capital Plan.

As in previous years, excess revenues were deposited into a reserve fund that will be used to develop the site for infrastructure and capital costs for items such as continued liner installation, leachate, landfill gas/flare, water management systems, and to cover the cost of landfill closure and post closure.

k. Non-Compliance Statement

In general, the Glenmore Landfill maintained a high level of compliance with the Operational Certificate in 2023. Two non-compliances were related to fire events at the landfill, one was for the impacts of the McKinley Wildfire on the site, and three were related to waste receiving (wildfire debris management and improper handling of suspected AC pipe by a hauler). Below is a list of Non-compliances reported to the BC Ministry of Environment:

- 2023-07-11 landfill fire - 12218 Non-Compliance Notification
- 2023-07-19 landfill fire - 12218 Non-Compliance Notification
- 2023-08-18 12218 NCR landfill wildfire evacuation
- 2023-09-28 12218 Non-Compliance Reporting McDougall Creek Wildfire 2023
- 2023-09-29 12218 Non-Compliance Reporting McDougall Creek Wildfire 2023 Update
- 2023-10-19 Suspected AC Pipe - 12218 Non-Compliance Notification

Follow up information, especially related to the wildfire events, was provided directly to Ministry staff.

5. LIST OF APPENDICES

Appendix 1 – Upgrading Plan Update, City of Kelowna, March 23, 2024

Appendix 2 – 2023 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site, JACOBS, March 19, 2024

Appendix 3 – 2023 Glenmore Landfill Annual Water Quality Report, Keltech Environmental Ltd., March 27, 2024

*Appendix 1 –
Upgrading Plan Update,
City of Kelowna,
March 23, 2024*

GLENMORE LANDFILL UPGRADING PLAN
UPDATED March 23, 2024

Item #	2018 DOCP Section	Task Description	2022 Q1 Status	2023 Q1 Status	2024 Q1 Status

Site Operations

6	6.8	Maintain leachate levels below 437 metres above mean sea level (m AMSL) in the Slough. Consider installing a SCADA system to alarm the City if leachate levels are approaching the 437 m AMSL threshold	The City uses Proficy Portal to manually monitor the leachate levels in Leachate 1 and 2 and will confirm these are representative of leachate levels with manual measurements. Levels might vary across the site depending on the elevation from North to South. This item will be removed from future Upgrading Plan updates.	Due to the retirement of Proficy Portal as a legacy product no longer supported by commercial software, a new system has been install. This new program will need to be incorporated into the landfill SCADA system to allow for ongoing monitoring of data.	Considered as completed in 2023.

Organics Facility

7	-	Conceptual design for new location of the organics facility on Site. Ensure new location for organics facility meets requirements of the Organic Matter Recycling Regulation	RFP issued in 2021 and ECS retained to complete Aerated Static Pile (ASP) design and supply. WSP to complete full design of area in 2022 with construction of ASP in 2023.	The first ASP system was designed and purchased in 2022. An updated full site layout design and RFP for construction and installation has been issued and closes in Q1 2023. Installation of the first Aeration pad is expected by the end of 2023.	Withphase 1 construction nearing completion and multi-year phasing of the ASP system, this will be considered complete.

Site Administration

8	12.3.3	Operational Certificate (OC) Amendment to expand contaminated soil acceptance criteria	In progress. Application submitted, and awaiting draft of revised Operational Certificate from BC MoECC in early 2021. BC MoECC provided a draft OC in late 2021. City personnel are reviewing this with GHD Consulting and Corporate Legal Counsel in Q1 of 2022.	The final draft OC and Environmental Protection Notices were completed in Q4 of 2022. The Notice of Intent and Public Consultation process was initiated in December of 2022 and the period to receive comments was extended to early February. The summary consultation report was submitted to Ministry Contacts in February of 2023 and as of the submission of this report the final approved OC has not been received by the City.	Completed in May 2023.

Site Geotechnical Investigations

10	10.2-10.3	Additional geotechnical/ liquefaction assessment	Scheduled as future work (2023 - 2025) to include the Groundwater Impact Assessment	Additional Geotechnical work to be included as part of the 2023 DOCP update.	Completed and submitted to Province in December 2023.

GLENMORE LANDFILL UPGRADING PLAN
UPDATED March 23, 2024

Environmental Monitoring

11	11.1	Groundwater impact assessment - additional sets of nested wells to be installed in the southern portion of the Site.	Completed in 2019. This item will be removed from future Upgrading Plan updates.	Updated Groundwater and Surface Water Impact Assessment is to be completed as part of the 2023 DOCP update.	Completed and submitted to Province in December 2023.
16	ENV Inspect letter (2019 08 23)	Complete a background water quality/Robert Lake water quality study to assist in determining background water quality conditions for the Site	In progress, data being acquired by ongoing sampling events as per DOCP Item 11.1 above	Background water quality study to be completed as part of the 2023 DOCP update.	Completed and submitted to Province in December 2023.

Surface Water Management

17	5	Complete surface water modelling onsite as part of the Northern Pond and diversion pipe design	The process has gone to the design phase. The initial conceptual surface water modeling and diversion designs are completed and meters installed to evaluate potential maximum flow rates and for sizing ponds. Additional design work to be completed as part of the downstream permitting and design.	Additional design, licensing, and permitting reviews started in 2022. This work will continue through 2023 with considerations of alignment of this system to the updated DOCP, need for Statutory Right of Ways, design impacts on the Agricultural Land Reserve, etc. This work is expected to be a multi year project.	Work in progress for design and consultation with Property Owners impacted by Statutory Right of Ways and conservation stakeholders in 2023. ALC submissions scheduled for January 2024 and expected to be a multi year project.
18	12.7.6	Finish berm on John Hindle and re-vegetate the berm along Glenmore	Berm re-configuration to be included as part of the Storm Water Management Plan and will be re-vegetated when completed (estimated 2026)	Will be considered as part of the Surface Water Management Plan in the above line item.	Will be included as part of the Surface Water diversion work in future years.
19	13.3	Downstream surface water assessment as part of the Northern Pond construction and stormwater diversion piping to Brandt's Creek permitting (FLNRORD, ENV, ALC, etc.) and design	The study in support of the water license application has been initiated in 2022. The final Scope of Work was refined with an External Consultant and the agreement to proceed is to be awarded shortly.	Additional design, licensing, and permitting reviews started in 2022. This work will continue through 2023 with considerations of alignment of this system to the updated DOCP, need for Statutory Right of Ways, design impacts on the Agricultural Land Reserve, etc. This work is expected to be a multi year project.	Work in progress for design and consultation with Property Owners impacted by Statutory Right of Ways and conservation stakeholders in 2023. ALC submissions for Utility Drainage Right of Way submitted in January 2024 and expected to be a multi year project.

Appendix 2 –
*2023 Landfill Gas
Collection Efficiency
Study –
Glenmore Landfill Site,
JACOBS,
March 19, 2024*

2023 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site

Date:	March 19, 2024	Jacobs Consultancy Canada Inc.
Project name:	2023 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site	Metro Tower II, Suite 2100, 4720 Kingsway Burnaby, BC V5H 4N2 Canada
Project no:	CE845101	T +1.403.407.8700
Attention:	Scott Hoekstra, City of Kelowna	F +1.604.684.3282
Client:	City of Kelowna	www.jacobs.com
Prepared by:	Chris Kyriazis, Jacobs	
Reviewed by:	Chuck Smith, Jacobs	
Document no:	240314093015_e6096da7	
Revision no:	FINAL	
Copies to:	Emily Roney, Jacobs; Brian Beulah, City of Kelowna	

1. Introduction

The City of Kelowna (City) has retained Jacobs to provide the 2023 estimated landfill gas (LFG) collection system efficiency for the Glenmore Landfill (Site) located at 2710-2720 John Hindle Drive, Kelowna, British Columbia (BC).

This technical memorandum (TM) has been prepared using two waste composition studies (Tetra Tech 2021 and Morrison Hershfield Ltd. 2016) and waste filling data (CH2M 2010; Jacobs 2023a; City 2023; Beulah pers. comm. 2024a; and Beulah, pers. comm. 2024b). The LFG recovery was assessed, along with the factors influencing actual LFG generation and recovery at the Glenmore Landfill (Site). The collection system's efficiency was calculated using the formulas contained within the BC Ministry of Environment and Climate Change Strategy's (BC MOECCS's) LFG Management Facilities Design Guidelines (CRA 2010).

2. Background

The Site is located beside Glenmore Road approximately 1.5 kilometres (km) east of Okanagan Lake and 9 km northeast of the Kelowna city centre. The Site is owned and operated by the City. It has an estimated available airspace of 36,507,715 cubic metres (m³) and an estimated Site life of 100 years (GHD 2023). The Site has been in operation since 1966 (City 2023).

The Site has an active LFG collection system, which is used to manage LFG generated from the buried municipal solid waste. The LFG collection system is made up of a series of horizontal gas recovery wells. LFG generated within the waste is drawn from the horizontal wells under vacuum and conveyed to a third-party-owned and operated biomethane processing facility for upgrading to pipeline-quality gas (renewable natural gas). LFG can also be conveyed to the City's blower and flare facility for thermal destruction when the biomethane facility is offline. The current collection system extends through both Phase 1 and Phase 2 sections of the Site as well as into new fill Areas 1 and 2. The initial LFG collection system was installed in 2005 and has been continually expanded through the addition of new horizontal LFG wells and collection system piping. These infrastructure additions are typically completed on an annual basis by the City as new waste lifts are completed and fill areas are ready and accessible for gas recovery.

In August 2023, the Site was damaged by the Clifton McKinley Fire that swept through portions of the Site. The surface fire swept through the southwestern area of the landfill damaging LFG recovery wells and

infrastructure installed from the southern portion of Area 1 down to the southern boundary of Phase 2. The City's LFG collection system operating capacity was reduced by about 50 to 60% of the flow rate before the fire. The damaged gas collection infrastructure repairs and replacement design have been completed with construction scheduled in early 2024 to restore full operation of the LFG management system (Jacobs 2023b).

Landfilling occurred in the Phase 1 and Phase 2 areas during 2023. In 2023, the total annual buried waste was estimated at 146,261 tonnes (Beulah, pers. comm. 2024a). Approximately 1,450 tonnes of waste were sent out of the region during wildfires and were not part of the total tonnage disposed of at the Site.

3. Regulatory Framework

On December 8, 2008, BC MOECCS ordered and approved a regulation for the management of LFG at BC-regulated landfill sites. In accordance with the Landfill Gas Management Regulation (Regulation), a regulated landfill site has 100,000 tonnes or more of municipal solid waste (MSW) or has received 10,000 or more tonnes of MSW annually for disposal into the landfill site in any calendar year after 2008 (BC MOECCS 2008). With over 100,000 tonnes annually, Glenmore Landfill is classified as a regulated landfill.

Once a landfill falls under the Regulation, a qualified professional is required to conduct an initial LFG generation assessment (Assessment) using their knowledge with respect to solid waste and LFG management to select models for LFG estimation, assess results, and provide required recommendations. The Assessment must be conducted in accordance with the most recent edition of LFG guidance documents, as approved by the BC MOECCS Director. The guidance documents include the *Landfill Gas Generation Assessment Procedure Guidelines* (BC MOECCS LFG Guideline) that were prepared by Conestoga-Rovers & Associates, dated March 2009, and the Landfill Gas Generation Estimation Tool – for Annual Reporting (Tool) provided by BC Environmental Protection and Sustainability (BC EPS 2022). Both are available on the BC EPS website and must be used in the preparation of Assessments (CRA 2009). The City submitted its first Assessment report in 2010 (CH2M 2010).

4. Landfill Gas Generation Assessment Methodology

This section summarizes the information required in the Regulation, in accordance with the BC MOECCS LFG Guideline, Section 4, Information Collection and Synthesis.

4.1. Annual Waste Buried

Table 1 presents the estimated annual amount of MSW disposed of at the Site between 1994 and 2023, as well as the projected volume of waste to be disposed at the Site for 5 years after the LFG collection efficiency study year, which corresponds to the year 2028. Although wastes have been disposed at the Site since 1966, Table 1 shows tonnages from 1994, used to estimate LFG generation using the BC EPS simulation tool.

The tonnage of refuse disposed at the Site between 2010 and 2021 is based on a previous LFG collection efficiency study (Jacobs 2023a), whereas the 2022 tonnage of refuse disposed at the Site is based on the annual report (City 2023). The 2023 tonnage of waste landfilled at the Site is based on personal communication with Brian Beulah, Environmental Technician, LFG Operations at the City, on January 9, 2024. The assumed projected annual tonnage for years 2024 through 2028 is based on the Landfill Design and Operations Closure Plan (GHD 2023).

Table 1. Annual Quantity of Waste Disposed at the Site

Years	Waste Disposed (tonnes)	Cumulative Waste Disposed (tonnes)
1994	84,272	84,272
1995	80,458	164,730

Table 1. Annual Quantity of Waste Disposed at the Site

Years	Waste Disposed (tonnes)	Cumulative Waste Disposed (tonnes)
1996	80,794	245,524
1997	95,904	341,428
1998	83,756	425,184
1999	85,258	510,442
2000	89,547	599,989
2001	95,815	695,804
2002	102,522	798,326
2003	96,772	895,098
2004	106,483	1,001,581
2005	108,597	1,110,178
2006	116,218	1,226,396
2007	102,688	1,329,084
2008	100,611	1,429,695
2009	114,590	1,544,285
2010	119,861	1,664,146
2011	106,387	1,770,533
2012	108,110	1,878,643
2013	108,917	1,987,560
2014	123,178	2,110,738
2015	136,115	2,246,853
2016	154,510	2,401,363
2017	151,456	2,552,819
2018	166,916	2,719,735
2019	156,566	2,876,301
2020	145,704	3,022,005
2021	154,079	3,176,083
2022	158,114	3,334,198
2023	144,261	3,478,458
2024	168,844	3,647,302
2025	173,572	3,820,874
2026	178,085	3,998,959
2027	182,537	4,181,496
2028	186,918	4,368,414

4.2. Waste Characterization Categories

Characterization according to waste type is required to follow the BC MOECCS LFG Guideline. Waste must be characterized into three categories: (1) relatively inert, (2) moderately decomposable, and (3) decomposable. The most recent available waste composition study, *Regional District of Central Okanagan 2020–2021 Waste Composition Study* (Tetra Tech 2021) was used to determine the proportions of relatively inert, moderately decomposable, and decomposable waste materials for year 2020 and onwards. An earlier composition study, *2013 Waste Composition Study of Regional District of Central Okanagan* (Morrison Hershfield Ltd. 2016), was used for year 2019 and earlier.

The various waste streams, including tonnage and percentages of total waste buried at the Site in 2023, were provided by the City and are summarized in Table 2 (Beulah, pers. comm. 2024a).

Table 2. 2023 Waste Stream Tonnage and Percentage of Total

Waste Stream	Tonnes	Percentage (%)
Residential (Cart) Garbage	43,732.19	30.31
Commercial (ICI) Garbage	45,124.19	31.28
C&D Debris	53,318.31	36.96
Contaminated Soil	809.16	0.56
Asbestos	715.57	0.50
Gypsum	0.00	0.00
Others	561.44	0.39
Total	144,260.86	100

Notes:

% = percent

C&D = construction and demolition

ICI = industrial, commercial, and institutional

According to the newly available *Regional District of Central Okanagan 2020–2021 Waste Composition Study* (Tetra Tech 2021), the buried wastes for 2023 at the Site are categorized as follows:

- Decomposable waste: 23.73% by weight of total waste buried
- Moderately decomposable waste: 46.44% by weight of total waste buried
- Relatively inert waste: 29.83% by weight of total waste buried

4.3. Waste Tonnage by Waste Characterization Category

Table 3 presents the historical and projected waste tonnages, as well as the waste characterization category, as described in previous sections.

Table 3. Waste Tonnage by Category

Years	Waste Disposed (tonnes)	Relatively Inert (tonnes)	Moderately Decomposable (tonnes)	Decomposable (tonnes)
1994	84,272	22,753	45,507	16,012
1995	80,458	21,724	43,447	15,287
1996	80,794	21,814	43,629	15,351
1997	95,904	25,894	51,788	18,222
1998	83,756	22,614	45,228	15,914
1999	85,258	23,020	46,039	16,199
2000	89,547	24,178	48,355	17,014
2001	95,815	25,870	51,740	18,205
2002	102,522	27,681	55,362	19,479
2003	96,772	26,128	52,257	18,387
2004	106,483	28,750	57,501	20,232
2005	108,597	29,321	58,642	20,633
2006	116,218	31,379	62,758	22,081
2007	102,688	27,726	55,452	19,511

Table 3. Waste Tonnage by Category

Years	Waste Disposed (tonnes)	Relatively Inert (tonnes)	Moderately Decomposable (tonnes)	Decomposable (tonnes)
2008	100,611	27,165	54,330	19,116
2009	114,590	30,939	61,879	21,772
2010	119,861	32,362	64,725	22,774
2011	106,387	28,724	57,449	20,214
2012	108,110	29,190	58,379	20,541
2013	108,917	29,408	58,815	20,694
2014	123,178	33,258	66,516	23,404
2015	136,115	36,751	73,502	25,862
2016	154,510	41,718	83,435	29,357
2017	151,456	40,893	81,786	28,777
2018	166,916	45,067	90,135	31,714
2019	156,566	40,707	84,546	31,313
2020	145,704	48,126	66,802	30,776
2021	154,079	48,088	70,152	35,839
2022	158,114	56,054	67,501	34,560
2023	144,261	43,030	66,991	34,240
2024	168,844	50,363	78,407	40,074
2025	173,572	51,773	80,602	41,196
2026	178,085	53,119	82,698	42,268
2027	182,537	54,447	84,766	43,324
2028	186,918	55,754	86,800	44,364

Note:

Waste Disposed data are from Table 1; other data are based on calculations. Tonnage of each category before 2020 is based on the *2019 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site* (CH2M 2020).

5. Landfill Gas Generation Model

Methane production at the Site was estimated using the Tool specified by BC EPS for annual reporting. The model is based on a first-order kinetic decomposition rate equation for quantifying emissions from the decomposition of wastes in MSW landfills. Table 4 presents the parameters required to run the model.

Table 4. Input Parameters Used in the Tool

Input Parameters or Constants	LFG Generation Model
	BC EPS LFG Guideline and Calculation Tool
First year of historical data used	1994
Year of Assessment	2024
Annual waste tonnage	Annual waste acceptance from 1994 to 2023 Annual waste tonnages for relatively inert, moderately decomposable, and decomposable wastes
k	Methane generation rate
Methane generation rates	For relatively inert, moderately decomposable, and decomposable wastes
Lo	Methane generation potential
Waste types	Relatively inert, moderately decomposable, and decomposable wastes

The following assumptions were used in the Tool:

- Lag time before start of gas production: 1 year
- Methane by volume: 50%
- Carbon dioxide by volume: 50%
- Methane density at 1 atmosphere (atm), 25 degrees Celsius (°C): 0.6557 kilogram per cubic metre (kg/m³)
- Carbon dioxide density, 25°C: 1.7988 kg/m³

5.1. Model Input Parameters Used and Justification

The model input parameters used and the justification for their use are described as follows.

5.1.1. Climate Information

The average annual precipitation of the nearest meteorological station (Kelowna A #1123970, located at the Kelowna Airport) is 386.9 millimetres (mm) based on Canadian Climate Normals between 1981 and 2010 (Government of Canada 2022). For this Assessment, the average annual precipitation data from the Kelowna A station were used for calculation of the methane generation rate.

5.1.2. Methane Generation Rate

Input parameters used for the constant, k , are based on the BC MOECCS LFG Guideline, Table 5.2 (CRA 2009).

According to the annual precipitation of 386.9 mm, the model input k -values for this Site are as follows:

- 0.01 per year (y^{-1}) for relatively inert waste
- 0.02 y^{-1} for moderately decomposable waste
- 0.05 y^{-1} for decomposable waste

However, the *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada* (NIR) (ECCC 2020) adopted a new methodology, which uses a new formula to calculate k -value from precipitation.

The k -value is calculated as follows:

$$k(y^{-1}) = 7 \times 10^{-5} \times precipitation(mm) - 0.0172 \quad (1)$$

With a precipitation of 386.9 mm, the calculated k -value for Kelowna is 0.00988. The new k -value for each category is proportionally calculated as follows, based on Table 5.2 of the BC MOECCS LFG Guidance:

- 0.00371 y^{-1} for relatively inert waste
- 0.00741 y^{-1} for moderately decomposable waste
- 0.01853 y^{-1} for decomposable waste

These new k -values were used in this study.

According to the BC MOECCS LFG Guideline, Section 5.4, the selected k -value should be corrected based on the landfill's operations and maintenance practices, including stormwater management, cover properties, and the extent of leachate recirculation or stormwater injection. According to Tables 5.3 and

5.4 of the BC MOECCS LFG Guideline, the water addition factor appropriate for the Site conditions in 2023 is 1.0. The reason is as follows: There is partial infiltration of stormwater into the waste.

5.1.3. Methane Generation Potential (Lo)

The input parameters used for the Lo values are based on the BC MOECCS LFG Guideline, Table 5.1 (CRA 2009). For this Site, the model uses the following Lo values:

- 20 m³ of methane per metric tonne of waste for relatively inert waste
- 120 m³ of methane per metric tonne of waste for moderately decomposable waste
- 160 m³ of methane per metric tonne of waste for decomposable waste

6. Landfill Gas Model Results

This section presents the results of the Assessment in accordance with the latest available waste disposal data and future waste disposal projections for the Site. Table 5 presents the updated annual methane production using the Tool (Attachment 1).

Table 5. Annual Methane Production Using the BC MOECCS Calculation Tool for the Glenmore Landfill

Estimated Quantity of Methane Produced	Year	Tonnes Per Year
In the year preceding the Assessment	2023	2,002
In the year of the Assessment	2024	2,084
1 year after the Assessment	2025	2,183
2 years after the Assessment	2026	2,285
3 years after the Assessment	2027	2,388
4 years after the Assessment	2028	2,493

According to the Tool results, 2,002 tonnes of methane were generated in 2023, which corresponds to approximately a 348.6 cubic metres per hour (m³/h) or 205.2 standard cubic feet per minute (scfm) methane generation rate (at 25°C, 101.3 kilopascals [kPa]). Using a typical LFG composition of 50% methane and 50% carbon dioxide by volume, the LFG generation rate in 2023 is about 697 m³/h (410 scfm).

7. Landfill Gas System Efficiency

This section the LFG collection data and collection efficiency for 2023.

7.1. 2023 Landfill Gas Collection Data

In 2023, there were 960,374 m³ of LFG destroyed through flaring and 2,476,598 m³ of LFG processed through the Fortis Biogas Plant for beneficial use by FortisBC (Beulah, pers. comm. 2024b). This equates to a total of 3,436,972 m³ of LFG collected from the landfill.

7.2. 2023 Landfill Gas Collection Efficiency

In accordance with the BC MOECCS LFG Design Guidelines, collection efficiency (CE) is calculated based on the following equation:

$$CE = \left(\frac{Q_c}{Q_p} \right) \times 100\%$$

(2)

Where:

CE = Collection efficiency expressed as a percentage (%)

Q_c = Normalized average collected flow rate of LFG in the given calendar year (m^3/h)

Q_p = Estimated generated LFG flow rate in given calendar year (m^3/h), which is calculated by the Tool

The normalized average collected flow rate of LFG (Q_c) is calculated according to the following equation:

$$Q_c = Q_a \times \frac{C_m}{50\%} \quad (3)$$

Where:

Q_a = Average measured LFG flow rate (m^3/h)

C_m = Annual average methane concentration measured during LFG management system uptime at a central collection point near the blower or combustion and utilization device of the LFG management system expressed as a percentage (%)

The average measured LFG flow rate (Q_a) is measured according to the following:

$$Q_a = \frac{V_{LFG}}{(24 \times \text{number of days in that year})} \quad (4)$$

Where:

V_{LFG} = Total volume of LFG collected in the calendar year 2023 (cubic metres per year); 2023 has 365 days

Based on this formula:

$$\begin{aligned} Q_a &= \frac{V_{LFG}}{(24 \times 365)} \\ Q_a &= \frac{3,436,972 \text{ m}^3}{(24 \text{ h/day} \times 365 \text{ days})} = 392.4 \text{ m}^3/\text{h} \\ Q_p &= 697.2 \text{ m}^3/\text{h} \text{ (from tool)} \end{aligned}$$

Based on record data:

$$\begin{aligned} C_m &= 59.7\% \text{ (Beulah 2024b, pers. comm)} \\ Q_c &= Q_a \times \frac{C_m}{50\%} = 392.4 \text{ m}^3/\text{h} \times \frac{59.7\%}{50\%} = 468.5 \text{ m}^3/\text{h} \\ CE &= \left(\frac{Q_c}{Q_p} \right) \times 100\% = \left(\frac{468.5 \text{ m}^3/\text{h}}{697.2 \text{ m}^3/\text{h}} \right) \times 100\% = 67.2\% \end{aligned}$$

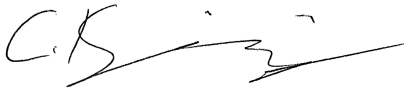
The final CE of the LFG collection system is estimated to be 67%.

8. Closure

The conclusions represent the best judgment of the assessor based on historical data, predicted waste disposal rates, and current models and guidelines.

Sincerely,

Jacobs Consultancy Canada Inc.



Chris Kyriazis

Technical Support

Chuck Smith, P.Eng.

Senior Technical Consultant

PERMIT TO PRACTICE
JACOBS CONSULTANCY CANADA INC.
PERMIT #1003650
ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA

9. Limitations

The findings and conclusions of this TM are based on information provided by the City, which is assumed to be correct, and certain assumptions as outlined in this TM. Except as provided for in this TM, Jacobs has made no independent investigation as to the accuracy or completeness of the information obtained from the City or from other secondary sources during completion of this work. In some cases, however, information data gaps exist. The interpretation and findings of this TM were limited in these situations.

This TM was prepared using analyses and procedures consistent with generally accepted professional engineering consulting principles and practices. No other warranty, expressed or implied, is made. This TM is solely for the use and information of the City of Kelowna (our client) unless otherwise noted. Any reliance on this TM by a third party is at such party's sole risk.

Criteria contained herein apply to conditions existing when services were performed and are intended only for the purposes, locations, and project parameters indicated. Jacobs is not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services.

10. References

Beulah, B., Environmental Technician, Landfill Gas Operations, City of Kelowna. 2024a. Personal communication (email) with Chuck Smith, Jacobs. January 9.

Beulah, B., Environmental Technician, Landfill Gas Operations, City of Kelowna. 2024b. Personal communication (email) with Chris Kyriazis, Jacobs. February 6.

British Columbia Ministry of Environment and Climate Change Strategy (BC MOECCS). 2008. Landfill Gas Management Regulation. Government of BC ordered and approved December 8, 2008.

British Columbia Environmental Protection and Sustainability (BC EPS). 2022. *Landfill Gas Generation Estimation Tool – for Annual Reporting*. <http://www2.gov.bc.ca/gov/content/environment/waste-management/garbage/landfills>. Accessed February 9, 2022.

CH2M HILL Canada Limited (CH2M). 2010. *Landfill Gas Generation Assessment Report – Glenmore Landfill Site*.

CH2M HILL Canada Limited (CH2M). 2020. *Final 2019 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site*.

City of Kelowna (City). 2023. *2022 Glenmore Landfill Annual Report*.

Conestoga-Rovers & Associates (CRA). 2009. *Landfill Gas Generation Assessment Procedure Guidelines*. Prepared for BC MOECCS. March.

Conestoga-Rovers & Associates (CRA). 2010. *Landfill Gas Management Facilities Design Guidelines*. Prepared for BC MOECCS. March.

Environment and Climate Change Canada (ECCC). 2019 *National Inventory Report 1990–2017: Greenhouse Gas Sources and Sinks in Canada*.

GHD Limited (GHD). 2023. *Design, Operations, and Closure Plan. Glenmore Landfill*. Prepared for the City of Kelowna. December 22.

Government of Canada. 2022. *Station Results – 1981–2010 Climate Normals and Averages*. https://climate.weather.gc.ca/climate_normals/station_select_1981_2010_e.html?searchType=stnName&txtStationName=kelowna&searchMethod=contains. Accessed February 10, 2022.

Technical Memorandum

Jacobs Consultancy Canada Inc. (Jacobs). 2023a. *2022 Landfill Gas Collection Efficiency Study – Glenmore Landfill Site*. March 23.

Jacobs Consultancy Canada Inc. (Jacobs). 2023b. *Glenmore Landfill Gas System Fire Damage Assessment*. November 27.

Morrison Hershfield Ltd. 2016. *2013 Waste Composition Study of Regional District of Central Okanagan*. Prepared for the City of Kelowna.

Tetra Tech, 2021. *Regional District of Central Okanagan 2020–2021 Waste Composition Study*. Prepared for the Regional District of Central Okanagan.

Attachment 1
British Columbia Ministry of Environment and Protection and
Sustainability's Methane Generation Estimation Tool – for
Annual Reporting Results for the Glenmore Landfill Site

Year of Assessment	2024	LFG Management Regulation Reference
Annual Tonnage in Preceding Year	144,261 (tonnes/year)	4-2-a
Total waste in Place in the Preceding Year	3,478,458 (tonnes/year)	4-2-c
Methane generation in the Preceding Year	2,002 (tonnes CH ₄ /year)	4-2-d

Next Five Years	Waste Tonnage (tonnes)	Methane Generation (tonnes CH ₄ /year)	
2024	168,844	2,084	4-2-b & 4-2-e
2025	173,572	2,183	4-2-b & 4-2-e
2026	178,085	2,285	4-2-b & 4-2-e
2027	182,537	2,388	4-2-b & 4-2-e
2028	186,918	2,493	4-2-b & 4-2-e

	Relatively Inert	Moderately Decomposable	Decomposable	
Gas Production potential, Lo =	20	120	160	m ³ CH ₄ /tonne
lag time before start of gas production, lag =	1	years		
Historical Data Used (years)	30			
1st Year of Historical Data Used	1994			
4 Years after Reporting Year	2028			
methane (by volume)	50%			
carbon dioxide (by volume)	50%			
methane (density) - 1atm, 25C	0.6557	kg/m ³	(25C,SP)	
carbon dioxide (density)	1.7988	kg/m ³	(25C,SP)	

Year	Year Number	Annual Tonnage (tonnes)	Cumulative Waste-in-place (tonnes)	Waste Tonnage			Methane Generation Rate, k			Annual Methane Production (tonnes/yr)
				Relatively Inert (tonnes)	Moderately Decomposable (tonnes)	Decomposable (tonnes)	Relatively Inert (year ⁻¹)	Moderately Decomposable (year ⁻¹)	Decomposable (year ⁻¹)	
1994	1	84,272	84,272	22,753	45,507	16,012	0.00371	0.00741	0.01853	0.00
1995	2	80,458	164,730	21,724	43,447	15,287	0.00371	0.00741	0.01853	58.77
1996	3	80,794	245,524	21,814	43,629	15,351	0.00371	0.00741	0.01853	114.12
1997	4	95,904	341,428	25,894	51,788	18,222	0.00371	0.00741	0.01853	168.97
1998	5	83,756	425,184	22,614	45,228	15,914	0.00371	0.00741	0.01853	233.64
1999	6	85,258	510,442	23,020	46,039	16,199	0.00371	0.00741	0.01853	289.00
2000	7	89,547	599,989	24,178	48,355	17,014	0.00371	0.00741	0.01853	344.69
2001	8	95,815	695,804	25,870	51,740	18,205	0.00371	0.00741	0.01853	402.64
2002	9	102,522	798,326	27,681	55,362	19,479	0.00371	0.00741	0.01853	464.22
2003	10	96,772	895,098	26,128	52,257	18,387	0.00371	0.00741	0.01853	529.68
2004	11	106,483	1,001,581	28,750	57,501	20,232	0.00371	0.00741	0.01853	590.28
2005	12	108,597	1,110,178	29,321	58,642	20,633	0.00371	0.00741	0.01853	656.87
2006	13	116,218	1,226,396	31,379	62,758	22,081	0.00371	0.00741	0.01853	724.09
2007	14	102,688	1,329,084	27,726	55,452	19,511	0.00371	0.00741	0.01853	795.75
2008	15	100,611	1,429,695	27,165	54,330	19,116	0.00371	0.00741	0.01853	857.06
2009	16	114,590	1,544,285	30,939	61,879	21,772	0.00371	0.00741	0.01853	916.14
2010	17	119,861	1,664,146	32,362	64,725	22,774	0.00371	0.00741	0.01853	984.21
2011	18	106,387	1,770,533	28,724	57,449	20,214	0.00371	0.00741	0.01853	1055.10
2012	19	108,110	1,878,643	29,190	58,379	20,541	0.00371	0.00741	0.01853	1115.68
2013	20	108,917	1,987,560	29,408	58,815	20,694	0.00371	0.00741	0.01853	1176.70
2014	21	123,178	2,110,738	33,258	66,516	23,404	0.00371	0.00741	0.01853	1237.52
2015	22	136,115	2,246,853	36,751	73,502	25,862	0.00371	0.00741	0.01853	1307.51
2016	23	154,510	2,401,363	41,718	83,435	29,357	0.00371	0.00741	0.01853	1385.65
2017	24	151,456	2,552,819	40,893	81,786	28,777	0.00371	0.00741	0.01853	1475.62
2018	25	166,916	2,719,735	45,067	90,135	31,714	0.00371	0.00741	0.01853	1562.32
2019	26	156,566	2,876,301	40,707	84,546	31,313	0.00371	0.00741	0.01853	1658.70
2020	27	145,704	3,022,005	48,126	66,802	30,776	0.00371	0.00741	0.01853	1749.62
2021	28	154,079	3,176,083	48,088	70,152	35,839	0.00371	0.00741	0.01853	1828.33
2022	29	158,114	3,334,198	56,054	67,501	34,560	0.00371	0.00741	0.01853	1917.78

Year	Year Number	Annual Tonnage (tonnes)	Cumulative Waste-in-place (tonnes)	Waste Tonnage			Methane Generation Rate, k			Annual Methane Production (tonnes/yr)
				Relatively Inert (tonnes)	Waste Tonnage Moderately Decomposable (tonnes)	Decomposable (tonnes)	Relatively Inert (year ⁻¹)	Waste Tonnage Moderately Decomposable (year ⁻¹)	Decomposable (year ⁻¹)	
2023	30	144,261	3,478,458	43,030	66,991	34,240	0.00371	0.00741	0.01853	2002.36
2024	31	168,844	3,647,302	50,363	78,407	40,074	0.00371	0.00741	0.01853	2084.23
2025	32	173,572	3,820,874	51,773	80,602	41,196	0.00371	0.00741	0.01853	2183.34
2026	33	178,085	3,998,959	53,119	82,698	42,268	0.00371	0.00741	0.01853	2284.61
2027	34	182,537	4,181,496	54,447	84,766	43,324	0.00371	0.00741	0.01853	2387.86
2028	35	186,918	4,368,414	55,754	86,800	44,364	0.00371	0.00741	0.01853	2493.02

*Appendix 3 –
2023 Glenmore Landfill
Annual Water Quality
Report,
Keltech Environmental
Ltd.,
March 27, 2024*

FINAL REPORT

2023 ANNUAL WATER MONITORING REPORT FOR GLENMORE LANDFILL

**Operational Certificate MR 12218 EMS
Reference # E104956**



Prepared for:
City of Kelowna
Glenmore Landfill
2720 John Hindle Drive
Kelowna, BC
V1Y 2C5

Distribution:
1 Copy City of Kelowna
1 E-Copy: Keltech Environmental Ltd.

Report Number: 2022-059-02
March 27, 2024

TABLE OF CONTENTS

1.0	Introduction	1
2.0	Site Description.....	2
3.0	2023 Annual Water Quality MOnitoring Program	3
4.0	2023 Additional Site Works – by City of Kelowna	5
5.0	Regulatory criteria.....	6
6.0	2023 Annual Water Quality Program REsults	7
6.1	Methodology	7
6.2	Field Observations.....	7
6.3	Groundwater and Surface Water Elevations	8
6.3.1	Fluctuations	9
6.4	Groundwater Analytical Results	9
6.4.1	Groundwater Quality at Upgradient Wells (Baseline).....	12
6.4.2	Groundwater Quality at Footprint Wells (Moderate to High Leachate-Impacted) ...	12
6.4.3	Groundwater Quality at Downgradient Wells (Low to Minimal Leachate-Impacted)	14
6.4.4	Groundwater Quality Gradient Across the Site	14
6.5	Surface Water Quality.....	15
6.5.1	Surface Water Quality at On-Site and Off-Site Ponds.....	15
6.5.2	Surface Water Quality Gradient at Ponds Across the Site	16
6.5.3	Leachate Quality	16
7.0	Quality Assurance and Quality Control.....	17
8.0	Conclusions	17
9.0	Recommendations.....	19
9.1	Proposed 2024 Monitoring Program.....	19
9.2	Other Recommendations.....	19
10.0	Limitations.....	20
11.0	Closure	21
	References.....	22

LIST OF FIGURES (AFTER TEXT)

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Inferred Direction of Groundwater Flow (March 2023)
Figure 4	Inferred Direction of Groundwater Flow (Sept 2023)

LIST OF TABLES (IN-TEXT)

Table A	Summary of 2023 Groundwater Sampling– Semi-Annual
Table B	Summary of 2023 Surface Water Sampling– Quarterly
Table C	Summary of 2023 Leachate Sampling– Quarterly
Table D	Summary of Applicable Regulatory Criteria
Table E	Field Observations by Monitoring Well ID
Table F	Well IDs Grouped by Upgradient, Footprint or Downgradient Location
Table G	Comparison of Water Quality Exceedances at Wells by Location
Table H	Summary of 2018 to 2023 Analytical Results for Leachate Indicator Parameters

LIST OF TABLES (APPENDED)

Table 1	Monitoring Well Construction Specifications and Current Status - December 2023
Table 2a	Groundwater Elevations - 2015-2023
Table 2b	Surface Water Elevations
Table 3	Summary of Groundwater Analytical Results - Monitoring Wells
Table 4	Summary of Surface Water Analytical Results - Ponds, Sloughs
Table 5	Summary of Leachate Water Analytical Results - Manholes

LIST OF APPENDICES

Appendix A	MOE Operational Certificate 12218
Appendix B	Leachate Management System
Appendix C	Field Methodology
Appendix D	2023 Field Data Records
Appendix E	Graphs 1-13 and Plots 1-16
Appendix F	Tables H1-H5 – Historical Summary of Analytical Results for Groundwater, Surface Water and Leachate
Appendix G	Quality Assurance and Quality Control: Methods and Results

LIST OF ACRONYMS

AW	Aquatic life water use (freshwater)
BCWQG	BC Water Quality Guidelines
CoK	City of Kelowna
CSR	Contaminated Sites Regulation (BC)
DOCP	Design Operations and Closure Plan
DW	Drinking water use
ENV	Ministry of Environment and Climate Change Strategy
EPHw10-19	extractable petroleum hydrocarbons (nC10-nC19) in water
EPHw19-32	extractable petroleum hydrocarbons (nC19-nC32) in water
GCDWQ	Guidelines for Canadian Drinking Water Quality
HEPHw	heavy extractable petroleum hydrocarbons in water
IW	Irrigation water use
LEPHw	light extractable petroleum hydrocarbons in water
MOE	Ministry of Environment
QA/QC	Quality Assurance/Quality Compliance
RDCO	Regional District of Central Okanagan
TDS	total dissolved solids
TG15	CSR Technical Guidance 15
UBC	University of British Columbia
VOA	volatile organic acids
VOC	volatile organic compounds
VPH	volatile petroleum hydrocarbons

Revision Number	Edited By:	Checked By:	Published Date:	Description of Changes

1.0 INTRODUCTION

Keltech Environmental Ltd. (Keltech) was retained by the City of Kelowna (CoK) to complete the 2023 Annual Water Monitoring Report for the CoK's Glenmore Landfill located at 2720 John Hindle Drive, Kelowna, BC (the Site). Refer to appended Figure 1 – Site Location Map.

As requested by the CoK, Keltech has prepared this annual report summarizing the results of the 2023 annual environmental water quality monitoring program conducted by Keltech and the CoK at the Site. This report is intended to satisfy the requirements of the current Ministry of Environment (MOE) Glenmore Landfill Operational Certificate 12218 (OC) Appendix A.

The following documents were produced since the last Annual Water Monitoring Report and the CoK has provided Keltech with a copy of each for review.

On May 30, 2023, the OC 12218, was amended and the portions of this document that are considered pertinent to this report at this time are as follows.

- The number of quality control (QC) samples should be 20% of all sample collected withing 48 hours of each other.
- QC samples must include duplicate, field blank, and trip blank samples.
- The OC requires non-compliance notifications and non-compliance reporting for any non-compliance with the OC.

In December 2023, the CoK received the following completed report.

Hydrogeology and Hydrology Characterization Report, Glenmore Landfill. Prepared by GHD Limited and dated 19 December 2023

A brief summary of the Hydrogeology and Hydrology Characterization Report (HHCR) findings that are considered relevant to this report at this time are as follows.

- The following major geologic and hydrogeologic units (in brackets) were identified at the Site.
 - Glaciolacustrine silt and clay deposits (Clay Unit - acts as a leaky aquitard)
 - Glaciolacustrine silt and clay deposits (Clay Unit - acts as a leaky aquitard)
 - Glaciofluvial sand and gravel (Sand and Gravel Unit - Aquifer 469)
 - Glacial till (Till Unit - acts as a leaky aquitard)
 - Bedrock - (Bedrock Unit - Aquifer 470)
- Hydraulic conductivity of the following hydrogeologic units was determined using response tests and included:
 - Sand and Gravel Unit ranges from 1.5×10^{-9} m/sec to 9.6×10^{-6} m/sec
 - Till Unit ranges from 4.3×10^{-10} m/sec to 1.0×10^{-3} m/sec
 - Bedrock Unit ranges from 3.5×10^{-9} m/sec to 1.4×10^{-6} m/sec
- Groundwater lateral flow was determined to mimic topography and flow from the valley slopes towards the centre of the Site, and then flow southward towards the south end of the valley
- The Sand and Gravel Unit is discontinuous across the Site. Whereas the Till Unit comprises geologic variability and hydraulic conductivity and is described as a leaky aquitard due to its permeability

- Generally, groundwater vertical flow is 'upward in well nests near the ridge walls and within the Landfill vicinity,' and downward 'in the vicinity of the Slough'. In 2022 artesian conditions were observed at well 09BH06.
- Leachate indicator parameters identified for the Site were alkalinity, chloride, nitrate and/or ammonia, sulphate, total dissolved solids (TDS), boron, iron, and manganese; upgradient groundwater quality is poor due to naturally high concentrations of several of these parameters.
- The majority of the wells at the Landfill Site contained moderate to elevated concentrations of chloride, sulphate, and TDS.
- Groundwater in the Sand and Gravel and Till Unit wells had elevated concentrations of sulphate, TDS, nitrate, lithium, and uranium that exceed the CSR DW or IW standards. The results indicate that sulphate exceedances are related to the landfill, but that impacts are minor.
- Evidence for minor landfill derived impacts can be seen in Tutt Pond and this water should not be used to irrigate the adjacent farm field.
- The existing monitoring network does not include an upgradient and downgradient monitoring well, thus, a groundwater compliance assessment cannot be completed following Protocol 9.
- Little Robert Lake and Robert Lake water quality may be impacted by landfill leachate; however, it also undergoes evaporation and maybe influenced by other non-landfill related activities. The relationship between the various activities and the water quality in these lakes is not clear, therefore, additional monitoring has been recommended.

In March 2024 the CoK received the following document.

Technical Memo: Groundwater Monitoring Locations and Surface Water Use for Irrigation Recommendations, prepared by GHD Limited. Dated March 11, 2024.

A brief summary of the recommendations is as follows. Refer to the full memo for details.

- Installation of replacement monitoring well for 09BH-04 S/D and 09BH-05 S/D in the Till Units and Sand and Gravel Unit
- Installation of one additional upgradient monitoring well in the Clay Unit
- Installation of one downgradient monitoring well in the Bedrock Unit at the south property boundary
- Data collection recommendations for during well installation and once wells are installed
- Surface water use for irrigation recommendations including discussion on the appropriate use of CSR Protocol 9 for local surface water background concentrations and data analysis, and quarterly updates of the 95th percentile concentrations.

2.0 SITE DESCRIPTION

The Glenmore Landfill has been in operation since 1966, and it provides services to communities within the Regional District of Central Okanagan (RDCO) and Big White (Regional District of Kootenay Boundary (RDKB)) as a multi-purpose waste management facility for non-hazardous municipal, commercial, institutional, and light industrial solid waste.

The extent of the landfill area for the annual water monitoring program includes:

- Four main operational areas were identified as Phase 1, Phase 2, Phase 3, and Compost Facility (see Figure 2 – Site Plan).

- A leachate collection system (see Leachate Management System in Appendix B).
- Four on-Site surface water bodies (Northeast Pond, Bredin Pond, Tutt Pond, and Slough).
- Four off-Site surface water bodies (Bubna Slough and Slough #2 located upgradient to the north, and Little Robert Lake and Robert Lake located downgradient to the south).
- On Site monitoring wells, surface water and leachate sample locations.
- Four series of monitoring wells located outside the boundaries of the Site identified as:
 - the GL41 well series (three wells) located to the north of the landfill,
 - the GL15 well series (two wells) located to the southwest,
 - the GL28 well series (three wells) located to the south, and
 - 06BH02 and the 09BH well series (six wells (09BH01 decommissioned)) located east, south and southeast of the Site. Three of these six, wells 09BH03, 09BH04, and 09BH07 are owned by the University of British Columbia (UBC).

The well construction specifications and current status for each monitoring well installed on and off the Site can be found in Table 1, attached.

Two BC classified aquifers numbered 469 and 470 are identified as underlying the Site. Aquifer 469 is an overburden aquifer composed of sands and gravels with moderate productivity, low vulnerability, and low demand. Aquifer 470 is a bedrock aquifer composed of volcanic rocks likely belonging to the Penticton Group or Harper Ranch Group.

3.0 2023 ANNUAL WATER QUALITY MONITORING PROGRAM

The 2023 annual water quality program followed the recommendations of the *2022 Glenmore Landfill Annual Water Quality Report*, dated March 24, 2023, and consisted of manual monitoring of 53 monitoring wells for water levels and 29 monitoring wells for water quality, plus monitoring of four surface water bodies for water level elevations and nine surface water bodies for water quality.

The 2023 program is summarized by general location, sample point/sample ID, and field and analytical parameters in Tables A, B and C below. Water at selected groundwater, surface water, and leachate locations (Figure 2 – Site Plan) was monitored and sampled for water quality criteria and analyzed for parameters as described in the methodology section.

The inclusion of volatile organic acids (e.g., resin and fatty acids) in the leachate list of parameters to determine leachate system efficiency (i.e., buffering capacity) continued in 2023. These compounds do not have applicable water quality standards or guidelines.

Perfluoroalkyl acids (PFA) in groundwater were not analyzed for in 2023.

GROUNDWATER

Groundwater monitoring wells were monitored and sampled semi-annually, as noted in Table A below.

Table A: Summary of 2023 Groundwater Sampling – Semi-Annual

Monitoring Well Location	Monitoring Well/Sample ID	Field Parameters	Analytical Parameters
Spring Sampling Event (May/June/July 2023)			
North border	GL41-1, GL41-2, GL41-3	Depth to water, pH, conductivity, redox, dissolved oxygen, and temperature	Dissolved metals, pH, alkalinity, hardness, chemical oxygen demand, dissolved organic carbon, total dissolved solids, chloride, fluoride, sulphate, and nutrients (ammonia, nitrate, nitrite, orthophosphate).
Northeast of Phase 1	GL4-1, GL4-2, GL23-1, GL24-1		
Phase 2	-		
West of Site	-		
Phase 3	GL35-3		
South	GL27-1, GL27-3, GL29-1, GL29-2		
Southern border/Off-Site	GL28-1, GL28-2, GL28-3, GL42-1, GL42-2, GL39-1, GL39-2		
Fall Sampling Event – (October 2023)			
North border	GL41-1, GL41-2, GL41-3	Depth to water, pH, conductivity redox, dissolved oxygen, and temperature	Dissolved metals, pH, alkalinity, hardness, chemical oxygen demand, dissolved organic carbon, total dissolved solids, chloride, fluoride, sulphate, and nutrients (ammonia, nitrate, nitrite, orthophosphate).
Northeast of Phase 1	GL1-1, GL1-2, GL4-1, GL4-2, GL23-1, GL24-1		
Phase 2	GL2-1, GL2-2		
West of Site	GL15-1, GL15-2		
Phase 3	GL20-1		
South	GL27-1, GL29-1, GL29-2		
Southern border/Off-Site	GL28-1, GL28-2, GL28-3, GL39-1, GL39-2, GL42-1, GL42-2		

SURFACE WATER

Surface water samples were collected in general accordance with the BC Field Sampling Manual Part E1: Surface Water (2024) on a generally quarterly basis from the ten surface water bodies both on and off-Site as summarized in Table B below.

Table B: Summary of 2023 Surface Water Sampling – Quarterly

Surface Water Sample Location	Sample ID	Field and Analytical Parameters
Sampled: March, May, September, and November 2023		
East of Phases 1 & 2	Northeast Pond	Field parameters: pH, conductivity, redox potential, total dissolved solids, dissolved oxygen, and temperature.
Centre of Site	Tutt Pond and Slough	

Surface Water Sample Location	Sample ID	Field and Analytical Parameters
West of Phases 1 & 2	Bredin Pond	Analytical parameters: Total metals, pH, conductivity, alkalinity, hardness, chemical oxygen demand, total organic carbon, total dissolved solids, chloride, fluoride, sulphate, and nutrients (ammonia, nitrate, nitrite, orthophosphate), fecal and total coliforms.
Phase 3	Slough	
Background (upgradient)	Bubna Slough	
	Slough #2	
Background (downgradient)	Little Robert Lake	
	Robert Lake	

LEACHATE

Leachate samples were collected in general accordance with the BC Field Sampling Manual Part E3: Effluent (2024) on a generally quarterly basis from the on-Site leachate collection manholes as summarized in Table C below.

Table C: Summary of 2023 Leachate Sampling – Quarterly

Leachate Sample Location	Sample ID	Analytical Parameters
West side of Phase 1	N Pumphouse MH (Sampled: March, May, September, October, and November 2023)	Dissolved metals, pH, alkalinity, hardness, chemical oxygen demand, dissolved organic carbon, total dissolved solids, chloride, fluoride, sulphate, hydrogen sulfide, nutrients (ammonia, nitrate, nitrite, orthophosphate, phosphorous), LEPHw, VOC, VPH, VPH, PFAs, and volatile fatty acids (VFAs).
	P1 Leachate MH-2 (Sampled: March, May, September, October, and November 2023)	
Area 2	P2 A2 Leachate MH (Sampled: March, May, September, October, and November 2023)	
Southwest corner of Phase 2	S Leachate Wet Well (Sampled: March, May, September, October, and November 2023)	

4.0 2023 ADDITIONAL SITE WORKS – BY CITY OF KELOWNA

Based on the information provided by CoK, the following additional Site works occurred in 2023:

- March 2023: Wells GL13-1, GL17-1, and GL17-2 were decommissioned by Keltech in accordance with British Columbia's Groundwater Protection Regulation (GWPR, BC Reg. 39/2016; O.C. 113/2016, [includes amendments up to BC Reg. 253/2022, December 1, 2022]), under the *BC Water Sustainability Act*.
- December 2023: Wells GL34-3, GL34-2, GL34-1, GL31-2, GL5-3, GL5-2, GL-GP-16 were inspected for damage caused by the McDougal Creek Wildfire.

No other key Site events or operational changes were reported by CoK for 2023.

5.0 REGULATORY CRITERIA

In 2023, Keltech consulted the CoK to refine the applicable regulatory criteria as follows.

- BC Contaminated Sites Regulation (CSR) aquatic life water use, freshwater (AWf) standards apply because of the presence of surface water bodies on-Site, as well as off-Site within 500 m of the Site.
- BC CSR drinking water use (DW) standards apply for future drinking water use and are considered when determining the applicability of DW standards to the Site. Future drinking water use applies to all drinking water aquifers below a site whether or not current drinking water use applies. Drinking water aquifers are saturated geological units that have suitable hydraulic properties and natural water quality to support a single-family domestic water supply. Where information is unavailable or inadequate to demonstrate an absence of drinking water aquifers below a site, drinking water aquifers are considered to exist.
- BC CSR Irrigation water use (IW) applies where the groundwater or surface water at or nearby a site is currently used for irrigation. Nearby irrigation wells or surface water intakes are those located within a radial distance of 500 metres from the site property boundary or, where the groundwater contamination source extends beyond the property boundary a radial distance of 500 metres from the groundwater contamination source. If the groundwater flow direction has been reliably determined using approved methods, nearby current uses may be limited to include irrigation and livestock watering wells or surface water intakes located within 100 metres upgradient and 500 metres crossgradient or downgradient of the site property boundary or outer extent of the groundwater contamination source where it extends beyond the property boundary.
- BC Water Quality Guidelines – Aquatic life, fresh water (BCWQG AW): Long term and short-term guidelines were applicable to the freshwater aquatic ecosystems of Northeast Pond and Little Robert Lake.
- BC Water Quality Guidelines – Irrigation water (BCWQG IW): Long term and short-term guidelines were applicable to waterbodies used for irrigation, namely Tutt Pond and Bredin Pond.
- BC CSR Technical Guidance Document 15 (TG15): *TG15, Concentration Limits for the Protection of Aquatic Receiving Environments, Version 2.0*, dated November 1, 2017, further clarifies the application of CSR AW standards and BCWQG's AW and IW guidelines as follows:
 - In upland groundwater, CSR AW standards apply to groundwater located at 10 m distance beyond the high-water mark of an aquatic receiving environment.
 - For maintained watercourses, the CSR AW standards apply to surface water, porewater and groundwater and ENV encourages that wherever possible, the BCWQG be met in all watercourses (including maintained watercourses) at the point where surface water enters an aquatic receiving environment.
 - Surface water and porewater in aquatic receiving environments other than maintained watercourses should be evaluated against the BC (Approved and Working) Water Quality Guidelines.
- Guidelines for Canadian Drinking Water Quality (GCDWQ): were only applied to the most down-gradient well series (i.e., GL28 series, 09BH-06 and 09BH-04).

Leachate at the Site is treated with Bioxide® at Leachate 2 (S Leachate Wet Well) and Leachate 3 (where it mixes with McKinley waste) to address potentially elevated hydrogen sulfide levels. The sewage/leachate mixture is also aerated, and odours are treated by a Biorem Multi-Stage Biofilter. The treated sewage/leachate is discharged into the municipal sanitary sewer system on Glenmore Road and is ultimately treated at the CoK's Wastewater Treatment Facility, therefore, analytical results for treated leachate samples were not compared to the applicable groundwater standards, and/or surface water guidelines (CoK 2021).

The summary of applicable standards and guidelines is shown in Table D.

Table D: Summary of Applicable Regulatory Criteria

Applicable Criteria:		CSR			GCDWQ	BCWQG (LT, ST)	
Water	Location	IW	AW	DW	MAC, AO	AW	IW
GW	Monitoring Wells	Y	Y	Y	GL28 series only (By ENV and DOCP)	N	No, but applied based on DOCP (CoK 2018)
SW	Bredin Pond, Tutt Pond	N	N	N	N	AC	Y
	Northeast Pond, Little Robert Lake, Robert Lake	N	N	N	N	Y	AC
	Slough, Bubna Slough, Slough #2	N	N	N	N	AC	AC
Leachate	Leachate manholes	N	N	N	N	N	N

Notes:

Y: Yes, based on regulated criteria

N: No, based on regulated criteria

AC: Criteria are Appplied Conservatively

LT – long term average water quality guideline

ST – short term maximum water quality guideline

6.0 2023 ANNUAL WATER QUALITY PROGRAM RESULTS

6.1 Methodology

CoK staff conducted the spring 2023 water monitoring and sampling. Keltech completed the fall 2023 groundwater monitoring and sampling. Each event was completed using methodologies that were consistent with the following applicable reference documents:

- *BC Field Sampling Manual, Part E Water and Wastewater Sampling, Groundwater Pollution Monitoring* is available online at: https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_part_e.pdf
- <https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/manuals/field-sampling-manual/bc-field-sampling-manual-part-e1-surface-water-2024-03-08.pdf>
- <https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/manuals/field-sampling-manual/bc-field-sampling-manual-part-e3-effluent-2024-03-08-draft.pdf>

A summary of the 2023 field procedures and methods used at the Site is appended to this report (Appendix C).

6.2 Field Observations

Monitoring and sampling groundwater wells included recording field evidence of contamination such as odours, and oily and/or metallic sheen on the water's surface. Table E summarizes 2023 field observations by monitoring well ID. A copy of the field data records are provided in Appendix D.

Table E: Field Observations by Monitoring Well ID

Date	MW ID	Odour	Sheen	Colour
May 24, 2023	GL2-1	None	None	Orange flecks in water, yellow tint
May 24, 2023	GL2-2	None	None	Clear
May 24, 2023	GL20-1	Sewage/sulphur-like	Orange	Orange – brown colour
May 25, 2023	GL27-1	None	None	Brown/Black particles
May 25, 2023	GL27-3	Mild odour (not further described)	None	Clear
July 6, 2023	GL29-1	Organic. ("Dissolved gases" noted)	None	Yellow tint
May 25, 2023	GL29-2	None	None	Yellow tint, compost particles
June 6, 2023	GL34-3	None	None	Brown/grey silt
May 25, 2023	GL35-3	Sulphur-like	None	Black/grey sediments
June 21, 2023	GL42-1	Slight organic	None	Clear
May 17, 2023	GL42-1	None	None	Silty brown

Notes: MW: monitoring well

6.3 Groundwater and Surface Water Elevations

For ease of reference in this report, Keltech has defined six previously noted but undefined areas on the Site, as shown on Figure 2, as follows. Where "Footprint" is mentioned, it refers to the Landfill and Compost Facility Footprint.

- Northwest – north of the Footprint, plus the west portion of Phase 1 and Northeast Pond (outside of the Footprint).
- Northeast – northeast of the Footprint, plus the east portion of Phase 1.
- Centre A – the area of Phase 2 both inside and outside of the Footprint.
- Centre B – the area of Phase 3 and the Slough; includes off Site well series GL15.
- Southwest – to the southwest of the Slough and outside the Footprint.
- Southeast – to the southeast of the Slough and both on and off Site.

The results of groundwater and surface water elevation monitoring, along with the historical data, are summarized in attached Tables 2A and 2B, and presented in Graphs 1 - 6 in Appendix E. Based on 2023 measurements for March and September 2023 and as shown in Figures 3 (March 2024) and 4 (September 2024), the inferred groundwater flow direction for both March and September measurements was southward from the north, and eastward from the west of Phase 3 with a localized mounding to the south of the Phase 3/Slough. The inferred groundwater flow direction is consistent with that of previous years.

In general, vertical groundwater flow is in the upward direction within the lower elevations, and minimal vertical groundwater migration occurs near the sidewalls of the valley. At some nested monitoring locations (e.g., GL15, GL27, and GL28 series), a downward vertical gradient has been observed. Groundwater flow throughout the Site is also noted to be upwards, provided the leachate level within the landfill is maintained at an elevation at or below 437 m above mean sea level (amsl) (CoK, 2018).

6.3.1 Fluctuations

In 2023, the observations of fluctuations in water level elevations for specified areas of the Site were as follows and are illustrated in the graphs in Appendix E. Decommissioned, dry, inaccessible, damaged, and inactive monitoring wells have not been included in the graphs in Appendix E.

- At the Northeast area (Graph 1):
 - GL1-1 and GL1-2 had elevation fluctuations of 1.931 m and 0.934 m, respectively.
 - The maximum groundwater fluctuations for monitoring wells GL4-1 and GL4-2 (near Northeast Pond) were about 0.607 m and 0.505 m, respectively.
- At the Northwest area (Graph 2):
 - Bredin Pond had a fluctuation of 1.660 m from 438.716 m to 437.056 m.
 - GL41-1, GL41-2, and GL41-3 had fluctuations of 1.042 m, 1.059 m, and 1.06 m, respectively.
- At the Centre A area (Graph 3):
 - GL5-1, GL5-2, and GL5-3 had groundwater fluctuations of 0.078 m, 0.111 m, and 0.146 m, respectively.
 - The Slough had a fluctuation of 0.891 m from 437.707 m to 436.816 m.
- At the Centre B area (Graph 4):
 - GL15-1 has the highest fluctuation of 5.02 m, which is the maximum among all monitoring wells.
 - GL15-2 has a fluctuation of 3.49 m.
 - Slough and Tutt ponds have water fluctuations of 0.891 m and 0.454 m, respectively.
- At the Southeast area (Graph 5) – the maximum fluctuation of 0.963 m was found in well GL39-3.
- At the Southwest area (Graph 6) – the maximum fluctuation of 0.301 m was found in well GL27-3.

The observed water level fluctuations in monitoring wells and surface water ponds are linked to seasonal variations, mirroring historical patterns. These fluctuations are influenced by precipitation, evaporation, temperature, and land use practices.

6.4 Groundwater Analytical Results

The groundwater quality data for the spring and fall 2023 sampling programs were tabulated and compared to applicable standards and guidelines and assessed for general spatial and temporal trends in concentrations. Refer to appended Table 3. CARO analytical reports are on file at Keltech and available upon request.

Historical groundwater analytical data for 2010 to 2022 is provided in Appendix F.

Based on the 2023 inferred groundwater contours, groundwater monitoring wells were classified into three groups:

1. **Upgradient:** Upgradient, indicating baseline and/or potential background wells,
2. **Footprint:** Landfill and Compost Facility Footprint wells, indicating High to Moderate Leachate-Impacted wells; and
3. **Downgradient:** Downgradient wells indicating the potential migration of regulated substances off the Site.

A list of the wells, grouped by the above classifications, along with the lithology, are presented in Table F below. All monitoring wells had exceedances of one or more parameters with respect to the applicable standards and guidelines.

Table F: Well IDs According to Upgradient, Footprint or Downgradient Location

Well Location	Monitoring Well ID	Lithology
Upgradient	GL41-1 (onsite at north Site boundary)	Volcanic bedrock, brown, hard
	GL41-2 (onsite at north Site boundary)	Gravel and silt, trace clay (till)
	GL41-3 (onsite at north Site boundary)	Silt, some clay, followed by sand, and trace silt
	GL23-1 (onsite northeast)	Sand, compact
	GL15-1 (offsite west)	Bedrock
	GL15-2 (offsite west)	Sandy silt and gravel (till)
	GL1-1 (onsite northeast)	Silt, some gravel (till)
	GL1-2 (onsite northeast)	Silty sand, followed by sand
	GL24-1 (onsite northeast)	Sand, compact, followed by silty sand (till)
Footprint	GL2-1 (landfill)	Silty clay followed by silty sand
	GL2-2 (landfill)	Silty clay
	GL4-1 (landfill)	Silty gravel and sand
	GL4-2 (landfill)	Silty clay
	GL35-3 (landfill)	Silty sand with gravel (till)
	GL20-1 (landfill)	Silty sand, some gravel, and traces of clay and cobbles (till)
	GL27-1 (compost)	Bedrock, some fractures
	GL27-3 (compost)	Layered clay followed by silty clay, some sand and gravel (till)
	GL29-1 (compost)	Sand and silt followed by bedrock
	GL29-2 (compost)	Sand and silt (till)
Downgradient	GL42-1 (onsite south Site boundary)	Sand and gravel, trace silt (till)
	GL42-2 (onsite south Site boundary)	Clayey silt
	GL39-1 (onsite south Site boundary)	Silt, some sand, clay and gravel (till)
	GL39-2 (onsite south Site boundary)	Silty sand, trace gravel and clay
	GL 28-1 (offsite south of Site boundary)	Sand, some silt followed by gravel, some sand, trace silt
	GL 28-2 (offsite south of Site boundary)	Silty sand
	GL 28-3 (offsite south of Site boundary)	Layered silty clay, some sand
	09BH06-D (south of the Site)	Silty sand

A general summary of the analyzed parameters that exceeded applicable regulatory criteria, plus, what wells the exceedances occurred at are presented in Table G below. The table also compares the relative locations of the wells by the Upgradient (baseline), Footprint, and Downgradient areas; the table is further discussed below.

Table G: Comparison of Groundwater Quality Exceedances by Location

WELL LOCATION:	UPGRADIENT		FOOTPRINT		DOWNGRADIENT	
Leachate Impact	Baseline		Moderate to High Impact		Low to Minimal Impact	
Parameter	Exceeded Criteria	MW ID	Exceeded Criteria	MW ID	Exceeded Criteria	MW ID
Total dissolved solids	>BCWQG IW LT	All Upgradient wells	>BCWQG IW LT	All Footprint wells	>BCWQG IW LT, >GCDWQ AO	All Downgradient wells
Total Alkalinity	>BCWQG IW LT	All Upgradient wells	>BCWQG IW LT	All Footprint wells	>BCWQG IW LT	All Downgradient wells
Ammonia (Total, as N)	-	-	>CSR AW	GL20-1 and GL 35-3	-	-
Nitrate	-	-	-	-	>CSR DW, >GCDWQ MAC	GL28-2 and GL42-2
Chloride	>CSR IW, >CSR DW, >BCWQG IW ST	GLs 41-1, 41-2, 41-3, 15-2, 1-1, 1-2.	>CSR IW, >CSR DW, >BCWQG IW ST	GLs 2-1, 20-1, 27-3, 29-2, 35-3,	>CSR IW, >BCWQG IW ST	GLs 39-1, 39-2, 42-1, 42-2.
Fluoride	>BCWQG IW LT	GL 15-1	>BCWQG IW LT & ST	GLs 4-1, 4-2, 27-1, 29-1, 29-2	-	-
Sulfate	>CSR DW >CSR AW	GL 15-2, GL 23-1	>CSR AW, >CSR DW	GLs 2-1, 4-1, 27-3, 29-2, 35-3	>CSR AW, >CSR DW, >GCDWQ AO	GLs 28-1, 28-2, 28-3, 39-1, 39-2, 42-1, 42-2
Dissolved Chromium	>CSR IW, >BCWQG IW LT	GL15-2	>CSR AW, >CSR IW, >BCWQG IW LT	GL 20-1	-	-
Dissolved Molybdenum	>CSR IW, >BCWQG IW LT	GLs 23-1, 41-1, 15-2, 41-3, 1-1, 1-2, 24-1	>CSR IW, >BCWQG IW LT >BCWQG IW ST	GLs 2-1, 2-2, 4-1, 4-2, 27-1, 27-3, 29-1, 29-2	>CSR IW, >BCWQG IW LT	GLs 28-1, 28-3, 39-1, 39-2, 42-1, 42-2, 09BH06-D
Dissolved Selenium	>CSR DW, AW, IW, >BCWQG IW ST	GL15-2, GL24-1	-	-	-	-
Dissolved Uranium	>CSR AW, >CSR IW, >CSR DW, >BCWQG IW LT	GLs 23-1, 41-1, 41-2, 41-3, 15-2, 1-1, 1-2, 24-1.	>CSR AW, >CSR IW, >CSR DW, >BCWQG IW LT	GLs 4-1, 4-2, 27-3, 29-1, 29-2, 35-3	>CSR AW, >CSR IW, >CSR DW, >BCWQG IW LT >GCDWQ MAC	All Downgradient wells
Dissolved Iron	-	-	>CSR IW, >CSR DW	GLs 27-3, 35-3, 20-1	>GCDWQ	GL28-1
Dissolved Boron	-	-	>CSR IW, >BCWQG LT	GL 20-1	-	-
Dissolved Cobalt	>CSR DW	GL23-1	> CSR AW, >CSR DW,	GLs 20-1, 27-3, 29-1, 29-2	>CSR DW	GL42-1
Arsenic	-	-	>CSR DW	GL27-1, GL27-3	>CSR DW	GL42-1
Lithium	>CSR DW	All Upgradient wells	>CSR DW	All Footprint wells	>CSR DW, >BCWQG IW LT	All Downgradient wells

WELL LOCATION:	UPGRADIENT		FOOTPRINT		DOWNGRADIENT	
Leachate Impact	Baseline		Moderate to High Impact		Low to Minimal Impact	
Parameter	Exceeded Criteria	MW ID	Exceeded Criteria	MW ID	Exceeded Criteria	MW ID
Manganese	>CSR IW	GL23-1	>CSR DW, >CSR IW	GLs 2-1, 2-2, 4-2, 27-3, 29-1, 29-2, 35-3	>CSR IW, >GCDWQ MAC, >GCDWQ AO	GLs 42-1, 28-1, 28-3, 09BH06-D
Nickel	-	-	>CSR DW	GL 29-1	-	-
Sodium	>CSR DW	GLs 41-1, 15-2, 24-1	>CSR DW	GLs 4-1, 4-2, 20-1, 27-1, 27-3, 29-1, 29-2, 35-3	>CSR DW, >GCDWQ AO	GLs 42-1, 42-2 39-1, 39-2, 28-1, 28-2, 28-3
Strontium	>CSR DW	GLs 23-1, 15-1, 15-2, 1-1, 1-2, 24-1	>CSR DW	GLs 4-2, 27-1, 27-3, 35-3, 2-1, 2-2, 29-1, 29-2	>CSR DW, >GCDWQ MAC	GLs 42-1, 42-2, 39-1, 28-1, 28-2, 28-3

Notes: **MW**: monitoring well **ID**: identifier **AW**: Aquatic Life **DW**: Drinking Water **IW**: Irrigation Water **ST**: Short-Term Acute
LT: Long-Term Chronic **AO**: Aesthetic Objective **MAC**: Maximum Acceptable Concentration

6.4.1 Groundwater Quality at Upgradient Wells (Baseline)

The baseline wells located upgradient of the Footprint area had exceedances of applicable regulatory criteria.

- The concentrations of TDS, total alkalinity, chloride, fluoride, sulfate, dissolved chromium, cobalt, lithium, manganese, molybdenum, selenium, sodium, strontium, and uranium concentrations at Upgradient wells exceeded one or more of the applicable standards and guidelines as shown in Table G.
- The dissolved iron concentration in all Upgradient wells was below applicable BC CSR AW, IW and DW standards in 2023.
- The concentration of dissolved molybdenum in GL41-1 exceeded the applicable standards in 2023.
- These results were generally consistent with historical trends for these parameters.

The exceedances of chloride, uranium, strontium, and sodium above the applicable standards and/or guidelines (BC CSR AW, IW, and DW, BC WQGs, and/or CGDWQ) in the Upgradient wells were lower than the established background 95th percentile concentrations developed by GHD Limited using 2022 data. For example, sodium concentrations in GL41-1 (during spring sampling) and GL15-2 (during fall sampling) were 232 mg/L and 838 mg/L, respectively (exceeding the BC CSR DW standard), which was lower than the established background concentration of 1423 mg/L.

6.4.2 Groundwater Quality at Footprint Wells (Moderate to High Leachate-Impacted)

For monitoring wells located within the Footprint, concentrations of TDS, total alkalinity, ammonia, chloride, fluoride, sulfate, dissolved arsenic, boron, chromium, cobalt, lithium, manganese, molybdenum, nickel, sodium, strontium, and uranium exceeded one or more of the applicable standards and guidelines.

- The concentrations of ammonia and dissolved iron exceeded the applicable standards at well GL20-1, which may be attributed to landfilling activity; the elevated concentrations of ammonia at these locations (produced by waste materials degradation) may be due to leachate and agricultural activity to the west.

- The concentrations of ammonia and dissolved iron exceeded the applicable standards at well GL35-3, located with the Phase 3 Slough.
- The concentration of nitrate exceeded the applicable criteria in the off-site Downgradient well GL28-2, which is likely due to surrounding agricultural activity, including livestock grazing.
- Concentrations of dissolved selenium exceeded the applicable criteria in Upgradient wells GL15-2 and GL24-1, which may be due to activities other than landfilling.
- Key leachate indicator parameters in wells GL27-3, and GL35-3 (cross/downgradient of Phase 3 Slough) had concentrations of ammonia, chloride, fluoride, sulphate, chemical oxygen demand (COD), boron, and dissolved iron that were consistent with results from 2018 to 2022.
- Concentrations of chloride, ammonia, sulfate, dissolved iron, lithium, manganese, sodium, strontium, and uranium in GL35-3 exceeded regulatory criteria. This is consistent with historical fluctuations of these substances at this location.

The exceedances noted for uranium, strontium, sodium, sulfate, and TDS relative to the applicable standards (BC CSR AW, IW, DW, and/or BC WQG), were lower than the established background 95th percentile concentrations developed by GHD Limited using 2022 data. For example, the TDS concentration in GL27-1 was 1600 mg/L which exceeded the BC WQG (500 mg/L). However, the concentration was lower than the established 95th percentile background concentration of 2250 mg/L. Similarly, the TDS concentration in GL4-1 during fall sampling was 1380 mg/L, which exceeded the BC WQG (500 mg/L). However, the concentration was lower than the established 95th percentile background concentration.

A summary table of 2018 to 2023 leachate indicator parameters is below.

Table H: Summary of 2018 to 2023 Analytical Results for Leachate Indicator Parameters

Location	Year	Ammonia, Total (as N) (µg/L)	Chloride (mg/L)	Fluoride (µg/L)	Sulfate (mg/L)	COD (mg/L)	Boron (µg/L)	Dissolved Iron (µg/L)
S Leachate Wet Well	2018 to 2022	17,800 to 103,000	487 to 980	490 to <1,000	1,200 to 2,990	512 to 988	1,160 to 2,790	23.7 to <200
	2023	41,100 to 94,400	566 to 880	<1,000	1,540 to 2,090	502 to 950	1,310 to 2,480	19.8 to 54.4
GL16-1	2018 to 2022	27 to 256	95.1 to 273	690 to 1,240	1,110 to 4,040	<20-24	65.3 to 76.5	78.9 to 424
	2023	-	-	-	-	-	-	-
GL27-3	2018 to 2022	57 to 933	442 to 585	970 to <50,000	9,330 to 11,400	<20 to 21	30.4 to 42.9	2,260 to 4,610
	2023	882	594	<1,000	12,600	29	70	5,480
GL35-3	2018 to 2022	1,220 to 1,720	325 to 351	1,410 to 1730	2,940 to 3,510	<20 to 26	55.4 to 87	463 to 24,800
	2023	1,530	331	<1,000	3080	<20	81.6	15,700
GL12-1	2018 to 2022	5.4 to 7,960	480 to 1050	1,050 to 1,840	3,620 to 9,180	458 to 613	57.1 to 214	8,590 to 24,400

Location	Year	Ammonia, Total (as N) (µg/L)	Chloride (mg/L)	Fluoride (µg/L)	Sulfate (mg/L)	COD (mg/L)	Boron (µg/L)	Dissolved Iron (µg/L)
	2023	-	-	-	-	-	-	-

6.4.3 Groundwater Quality at Downgradient Wells (Low to Minimal Leachate-Impacted)

Based on the 2023 analytical results for monitoring wells located downgradient from the Footprint, concentrations of TDS, total alkalinity, chloride, nitrate, sulfate, dissolved arsenic, cobalt, iron, lithium, manganese, molybdenum, sodium, strontium, and uranium exceeded one or more applicable standards and guidelines. These results are somewhat consistent with the previous years.

- Fluoride concentrations were below the applicable standards and guidelines in all Downgradient wells, which was consistent with 2022 analytical results.
- For GL42-1, the cobalt concentration exceeded the BC CSR DW standards at a concentration of 14.5µg/L in spring and 1.81µg/L in fall sampling. The cobalt concentrations in GL28-3 were below the applicable standards, whereas, in the 2022 sampling, the cobalt concentration at GL28-3 exceeded the BC CSR DW standards during spring sampling.
- The selenium concentrations do not exceed the applicable standards in Downgradient wells. The uranium concentrations exceeded the applicable standards in all Downgradient wells.

Some exceedances for strontium, lithium, sodium, iron, and TDS with the applicable (BC CSR and BC WQG) standards were lower than the established background 95th percentile concentrations developed using 2022 data. For example, in GL39-2, the concentration of TDS (1160 mg/L) exceeded the BC WQG however, it was lower than 95th percentile background concentration of 2250 mg/L. The concentration of sodium in GL28-3 (1230 mg/L), exceeded the BC WQG and CGDWQ standards. However, it was lower than the established background concentration of 1423 mg/L.

6.4.4 Groundwater Quality Gradient Across the Site

The potential for substances in groundwater to migrate off the Site is visually presented in the appended graphs, showing leachate indicator parameters of chloride, COD, TDS, alkalinity, sulfate, arsenic and uranium (See Plots 1 to 7).

- Chloride concentrations increased from Upgradient wells to Footprint wells and decreased in Downgradient wells, generally to lower concentrations than in the Upgradient wells.
- The concentrations of COD increased from the Upgradient wells to the Footprint wells but then decreased again in the Downgradient wells.
- The plots for sulfate and TDS show gradients of increasing concentrations from Upgradient wells to Downgradient wells.
- The alkalinity concentrations exceeded the applicable criteria in all wells; however, the concentrations were similar in the Upgradient, Footprint, and Downgradient wells.
- The concentrations of arsenic were less than standards at all wells, with slightly higher concentrations at wells across the Footprint area.

- In terms of uranium, higher concentrations were noted in Footprint and Downgradient wells, when relatively compared to Upgradient wells,

These concentration trends were similar to the trends in 2022.

6.5 Surface Water Quality

Keltech tabulated the 2023 analytical results for on-Site ponds - Northeast Pond, Bredin Pond, Tutt Pond, and Slough, and for off-Site ponds - Slough #2, Bubna Slough, Little Robert Lake, and Robert Lake. The results were compared to long-term and short-term BCWQG AW and IW criteria.

- Slough #2 and Bubna Slough located upgradient were the background sample points.
- Little Robert Lake, and Robert Lake, located downstream of the Site. This was used to determine the potential extent of surface water contamination, if any.

The tabulated historical water quality data of surface water (2001 to 2022) is provided in Appendix F.

6.5.1 Surface Water Quality at On-Site and Off-Site Ponds

The surface water quality of samples collected in 2023 from the on-Site ponds (Northeast Pond, Bredin Pond, Tutt Pond, and Slough) as well as off-Site ponds were generally consistent with previous years monitoring results.

In 2023, the parameters that exceeded applicable BCWQG AW (LT-chronic or ST-acute) and/or BCWQG IW (LT-chronic or ST-acute) at on-Site ponds were:

- Chloride, phosphorus, aluminum, copper, manganese and zinc in all on-Site ponds.
- Molybdenum in all ponds.
- Sulfate in all on-Site ponds except Bredin Pond.
- Fluoride in Northeast and Bredin Ponds.
- Selenium in Bredin Pond and Slough.
- Iron in the Slough during Fall sampling.

The Slough had generally higher concentrations of analyzed parameters, which may be a result of long-term presence of wastes and/or leachate; the evaporation process may have contributed to the elevated concentrations. The exceedances of these parameters at on-Site ponds may be attributable to local background water quality, which is further explained in the following Section 6.5.2.

In 2023, the parameters that exceeded applicable BCWQG AW (LT-chronic or ST-acute) and/or BCWQG IW (LT-chronic or ST-acute) in the off-Site ponds were:

- Chloride, phosphorus, aluminum, copper, and manganese in all off-Site ponds.
- Arsenic, molybdenum and sulfate in all off-Site ponds except in Bubna Slough.
- Iron in Little Robert Lake and Robert Lake.
- Chromium, Lead, and Cobalt in Robert Lake.
- Selenium in all Downgradient ponds.
- Zinc in all ponds except Slough#2.

The concentrations of aluminum, chloride, iron, magnesium and sulphate exceeded the BCWQG in surface water samples collected from upgradient points (Slough#2 and Bubna Slough) and around the landfill Footprint (NE pond, Bredin pond, and Tutt pond) were lower than the established background 95th percentile concentrations developed using 2022 data. The concentrations of these parameters in the downgradient locations (Little Robert and Robert Lake) were higher than the established 95th percentile concentrations.

6.5.2 Surface Water Quality Gradient at Ponds Across the Site

The potential for leachate indicator parameters in surface water to migrate across and/or off the Site is visually presented in the appended Plots 8 - 16 showing leachate indicator parameters of chloride, alkalinity, sulfate, ammonia, COD, TDS, arsenic, phosphorous, and uranium.

- The interconnectivity of the Upgradient, on Site, and Downgradient ponds with sub-surface hydrogeology is unconfirmed, however, surface runoff with or without waste contamination may still impact surface water quality.
- Concentration ranges of chloride and ammonia at Downgradient ponds (Little Robert Lake and Robert Lake) were either lower or similar to those in the Upgradient pond (Bubna Slough), which suggests that landfill activities are unlikely to be influencing concentrations of chloride and ammonia in the ponds.
- Concentrations of TDS, sulfate, and phosphorus total (as P) and uranium increased from Upgradient pond (Bubna Slough) to on-Site ponds and both Downgradient ponds (Little Robert Lake and Robert Lake); the increased concentrations may be attributable to on-Site activities.
- For alkalinity, some sampling locations at the Footprint and Downgradient ponds have relatively higher concentrations, indicating that an increase in concentrations may be attributable to on-site activities.
- Concentrations of COD did not change significantly from the Upstream to Downstream ponds, suggesting that landfill activities are unlikely to influence the COD concentrations.

6.5.3 Leachate Quality

The 2023 analytical results for leachate quality are summarized in attached Table 5. Tabulated historical water quality data of leachate (2008 to 2022) are provided in Appendix F. The historical trends of groundwater and leachate quality are presented graphically in Graph 7 to 13.

The leachate quality results of 2023 are consistent with historical results. Currently, leachate quality is not regulated and has no applicable water quality standards and/or guidelines, therefore, this leachate quality discussion is focused on key leachate indicator parameters and the analytical results relative to *Table 1: Typical Leachate Characteristics* in the BC “Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills” (GEMLF) which provides typical ranges of concentrations of leachate indicator substances in BC.

- Concentrations of leachate indicator parameters vary across the Site. The concentrations of biological oxygen demand (BOD), COD, and iron were lower than the typical characteristics of leachate in GEMLF Table 1.
- The hardness, chloride, nitrate, phosphorus, calcium, magnesium, and potassium concentrations were low to moderate compared to these BC guidelines.
- The alkalinity, ammonia, and sulphate concentrations were moderate to high compared to the BC guidelines; among the leachate manholes, P1 Leachate MH-2 had consistently higher ammonia concentrations.

- The sodium concentration in leachate samples collected was on the higher side of the BC GEMLF range for sodium.

7.0 QUALITY ASSURANCE AND QUALITY CONTROL

The details of the recommended and implemented QA/QC program are provided in Appendix G.

Keltech notes that the total and dissolved metals concentrations in Robert Lake are highly variable during fall sampling (September 28, 2023 – CARO Report# 23I3623). The RPDs were high when comparing the total and dissolved metal concentrations with their duplicate sample. Keltech, in consultation with CARO, suggests that these data are unreliable and should be excluded. Therefore, Keltech has removed these data from the QAQC tables.

8.0 CONCLUSIONS

Based on Keltech's review and analysis of the water sampling and analytical data provided by the CoK, the following conclusions are made.

Groundwater flow and quality:

- The inferred groundwater flow direction was somewhat variable at the Site and surrounding area due to the local topography and the constructed facilities. The inferred groundwater flow direction was from the north towards the south, and eastward from the west of Phase 3 with a localized mounding to the south of the Phase 3/Slough at GL42 and GL29 series in both spring and fall; this is consistent with previous years.
- In Upgradient wells, the concentrations of TDS, total alkalinity, chloride, fluoride, sulfate, dissolved chromium, molybdenum, selenium, and uranium concentrations at Upgradient wells exceeded one or more of the applicable standards and guidelines.
- In the Footprint wells, concentrations of TDS, total alkalinity, ammonia, chloride, fluoride, sulfate, dissolved chromium, molybdenum, arsenic, iron, boron, and cobalt exceeded one or more of the applicable standards and guidelines.
- In 2023, the chloride concentrations increased from Upgradient wells to Footprint wells and decreased in Downgradient wells, generally to lower concentrations than in the Upgradient wells.
- The concentrations of COD increased from the Upgradient wells to the Footprint wells but were lower in Downgradient wells.
- The graphs for sulfate and TDS show gradients of increasing concentrations from Upgradient wells (baseline) to Downgradient wells.
- The alkalinity concentrations exceeded the applicable criteria in all wells; however, the concentrations were similar in Upgradient, Footprint, and Downgradient wells. Relatively high concentrations of wells were noted in Footprint and Downgradient wells.
- The 2023 concentrations trends of these groundwater contaminants are consistent with historical trends.

Surface water quality:

- In 2023, the parameters that exceeded applicable guidelines at on-Site ponds - Northeast Pond, Bredin Pond, Tutt Pond, and Slough were:
 - chloride, phosphorus, aluminum, copper, and manganese in all on-Site ponds

- molybdenum in all ponds
- sulfate in all ponds except Bredin Pond
- fluoride in Northeast and Bredin Ponds
- zinc in all on-Site ponds
- selenium in Bredin Pond and Slough
- Iron in Slough in fall sampling
- In 2023, the parameters that exceeded applicable guidelines at off-Site ponds are:
 - chloride, phosphorus, aluminum, copper, and manganese exceeded the applicable water quality guidelines in all off-Site ponds.
 - arsenic in all off-Site ponds except in Bubna Slough
 - iron in Little Robert Lake and Robert Lake
 - chromium, lead, and cobalt in Robert Lake
 - molybdenum and sulfate in all off-Site ponds except Bubna Slough
 - selenium in all Downgradient ponds
 - zinc in all ponds except Slough#2

Generally, the surface water quality of the samples collected at on-Site ponds and off-Site ponds were consistent with previous years.

Leachate quality:

- Leachate strength varies across the Site.
- The concentrations of BOD, dissolved organic carbon, COD, and iron were lower than the typical strength of leachate provided in the BC guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.
- The hardness, chloride, nitrate, phosphorus, calcium, magnesium, and potassium concentrations were low-moderate compared to typical BC guidelines.
- The alkalinity, ammonia, sulfate concentrations were moderate-high compared to the provided BC guidelines.
- The sodium concentration was on the higher end of provided BC guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.
- The leachate manholes, P1 Leachate MH-2 had consistently higher ammonia concentrations.
- The leachate quality results of 2023 are consistent with the historical results.

9.0 RECOMMENDATIONS

The Keltech recommendations include the HHCR recommendations as noted (refer to the HHCR report for additional details), and are as follows:

9.1 Proposed 2024 Monitoring Program

The following recommendations are provided for the 2024 annual water quality program.

- Groundwater samples should continue to be collected semi-annually from the wells listed in appended Table 1 (2023 water quality program) and should include new wells that are planned to be installed in 2024. Sampling should continue to be conducted in the spring when groundwater levels are highest and, in the fall, when groundwater levels are lowest. All groundwater samples should continue to be measured and/or analyzed for the parameters listed in Table A.
- Surface water sampling should continue on-Site every quarter at Bredin Pond, Tutt Pond, Northeast Pond and the Slough to confirm the surface water quality at these locations and its potential impact on groundwater quality in areas where this surface water is used for irrigation purposes.
- Surface water sampling should continue every quarter at off-Site surface water locations Little Robert Lake, Robert Lake, Bubna Slough and Slough #2 to further characterize baseline and downgradient surface water quality for the Site.
- All surface water samples should continue to be measured and/or analyzed for the parameters listed in Table B.
- Leachate sampling and analysis should be conducted quarterly from each leachate collection sump, listed in Table C (2023 water quality program). Leachate samples and groundwater samples should be taken simultaneously to obtain the bests comparison of water quality between the leachate and the groundwater.
- For consistency with the HHCR and 2023 report, leachate indicator parameters in 2024 will be aligned with the leachate indicator parameters that were selected by GHD.
- All collected water sampling and monitoring data should continue to be evaluated and compared to the applicable standards and guidelines including those that were added to the amended OC in 2023.

9.2 Other Recommendations

- During all sampling events, monitor and record any reported and/or observed operational changes, significant weather events including precipitation, drought and /or flooding or other on Site or surrounding lands events/activities such as wildfires and changes in agricultural grazing, irrigation or product application to land that may have the potential to affect the surface and groundwater quality at the Site. Provide Keltech with these records for use in preparing the annual report.
- Change Little Robert Lake and Robert Lake to be part of the downgradient/compliance surface water monitoring sample points rather than background sample locations. Specifically, the sample point within Robert Lake is recommended to be moved closer to the landfill at the north end of the lake (HHCR recommendation).
- Add two surface water sample points to assess water quality related to stormwater and ditching systems (HHCR recommendation).

- Future annual water monitoring reports are to include a more detailed assessment of surface water and potential landfill-related impacts in Little Robert Lake and Robert Lake (HHCR recommendation). The detailed assessment includes comparison with CSR Protocol 9 standards (regional background concentrations) and locally established background concentration on Site. For local background concentrations, the 95th percentile background concentrations should be updated quarterly as monitoring results are available. This has not yet been done for the 2023 data.
- The HHCR recommended adding wells 09BH-05 S/D and 09BH-04 S/D to the routine groundwater monitoring network. Both wells are understood to be inaccessible, and the Technical Memo (GHD, 2024) recommends installing two replacement monitoring well nests (four monitoring wells).
- Add two new groundwater monitoring wells (one in the upgradient Clay Unit and one in the downgradient Bedrock Unit) for routine water quality monitoring (HHCR recommendation).
- Make improvements at the Compost facility to direct facility runoff to the Site leachate management system rather than it discharging overland to the Slough (HHCR recommendation).
- Continue efforts for installation of a surface water bypass system; the result would be no further irrigation of Tutt Farm with water from Tutt Pond (HHCR recommendation).
- Keltech reviewed the HHCR (2023) data analysis that GHD completed using the 2022 data. GHD has generated more than one 95th percentile standard for certain regulated substances (example: uranium) depending on the hydrogeologic unit type from which data was acquired. For future data analysis and reporting, this practice will be continued by Keltech. Monitoring wells would be classified based on the hydrogeologic unit a given well screen was installed in, and the appropriate 95th percentile-based standard will be applied for the background assessment.

10.0 LIMITATIONS

This report is intended and restricted for the sole use of City of Kelowna (the Client). Any use of this document by a third party, or any reliance on or decisions made based on findings described in this report, are the sole responsibility of such parties, and Keltech Environmental Ltd. accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions conducted based on this report. No other warranties are implied or expressed.

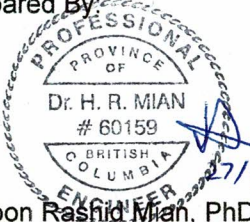
Keltech Environmental Ltd. makes no representations, warranties, or guarantees as to any given sample (whether it be obtained by Keltech Environmental Ltd. or by the Client being representative of any given contaminant, handled, or otherwise managed by the Client. All liability is limited to the fee charged.

The conclusions presented in this report represent the judgement of Keltech's assessor based on current environmental and health and safety standards, and on-site conditions on the date(s) cited in this report. While attempts have been made to relate the data and findings to applicable health, safety or environmental laws and regulations, the report shall not be construed to offer legal opinion, advice or representations as to the requirements of, or compliance with, environmental laws, rules, regulations or policies of federal, provincial or local government agencies.

11.0 CLOSURE

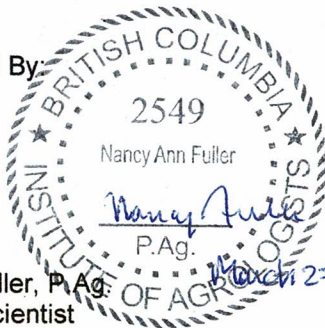
We trust the information contained herein meets your needs. Should you have any questions or comments, please do not hesitate to contact the undersigned at your earliest convenience.

Prepared By:



Haroon Rashid Mian, PhD, P.Eng.
Environmental Engineer

Reviewed By:



Nancy Fuller, P.Ag.
Project Scientist



Allan Robison, ASCT, EP
Principal, Senior Environmental Consultant

Peer Reviewed by:

Gary Hamilton, P.Geo.
Contaminated Sites Approved Professional

HM/NF/AR

https://keltechenvironmental-my.sharepoint.com/personal/arobison_keltechenvironmental_com/Documents/Keltech/Projects/Active/2023/Projects/2023-063 CoK 2023 Fall GWS GLF/11 Report/FINAL 2022-059/2022-059 GLF Water Quality RPT Final Mar 27 2024.docx

REFERENCES

BC *Environmental Management Act*, Contaminated Sites Regulation (CSR), 1997. Reg. 375/96. O.C. 1480/96. Last amended July 7, 2021, by BC Reg. 179/2021.

BC Ministry of Environment (MOE) *Operational Certificate 12218*. Issued December 8, 2000, last amended June 29, 2015.

BC Ministry of Environment and Climate Change Strategy (ENV) 2021a. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture - Guideline Summary. Water Quality Guideline Series, WQG-20. Prov. BC, Victoria BC

BC Ministry of Environment and Climate Change Strategy (ENV) 2021b. Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Water Quality Guideline Series, WQG-08. Prov. BC, Victoria BC

BC Ministry of Environment and Climate Change Strategy (ENV) 2022. Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.

https://www2.gov.bc.ca/assets/gov/environment/waste-management/garbage/guidelines_environmental_monitoring_municipal_solid_waste_landfills.pdf

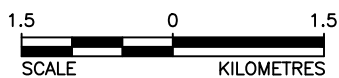
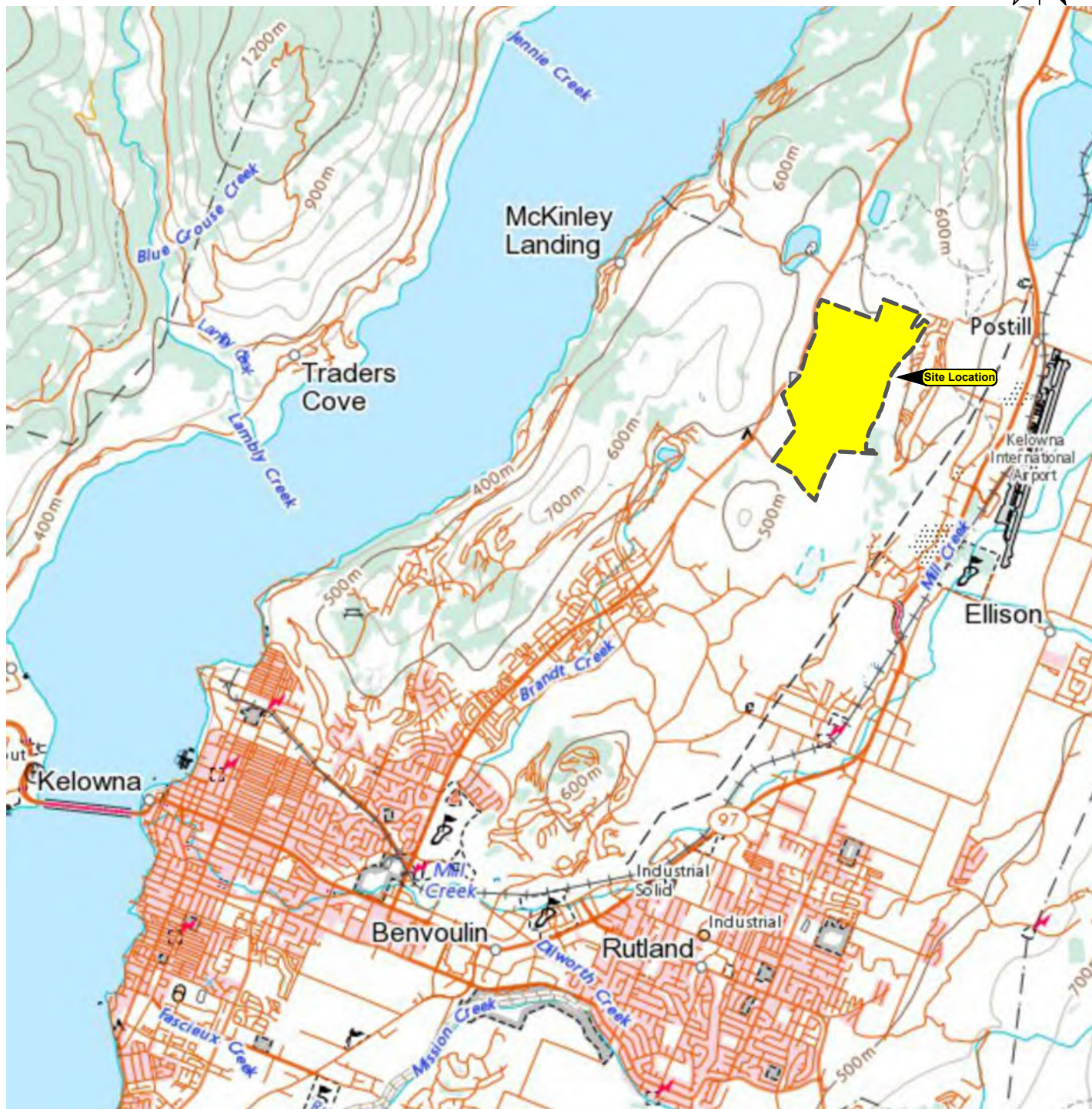
CoK 2018. *2018 Design, Operations, and Closure Plan: Glenmore Landfill Kelowna, British Columbia*. City of Kelowna, Kelowna.

GHD 2023 *Hydrogeology and Hydrology Characterization Report*, Glenmore Landfill, City of Kelowna, Project # 12605725.

Government of BC 2013. BC Field Sampling Manual, Part E Water and Wastewater Sampling, Groundwater Pollution Monitoring: available online at:

https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_part_e.pdf

Health Canada 2022. Guidelines for Canadian Drinking Water Quality—Summary Tables. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.



LEGEND

 SITE

REFERENCES

1. REFERENCE IMAGE FROM NATURAL RESOURCES CANADA
TOPORAMA INTERACTIVE MAPPING SERVICE

PROJECT

2023 ANNUAL WATER MONITORING REPORT FOR
GLENMORE LANDFILL, 2720 JOHN HINDLE DRIVE, KELOWNA, BC

TITLE

SITE LOCATION MAP

CLIENT

CITY OF KELOWNA

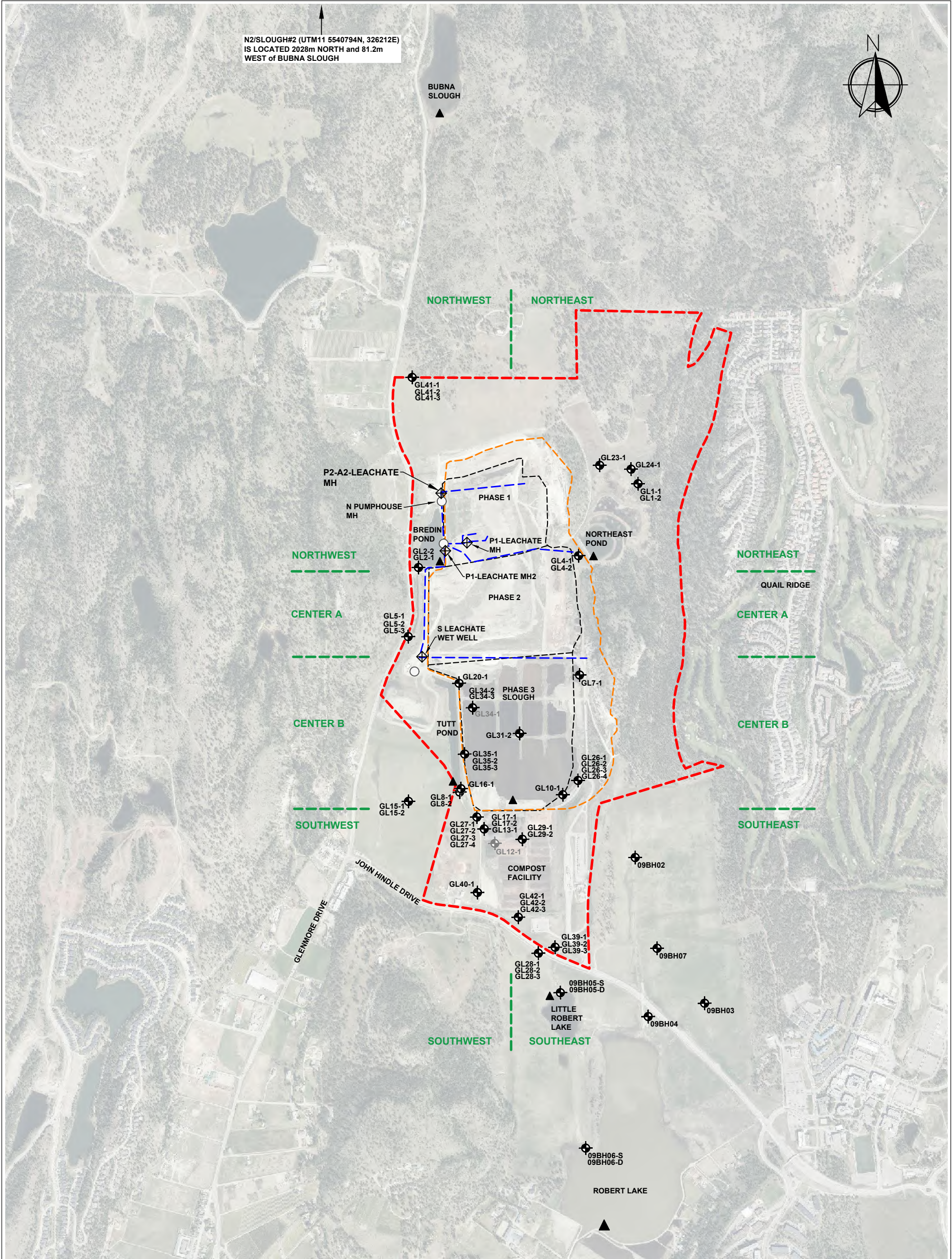
CONSULTANT

 Keltech
Environmental Ltd.

PROJECT No.	2022-059-02
REVISION	00
DATE	3-22-2024
CADD	AR
CHECK	NF

FIGURE

1



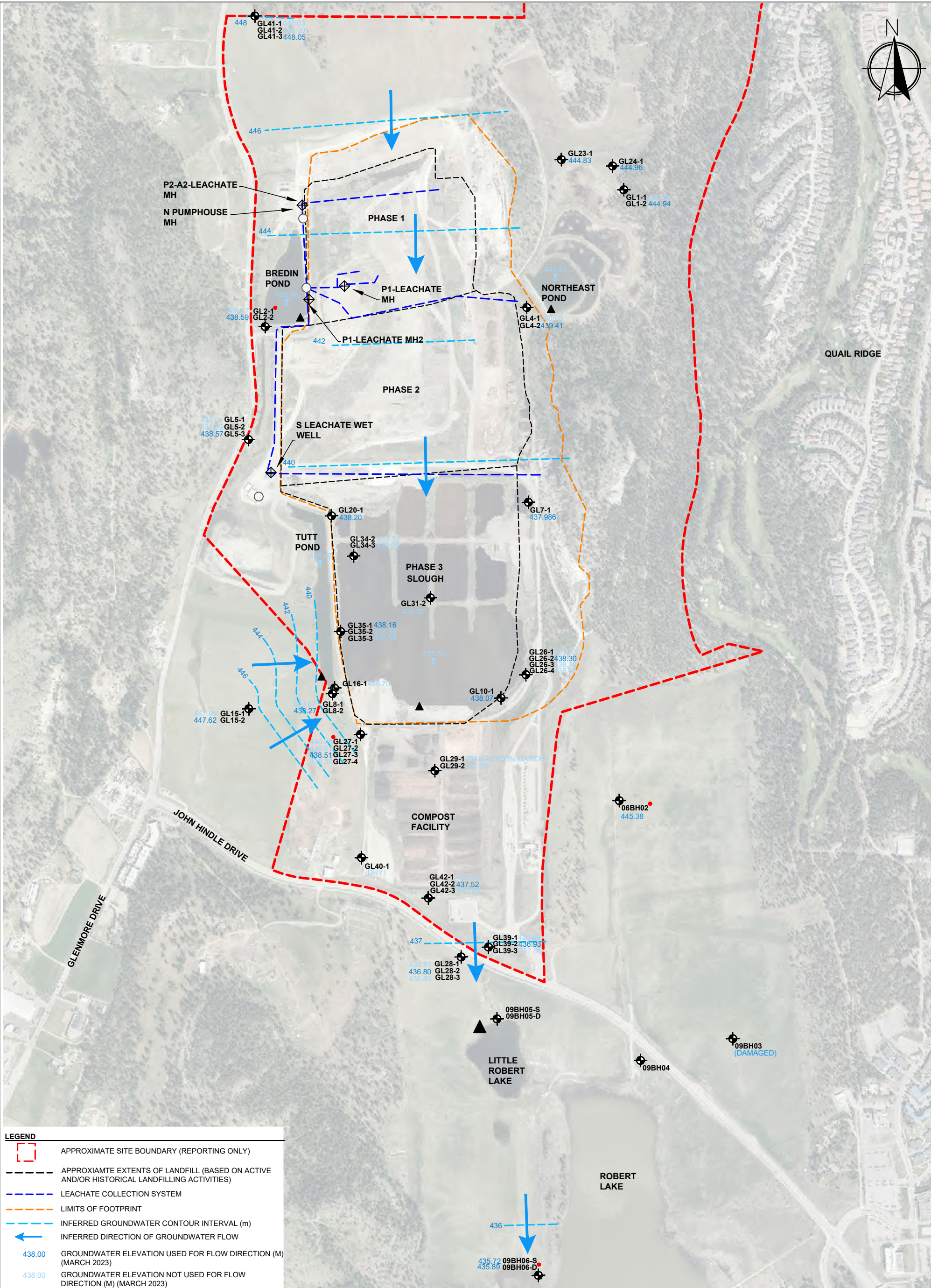
LEGEND

-  APPROXIMATE SITE BOUNDARY (REPORTING ONLY)
-  APPROXIMATE EXTENTS OF LANDFILL (BASED ON ACTIVE AND/OR HISTORICAL LANDFILLING ACTIVITIES)
-  LEACHATE COLLECTION SYSTEM
-  LIMITS OF FOOTPRINT
-  REPRESENTS SECTION BREAK OF SIX AREAS ACROSS THE SITE
-  MONITORING WELL LOCATION
-  MONITORING WELL (DECOMMISSIONED)
-  APPROXIMATE MANHOLE LOCATION
-  APPROXIMATE LEACHATE SAMPLING LOCATION
-  APPROXIMATE SURFACE WATER SAMPLING LOCATION



- REFERENCES
- 1.) COORDINATE REFERENCE: UTM ZONE 11n, NAD83
- 2.) MAP REFERENCES: KELOWNA ONLINE MAPPING SERVICE

PROJECT 2023 ANNUAL WATER MONITORING REPORT FOR GLENMORE LANDFILL 2720 JOHN HINDLE DRIVE, KELOWNA, BC			
TITLE SITE PLAN			
CLIENT CITY OF KELOWNA			
CONSULTANT 	PROJECT No.	2022-059-02	FIGURE 2
	REVISION	01	
	DATE	03-22-2024	
	CADD	AB	
		CHECK	NF



LEGEND

APPROXIMATE SITE BOUNDARY (REPORTING ONLY)

APPROXIMATE EXTENTS OF LANDFILL (BASED ON ACTIVE AND/OR HISTORICAL LANDFILLING ACTIVITIES)

LEACHATE COLLECTION SYSTEM

LIMITS OF FOOTPRINT

INFERRED GROUNDWATER CONTOUR INTERVAL (m)

INFERRED DIRECTION OF GROUNDWATER FLOW

438.00

GROUNDWATER ELEVATION USED FOR FLOW DIRECTION (M) (MARCH 2023)

438.00

GROUNDWATER ELEVATION NOT USED FOR FLOW DIRECTION (M) (MARCH 2023)

438.00

SURFACE WATER ELEVATION (MARCH 15, 2023)

GL32-1

MONITORING WELL LOCATION

INDICATES WELL WITH ARTESIAN CONDITIONS

APPROXIMATE MANHOLE LOCATION

APPROXIMATE LEACHATE SAMPLING LOCATION

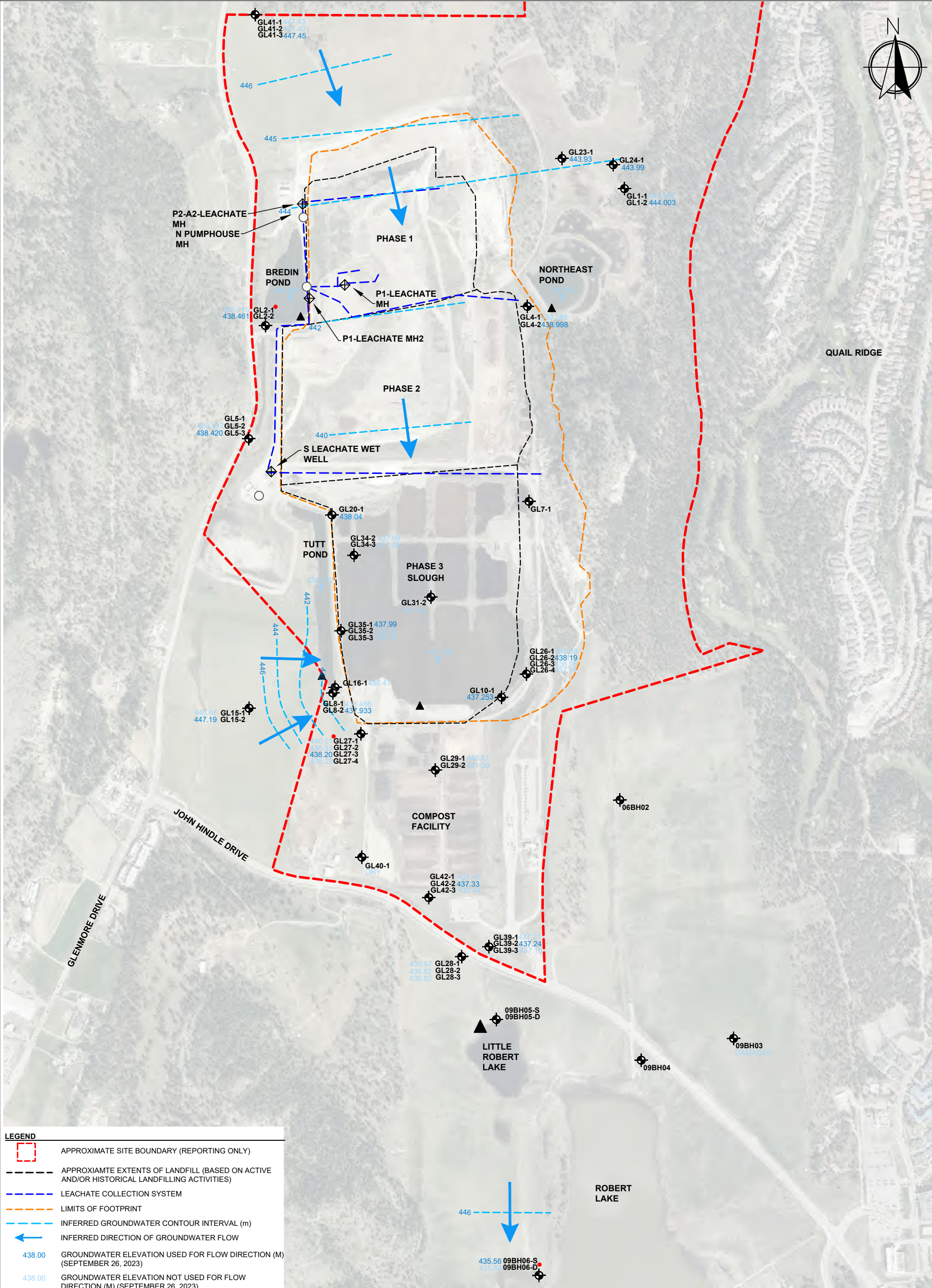
APPROXIMATE SURFACE WATER SAMPLING LOCATION

REFERENCES

1.) COORDINATE REFERENCE: UTM ZONE 11n, NAD83

2.) MAP REFERENCES: KELOWNA ONLINE MAPPING SERVICE

PROJECT 2023 ANNUAL WATER MONITORING REPORT FOR GLENMORE LANDFILL 2720 JOHN HINDLE DRIVE, KELOWNA, BC			
TITLE INFERRED DIRECTION OF GROUNDWATER FLOW (MARCH 2023)			
CLIENT CITY OF KELOWNA			
CONSULTANT KTEKeltech Environmental Ltd.	PROJECT No.	2022-059-02	FIGURE 3
	REVISION	01	
	DATE	3-22-2024	
	CADD	AB	
	CHECK	NF	



LEGEND

APPROXIMATE SITE BOUNDARY (REPORTING ONLY)

APPROXIMATE EXTENTS OF LANDFILL (BASED ON ACTIVE AND/OR HISTORICAL LANDFILLING ACTIVITIES)

LEACHATE COLLECTION SYSTEM

LIMITS OF FOOTPRINT

INFERRED GROUNDWATER CONTOUR INTERVAL (m)

INFERRED DIRECTION OF GROUNDWATER FLOW

438.00

GROUNDWATER ELEVATION USED FOR FLOW DIRECTION (M) (SEPTEMBER 26, 2023)

438.00

GROUNDWATER ELEVATION NOT USED FOR FLOW DIRECTION (M) (SEPTEMBER 26, 2023)

438.00

SURFACE WATER ELEVATION (SEPTEMBER , 14, 2023)

GL32-1

MONITORING WELL LOCATION

INDICATES WELL WITH ARTESIAN CONDITIONS

APPROXIMATE MANHOLE LOCATION

APPROXIMATE LEACHATE SAMPLING LOCATION

APPROXIMATE SURFACE WATER SAMPLING LOCATION

REFERENCES

1.) COORDINATE REFERENCE: UTM ZONE 11n, NAD83

2.) MAP REFERENCES: KELOWNA ONLINE MAPPING SERVICE

PROJECT 2023 ANNUAL WATER MONITORING REPORT FOR GLENMORE LANDFILL 2720 JOHN HINDLE DRIVE, KELOWNA, BC			
TITLE INFERRED DIRECTION OF GROUNDWATER FLOW (SEPT 2023)			
CLIENT CITY OF KELOWNA			
CONSULTANT KTE Keltech Environmental Ltd.	PROJECT No.	2022-059-02	FIGURE 4
	REVISION	01	
	DATE	3-22-2024	
	CADD	AB	
	CHECK	NF	

Table 1: Detailed Monitoring Well Construction and Current Status

City's Current Monitoring Well ID*	Consultant Initial Monitoring Well ID*	Monitoring Well		Geodetic Elevations				Screen Details				Drilling				Current Status
		UTM Coordinates		Grade	Piezo	Top of screen	Bottom of Screen	Top of Screen	Bottom of Screen	Screen Length	Lithology	Method	Company	Consultant	Year	
		Northing	Easting	(m msl)	(m msl)	(m msl)	(m msl)	(m bgs)	(m bgs)	(m bgs)						
North and North East of Phase 1																
GL41-1	GL41-1	5537673.4	326191.3	449.7	450.6	440.6	439.0	9.1	10.7	1.6	volcanic bedrock, brown, hard	Sonic Core	VanMars	SNC Lavalin	2019	Active
GL41-2	GL41-2	5537673.3	326191.5	449.7	450.6	443.3	442.4	6.4	7.3	0.9	gravel and silt, trace clay (till)	Sonic Core	VanMars	SNC Lavalin	2019	Active
GL41-3	GL41-3	5537675.7	326192.7	449.7	450.6	447.0	445.5	2.7	4.2	1.5	silt, some clay followed by sand, trace silt	HSA	On the Mark	SNC Lavalin	2019	Active
GL0-1	12-1A	5537338.6	326498.8	449.2	450.0	429.1	426.0	20.1	23.2	3.1	sandy clay (till) followed by bedrock	Sonic Core	MudBay	SLR	2012	Decomm in September 2020
GL0-2	12-1B	5537338.6	326498.8	449.0	450.0	435.0	431.9	14.0	17.1	3.1	sandy silt, some gravel (suspect till) followed by sand and silt, some clay, trace gravel	Sonic Core	MudBay	SLR	2012	Decomm in September 2020
GL0-3	12-1C	5537338.6	326498.8	449.42	450.49	439.9	436.9	9.5	12.5	3.0	sand and gravel followed by sand, trace silt and gravel	Sonic Core	MudBay	SLR	2012	Decomm in September 2020
GL23-1	GL23-1	5537307.3	326976.6	446.0	446.6	437.8	436.3	8.2	9.7	1.5	sand, compact	HSA	Beck	Golder	2007	Active
GL24-1	GL24-1	5537291.1	327107.7	446.8	447.6	443.6	441.6	3.2	5.2	2.0	sand, compact followed by silty sand (till)	HSA	Beck	Golder	2007	Active
GL1-1	GL1-1	5537230.4	327134.1	446.3	446.9	435.8	434.3	10.5	12.0	1.5	silt, some gravel (till)	HSA	-	Gartner Lee	1990	Active
GL1-2	GL1-2	5537230.4	327134.1	446.3	447.0	443.8	440.3	2.5	6.0	3.5	silty sand followed by sand	HSA	-	Gartner Lee	1990	Active
GL22-1	GL22-1	5537429.7	326934.5	449.4	450.3	438.2	436.6	11.2	12.8	1.6	sand, trace silt	HSA	Beck	Golder	2007	Decomm in Sept/Oct 2016
Phase 1																
GL3-5	12-14	5537050.6	326414.3	457.1	457.4	435.5	433.9	21.6	23.2	1.6	sand and gravel followed by silty clay with sand	Sonic Core	MudBay	SLR	2012	Decomm in 2017
GL3-1	GL3-1	5537029.2	326492.0	-	-	-	-	?	46.9	-	volcanic bedrock	Air Rotary	-	Gartner Lee	1990	Decomm in May 2011
GL3-2	GL3-2	5537029.2	326492.0	-	-	-	-	16.8	18.5	1.7	silty sand some gravel (till)	HSA	-	Gartner Lee	1990	Decomm in May 2011
GL3-3	GL3-3	5537029.2	326492.0	-	-	-	-	0.5	3.5	3.0	fill followed by silty clay	HSA	-	Gartner Lee	1990	Decomm in May 2011
Phase 2																
GL6-1 (2011)	GL6-1 (2011)	5536528.3	326582.8	439.7	440.5	437.9	434.8	1.8	4.9	3.1	Interbedded clay and garbage (municipal solid waste)	Sonic Core	Beck	SLR	2011	Decomm in September 2021
GL18-1	GL18-1	5536537.1	326574.7	-	-	-	-	>24	-	-	bedrock	Sonic Core	Beck	SLR	2011	Decomm in May 2011
GL18-2	GL18-2	5536537.1	326574.7	442.6	442.9	426.4	423.4	16.2	19.2	3.0	silty sand	Mud Rotary	Foundex	Golder	2005	Decomm in January 2019
GL18-3	GL18-3	5536537.1	326574.7	442.9	442.8	437.5	434.6	5.4	8.3	2.9	landfill refusal	Mud Rotary	Foundex	Golder	2005	Decomm in January 2020
West of Phase 2																
GL2-1	GL2-1	5536880.9	326219.1	438.6	439.0	430.6	429.1	8.0	9.5	1.5	silty clay followed by silty sand	HSA	-	Gartner Lee	1990	Active
GL2-2	GL2-2	5536880.9	326219.1	438.9	439.0	436.4	432.9	2.5	6.0	3.5	silty clay	HSA	-	Gartner Lee	1990	Active
GL5-1	GL5-1	5536592.3	326175.4	439.0	440.0	421.0	420.0	18.0	19.0	1.0	crystalline bedrock	Air Rotary	-	Gartner Lee	1990	Active
GL5-2	GL5-2	5536592.3	326175.4	439.2	440.1	431.7	429.2	7.5	10.0	2.5	sand followed by gravelly silt (till)	HSA	-	Gartner Lee	1990	Active
GL5-3	GL5-3	5536592.3	326175.4	439.2	440.2	437.2	434.2	2.0	5.0	3.0	silty clay	HSA	-	Gartner Lee	1990	Active
East of Phase 2																
GL4-1	GL4-1	5536929.9	326887.8	441.1	441.4	433.4	432.4	7.7	8.7	1.0	silty gravel and sand	HSA	-	Gartner Lee	1990	Active
GL4-2	GL4-2	5536929.9	326887.8	441.1	441.4	439.4	435.9	1.7	5.2	3.5	silty clay	HSA	-	Gartner Lee	1990	Active
Phase 3 Slough																
GL34-1	11-26A	5536303.3	326445.5	439.2	440.0	433.2	431.7	6.0	7.5	1.5	fat clay (reworked soil, fill) with 7 cm sand lenses	Sonic Core	Beck	SLR	2011	Active
GL34-2	11-26B	5536303.3	326445.5	439.2	439.7	428.5	427.6	10.7	11.6	0.9	silty sand, clay layers	Sonic Core	Beck	SLR	2011	Active
GL34-3	11-26C	5536303.3	326445.5	439.3	440.1	425.7	424.8	13.6	14.5	0.9	lean clay, trace sand followed by fat clay, trace sand	Sonic Core	Beck	SLR	2011	Active
GL30-1	11-13A1	5536286.0	326746.8	439.2	440.0	432.6	431.1	6.6	8.1	1.5	fat clay (reworked soil, fill) with 10 cm sand lens	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL30-2	11-13B	5536286.0	326746.8	439.4	440.7	427.5	426.6	11.9	12.8	0.9	silty sand followed by fat clay	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL30-3	11-13C	5536286.0	326746.8	439.4	440.6	424.3	423.4	15.1	16.0	0.9	fat clay	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL31-1	11-18A1	5536191.5	326639.6	439.4	440.3	432.5	431.0	6.9	8.4	1.5	fat clay (reworked soil, fill) followed by lean clay (native)	Sonic Core	Beck	SLR	2011	Decomm in September 2021
GL31-2	11-18B1	5536191.5	326639.6	439.2	440.0	428.6	427.7	10.6	11.5	0.9	lean clay followed by silt with sand	Sonic Core	Beck	SLR	2011	Active
GL31-3	11-18C	5536191.5	326639.6	439.5	440.4	425.2	424.2	14.3	15.3	1.0	silt some sand	Sonic Core	Beck	SLR	2011	Damaged 2020
GL32-1	11-21A1	5536093.5	326735.0	438.2	439.0	433.6	432.1	4.6	6.1	1.5	fat clay (native) with 1 cm sand lenses	Sonic Core	Beck	SLR	2011	Decomm in September 2021

Table 1: Detailed Monitoring Well Construction and Current Status

City's Current Monitoring Well ID*	Consultant Initial Monitoring Well ID*	Monitoring Well		Geodetic Elevations				Screen Details				Drilling				Current Status
		UTM Coordinates		Grade	Piezo	Top of screen	Bottom of Screen	Top of Screen	Bottom of Screen	Screen Length	Lithology	Method	Company	Consultant	Year	
		Northing	Easting	(m msl)	(m msl)	(m msl)	(m msl)	(m bgs)	(m bgs)	(m bgs)						
GL32-2	11-21B	5536093.5	326735.0	437.8	438.7	429.7	428.8	8.1	9.0	0.9	lean clay with sand lenses followed by silty sand	Sonic Core	Beck	SLR	2011	Decomm in September 2021
GL32-3	11-21C1	5536093.5	326735.0	437.8	438.6	427.9	426.9	9.9	10.9	1.0	silty sand, trace clay	Sonic Core	Beck	SLR	2011	Decomm in September 2021
GL33-1	11-22A	5536202.4	326837.1	439.4	440.0	433.8	430.7	5.6	8.7	3.1	fat clay (reworked soil, fill) followed by silty sand with gravel (suspect till)	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL33-2	11-22B	5536202.4	326837.1	439.5	440.1	430.5	429.0	9.0	10.5	1.5	silty sand with gravel (suspect till)	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL33-3	11-22C	5536202.4	326837.1	439.5	440.2	427.7	426.2	11.8	13.3	1.5	silty sand with gravel (suspect till) followed by volcanic bedrock (weak)	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL35-1	11-31A1	5536105.2	326411.2	438.1	439.0	432.0	430.5	6.1	7.6	1.5	fat clay (reworked soil, fill) follwed by silty sand and lean clay	Sonic Core	Beck	SLR	2011	Active
GL35-2	11-31B	5536105.2	326411.2	438.1	439.0	427.5	425.9	10.6	12.2	1.6	lean clay	Sonic Core	Beck	SLR	2011	Active
GL35-3	11-31C	5536105.2	326411.2	438.4	439.3	425.1	423.6	13.3	14.8	1.5	silty sand with gravel (till)	Sonic Core	Beck	SLR	2011	Active
GL36-1	11-3A	5536496.4	326764.1	439.2	439.8	433.7	430.7	5.5	8.5	3.0	fat clay (reworked soil, fill) followed by fat clay (native) with cm sand layers	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL36-2	11-3B	5536496.4	326764.1	439.3	440.0	429.1	427.6	10.2	11.7	1.5	fat clay (native), trace sand followed by sandy silt	Sonic Core	Beck	SLR	2011	Decomm in Oct 2019
GL37	12-11	5536489.1	326646.4	439.3	440.1	437.5	431.4	1.8	7.9	6.1	interbedded silt clay and garbage followed by clay, silty layers with wood chunks	Sonic Core	MudBay	SLR	2012	Decomm in 2017
GL38	12-10	5536488.9	326634.4	439.3	440.1	437.5	431.5	1.8	7.8	6.0	interbedded silt clay and garbage followed by fat clay (reworked soil, fill). No recovery below 5 m.	Sonic Core	MudBay	SLR	2012	Decomm in 2017
West of Phase 3 Slough																
GL8-1	GL8-1	5535944.5	326391.9	438.8	439.7	431.3	429.8	7.5	9.0	1.5	sand, some gravel	HSA	-	Gartner Lee	1990	Active
GL8-2	GL8-2	5535944.5	326391.9	438.8	439.6	438.3	434.8	0.5	4.0	3.5	clay	HSA	-	Gartner Lee	1990	Active
GL14-1	GL14-1	5536265.0	326258.7	453.3	453.8	-	-	>8	-	-	bedrock	Mud Rotary	Foundex	Golder	2005	Decomm in 2016
East of Phase 3 Slough																
GL7-1	GL7-1	5536434.3	326891.0	439.0	439.7	436.0	435.5	3.0	3.5	0.5	weathered bedrock	Air Rotary	-	Gartner Lee	1990	Active
GL26-1	09-2-1	5535984.6	326863.3	440.9	441.4	435.8	434.3	5.1	6.6	1.5	clayey silt followed by bedrock, some fractures	Odex	-	Golder	2009	Active
GL26-2	09-2-2	5535984.6	326863.3	440.7	441.6	437.0	435.5	3.7	5.2	1.5	clayey silt, trace sand and gravel	HSA	-	Golder	2009	Active
GL26-3	09-2-3	5535984.6	326863.3	440.7	441.5	438.6	437.3	2.1	3.4	1.3	silty gravelly sand followed by layered clayey silt	SSA	-	Golder	2009	Active
GL26-4	09-2-4	5535984.6	326863.3	440.7	441.5	417.8	414.8	22.9	25.9	3.0	bedrock	Odex	-	Golder	2009	Active
GL10-1	GL10-1	5535933.0	326821.6	438.4	439.4	435.5	430.0	2.9	8.4	5.5	silty clay, some sand and gravel	HSA	-	Gartner Lee	1990	Active
12-16	12-16	5536514.5	326448.7	-	-	-	-	6.1	10.7	4.6	fat clay (reworked soil, fill)	HSA	On the Mark	SLR	2012	Decomm in 2012
GL25-1	09-1-1	5536149.0	327105.1	458.3	459.0	443.7	440.7	14.6	17.6	3.0	sand and gravel with silty clay (till)	Odex	-	Golder	2009	Decomm in 2016
GL25-2	09-1-2	5536149.0	327105.1	458.3	459.108	456.5	455.0	1.8	3.3	1.5	interbedded clay and silty clay	SSA	-	Golder	2009	Decomm in 2016
Compost Facility - South of Phase 3 Slough																
GL27-1	09-3-1	5535841.1	326462.8	438.7	441.6	415.1	413.6	23.6	25.1	1.5	bedrock , some fractures	Odex	-	Golder	2009	Active
GL27-2	09-3-2	5535841.1	326462.8	438.7	440.8	428.2	426.7	10.5	12.0	1.5	silty clay, some sand and gravel (till)	SSA	-	Golder	2009	Active
GL27-3	09-3-3	5535841.1	326462.8	438.6	440.8	430.2	428.7	8.4	9.9	1.5	layered clay followed by silty clay, some sand and gravel (till)	HSA	-	Golder	2009	Active
GL27-4	09-3-4	5535841.1	326462.8	438.7	440.6	437.9	436.9	0.8	1.8	1.0	sandy gravelly silt (fill)	SSA	-	Golder	2009	Active
GL17-1	GL17-1	5535791.4	326494.6	439.2	440.3	-	-	>18	-	-	bedrock	Mud Rotary	Foundex	Golder	2005	Decomm in 2022
GL17-2	GL17-2	5535791.4	326494.6	439.2	439.8	434.4	431.4	4.8	7.8	3.0	silty gravelly sand (till)	Mud Rotary	Foundex	Golder	2005	Decomm in 2022
GL13-1	GL13-1	5535791.4	326494.6	-	439.8	-	-	4.6	7.6	3.0	silty sand with gravel (till)	HSA	-	Gartner Lee	1998	Decomm in 2022
GL12-1	GL12-1	5535729.1	326538.3	441.3	442.3	435.2	432.2	6.1	9.1	3.0	silty sand (till)	HSA	-	Gartner Lee	1998	Decomm in 2022
GL29-1	12-4A	5535749.3	326652.7	443.9	445.1	402.4	399.4	41.5	44.5	3.0	sand and silt followed by bedrock	Sonic Core	MudBay	SLR	2012	Active
GL29-2	12-4B	5535749.3	326652.7	443.9	444.8	436.0	432.9	7.9	11.0	3.1	sand and silt (till)	Sonic Core	MudBay	SLR	2012	Active
West of Compost Facility																
GL15-1	GL15-1	5535905.1	326176.5	452.0	452.3	-	-	>12	-	-	bedrock	Mud Rotary	Foundex	Golder	2005	Active
GL15-2	GL15-2	5535905.1	326176.5	451.7	452.0	448.6	445.6	3.1	6.1	3.0	sandy silt and gravel (till)	Mud Rotary	Foundex	Golder	2005	Active
East of Compost Facility																
06BH02	06BH02	5535672.4	327122.8	445.6	445.4	437.6	434.6	8.0	11.0	3.0	clay followed by sand and gravel	HSA	Kamloops	EBA	2006	Active

Table 1: Detailed Monitoring Well Construction and Current Status

City's Current Monitoring Well ID*	Consultant Initial Monitoring Well ID*	Monitoring Well		Geodetic Elevations				Screen Details				Drilling				Current Status
		UTM Coordinates		Grade	Piezo	Top of screen	Bottom of Screen	Top of Screen	Bottom of Screen	Screen Length	Lithology	Method	Company	Consultant	Year	
		Northing	Easting	(m msl)	(m msl)	(m msl)	(m msl)	(m bgs)	(m bgs)	(m bgs)						
South Perimeter of Site																
GL39-1	GL39-1	5535296.8	326790.4	439.5	440.4	430.7	429.5	8.8	10.0	1.2	silt, some sand, clay and gravel (till)	HSA	On the Mark	SNC Lavalin	2019	Active
GL39-2	GL39-2	5535297.6	326789.1	439.6	440.5	435.3	433.5	4.3	6.1	1.8	silty sand , trace gravel and clay	HSA	On the Mark	SNC Lavalin	2019	Active
GL39-3	GL39-3	5535298.3	326787.8	439.6	440.6	438.1	436.6	1.5	3.0	1.5	silty clay, some sand	HSA	On the Mark	SNC Lavalin	2019	Active
GL40-1	GL40-1	5535525.2	326465.2	449.7	450.5	446.7	445.1	3.0	4.6	1.6	sand and gravel, trace clay and silt (till)	HSA	On the Mark	SNC Lavalin	2019	Active / Dry
GL40-2	GL40-2	5535523.8	326466.4	449.6	450.4	435.0	433.4	14.6	16.2	1.6	volcanic bedrock, brown, hard	Sonic Core	VanMars	SNC Lavalin	2019	Decomm in September 2021
GL40-3	GL40-3	5535523.7	326466.2	449.6	450.4	439.8	438.0	9.8	11.6	1.8	clay and silt, some sand, trace gravel (till)	Sonic Core	VanMars	SNC Lavalin	2019	Decomm in September 2021
GL42-1	GL42-1	5535422.7	326636.2	447.6	448.4	429.3	427.7	18.3	19.9	1.6	sand and gravel, trace silt (till)	Sonic Core	VanMars	SNC Lavalin	2019	Active
GL42-2	GL42-2	5535422.6	326636.2	447.6	448.4	437.5	436.0	10.1	11.6	1.5	clayey silt	Sonic Core	VanMars	SNC Lavalin	2019	Active
GL42-3	GL42-3	5535423.9	326637.6	447.7	448.5	441.0	439.2	6.7	8.5	1.8	sand, gravel and cobbles (till)	Sonic Core	VanMars	SNC Lavalin	2019	Active
09BH01	09BH01	5535385.2	326712.8	-	-	-	-	-	-	-	-	SSA	Beck	SLR	2011	Decomm in Aug 2011
South and South East of Site																
09BH05-S	09BH05-S	5535090.7	326805.6	-	-	-	-	11.2	14.2	1.8	silty sand	HSA	Kel	EBA	2009	Inaccessible
09BH05-D	09BH05-D	5535090.7	326805.6	-	-	-	-	22.0	23.0	1.8	sand, some gravel, trace silt	HSA	Kel	EBA	2009	Inaccessible
09BH06-S	09BH06-S	5534457.6	326917.6	435.9	435.9	431.9	430.4	4.0	5.5	1.8	silty clay	HSA	Kel	EBA	2009	Active
09BH06-D	09BH06-D	5534457.6	326917.6	435.6	435.8	428.6	425.6	7.0	10.0	1.8	silty sand	HSA	Kel	EBA	2009	Active
09BH07	09BH07	5535293.6	327214.6	440.9	441.0	434.4	431.4	6.5	9.5	1.8	sand, trace silt	HSA	Kel	EBA	2009	Damaged 2020
09BH03	09BH03	5535064.2	327413.6	440.8	441.0	434.7	431.7	6.1	9.1	1.8	sand, trace silt	HSA	Kel	EBA	2009	Damaged in 2022
09BH04	09BH04	5535008.4	327178.2	436.2	436.4	425.0	422.0	11.2	14.2	1.8	sand and gravel, trace clay	HSA	Kel	EBA	2009	Active/Artesian
GL28-1	09-4-1	5535273.8	326721.5	442.1	442.1	424.6	423.1	17.5	19.0	1.5	sand, some silt followed by gravel, some sand, trace silt	Odex	-	Golder	2009	Active
GL28-2	09-4-2	5535273.8	326721.5	441.4	441.8	435.9	434.4	5.5	7.0	1.5	silty sand	HSA	-	Golder	2009	Active
GL28-3	09-4-3	5535273.8	326721.5	441.4	441.7	438.9	437.4	2.5	4.0	1.5	layered silty clay, some sand	SSA	-	Golder	2009	Active
* Reference elevation is a mark on the rim of the monitoring well standpipe surveyed with respect to geodetic datum. HSA - Hollow Stem Auger																
SSA - Solid Stem Auger																

Table 2a. Historical Groundwater Elevations

Well ID	GL0-1	GL0-2	GL0-3	GL1-1	GL1-2	GL2-1	GL2-2	GL3-5	GL4-1	GL4-2	GL5-1	GL5-2	GL5-3	GL6-1 (2011)	GL7-1	GL8-1	GL8-2	GL9-1	GL9-2	GL9-3
Measurement date																				
2015 Well Elevation	450.052	450.008	450.541	446.970	446.982	438.991	438.988	457.820	441.404	441.407	439.973	440.079	440.088	440.511	439.744	439.729	GL8-2	439.592	439.477	439.505
2015-03-17	444.112	440.943	440.898	445.077	444.994	438.791	438.590	439.181	440.059	439.746	438.593	438.591	438.570	437.889	438.051	438.860	438.143	439.502	437.932	437.885
2015-06-04	444.202	440.846	440.793	444.922	444.844	438.756	438.581	439.102	440.214	439.698	438.616	438.630	438.610	437.871	438.109	438.779	438.141	439.502	437.939	437.900
2015-08-27	444.213	440.748	440.691	444.461	444.386	437.460	437.716	439.007	439.993	439.516	437.513	437.472	437.343	437.556	437.814	437.530	437.291	439.414	437.509	437.460
2015-11-02	444.211	440.697	440.636	444.565	444.544	438.053	437.953	439.025	440.038	439.585	437.488	437.513	437.334	437.562	437.843	437.259	437.088	439.393	437.682	437.635
2016 Well Elevation	449.999	449.957	450.487	446.955	446.965	438.998	438.994	457.440	441.363	441.371	439.998	440.114	440.119	440.481	439.718	439.642	439.572	439.443	439.435	
2016-03-22	444.361	440.856	440.797	445.451	445.350	438.888	438.764	439.020	440.254	439.780	438.669	438.651	438.605	437.931	438.137	438.829	438.188	Artesian	438.031	437.945
2016-05-16	444.694	440.942	440.882	445.570	445.506	438.638	438.376	439.201	440.253	439.722	438.529	438.495	438.434	437.891	438.126	438.777	438.019	Artesian	437.944	437.896
2016-09-16	444.907	440.992	440.923	444.820	444.743	438.216	437.759	439.145	440.072	439.600	437.927	437.892	437.808	437.696	437.953	438.047	437.684	Artesian	437.671	437.607
2016-11-24	444.928	440.995	440.925	445.065	444.990	438.649	438.414	439.105	440.072	439.661	438.430	438.475	438.435	437.822	438.020	438.750	438.043	Artesian	437.834	437.785
2017 Well Elevation																				
2017-03-21	444.930	441.069	441.012	445.443	445.367	438.998	438.563	439.341	440.343	440.676	438.589	438.626	438.579	438.163	438.298	439.030	438.480	Artesian	438.241	438.180
2017-06-05	445.449	441.309	441.242	445.847	445.670	438.967	438.842		440.234	440.532	438.955	438.949	438.894	438.400	438.492	438.974	438.485	Artesian	438.438	438.367
2017-08-16	445.621	441.351	441.288	444.824	444.742	438.613	438.193	Decommissioned	440.081	439.953	438.493	438.441	438.381	438.067	438.232	438.561	437.934	Artesian	438.108	438.030
2017-09-22	445.630	441.308	441.242	444.690	444.610	438.547	438.243		440.067	439.992	438.413	438.389	438.350	437.895	438.113	438.536	437.892	Artesian	437.978	437.893
2017-11-14	445.660	441.281	441.222	444.841	444.805	438.848	438.685		440.162	440.243	438.693	438.710	438.696	437.900	438.118	438.754	438.164	Artesian	438.041	437.960
2018 Well Elevation																				
2018-03-16	445.621	441.402	441.348	445.732	445.693	438.998	438.865		440.554	440.720	438.987	438.986	438.939	438.426	NM	438.993	438.730	Artesian	438.519	438.434
2018-05-25	446.338	441.829	441.575	445.756	445.645	438.884	438.612		440.438	439.800	438.870	438.835	438.805	438.516	NM	438.919	438.472	Artesian	438.565	438.485
2018-08-30	446.861	443.054	443.056	444.814	444.725	438.687	438.481		439.819	439.331	438.564	438.563	438.525	437.544	NM	438.843	438.115	Artesian	438.083	438.003
2018-11-16	446.734	442.592	442.576	445.355	445.246	438.998	438.814		439.994	439.506	438.843	438.815	438.810	437.972	438.206	438.942	438.342	Artesian	438.208	438.135
2019 Well Elevation	449.997	449.947	450.490	446.944	446.951	438.999	438.992		441.353	441.357	440.023	440.137	440.150	440.449	439.721	439.650	439.574	439.565	439.449	439.444
2019-03-21	446.512	442.622	442.591	445.674	445.579	438.999	436.592		440.153	439.647	438.913	438.868	438.859	438.359	438.456	438.861	438.719	Artesian	438.457	438.461
2019-06-06	446.395	442.265	442.245	445.341	445.229	438.739	438.551		439.898	439.348	438.619	438.606	438.582	438.139	438.310	438.631	438.260	Artesian	438.287	438.205
2019-07-12	446.297	442.160	442.137	445.100	445.000				439.881	439.322	438.545	438.493	438.445	437.839	-	438.700	438.147	439.565	438.156	438.091
2019-08-12	446.215	442.050	442.022	444.874	444.773	438.503	438.116	Decommissioned	439.806	439.258	438.293	438.287	438.223	437.015	438.054	438.587	437.899	-	438.032	437.973
2019-08-13	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
2019-10-28	446.003	441.875	441.841	445.129	445.033	438.779	438.613		439.891	439.348	438.624	438.622	438.617	437.540	437.821	438.669	438.116	439.565	437.934	437.873
2020 Well Elevation																				
2020-03-21	445.870	441.760	441.720	445.730	445.610	438.770	438.990		440.250	439.600	438.820	438.800	438.780	438.200	438.320	438.880	439.390	439.540	438.310	438.260
2020-06-04				445.570	445.450	438.810	438.400		440.320	439.570	438.570	438.520	438.480	438.160	438.300	438.690	438.270	439.520	438.280	438.210
2020-09-15				445.040	444.950	438.690	438.520	Decommissioned	439.900	439.260	438.590	438.570	438.550	437.860	438.000	438.860	438.050	439.520	437.950	437.890
2020-11-26				445.290	445.200	438.900	438.640		439.900	439.330	438.710	438.680	438.660	437.510	438.020	439.030	438.210	439.540	438.080	439.040
2021 Well Elevation																				
2021-03-29				445.440	445.340	438.870	438.640		440.100	439.480	438.720	438.690	438.670	438.210	438.300	438.670	438.370	439.540	438.330	438.290
2021-06-15				445.160	445.080	438.590	438.180		439.860	439.250	438.330	438.290	438.220	438.110	438.180	438.900	437.730	439.530	438.160	438.110
2021-09-29				444.410	444.330	438.830	438.650		439.690	439.080	438.510	438.650	438.790		437.840	438.740	438.040	439.570		
2021-10-26				444.900	444.830	438.750	438.300		439.770	439.170	438.470	438.420	438.360	Decommissioned	437.860	438.410	437.930	439.570	Decommissioned	
2022 Well Elevation (piezo)				446.924	446.943	438.987	438.976		441.345	441.363	439.955	440.092	440.115		439.679	439.652	439.546			
2022-03-29				445.284	445.204	438.986	438.584		440.177	439.533	438.620	438.616	438.584		438.143	438.736	438.302			
2022-06-24				445.171	445.090	438.873	438.478	Decommissioned	440.084	439.367	438.578	438.551	438.510	Decommissioned	438.129	438.825	438.661		Decommissioned	
2022-09-29				444.573	444.494	438.660	438.345		439.725	439.096	438.322	438.325	438.305		437.721	438.603	437.960			
2022-10-27				444.930	444.869	438.792	438.491		439.783	439.158	438.490	438.488	438.473		437.721	438.691	438.046			
2023 Well Elevation (piezo)				446.924	446.943	438.987	438.976		441.345	441.363	439.955	440.092	440.115		439.679	439.652	439.546			
2023-03-29				444.998	444.937	438.967	438.588		440.045	439.413	438.600	438.592	438.574		437.986	438.672	438.272			
2023-05-26				444.836	444.763	438.763	438.371	Decommissioned	439.438	439.503	438.422	438.406	438.357	Decommissioned	438.078	438.442	438.034		Decommissioned	
2023-09-26				443.067	444.003	438.715	438.461		439.588	438.998	-	438.437	438.420		-	438.466	437.933			
2023-11-21				444.261	444.151	438.822	438.536		439.755	439.097	438.500	438.517	438.503		437.517	438.490	438.008			

Table 2a. Historical Groundwater Eleva

Well ID	GL10-1	GL12-1	GL13-1	GL15-1	GL15-2	GL16-1	GL17-1	GL17-2	GL18-2	GL18-3	GL20-1	GL23-1	GL24-1	06BH02	09BH03	09BH04	09BH06-D	09BH06-S	09BH07	GL26-1		
Measurement date																						
2015 Well Elevation	439.392	441.834	439.757	452.37	452.086	439.612	440.286	439.815	442.955	442.89	441.229	446.633	447.604	445.441	441.01	436.362	435.814	435.867	441.046	441.453		
2015-03-17	437.901	440.224	439.142	448.059	448.598	438.874		439.08	439.085	437.99	438.21	444.578	444.98	444.101	435.871	436.062	435.615	435.419	437.047	440.595		
2015-06-04	438.150	440.159	439.102	447.402	447.997	438.783	439.938	439.067	439.504	437.93	438.261	444.481	444.817	444.273	435.758	435.937	435.593	435.432	436.971	440.592		
2015-08-27	437.372	439.985	438.957	447.665	448.251	437.567	439.905	438.9	439.384	437.66	437.844	444.128	444.393	444.131	435.625	435.773	435.345	435.072	436.834	440.454		
2015-11-02	437.943	439.891	438.903	447.781	448.325	437.28	439.941	438.955	439.587	437.66	437.711	444.143	444.516	444.35	435.644	435.881	435.471	435.312	436.911	440.447		
2016 Well Elevation	439.414	442.248		452.317	452.04	439.571	440.243	439.775	442.899	442.828	441.16	446.602	447.614	445.351	441	436.336	435.798	435.871	441.054	441.455		
2016-03-22	438.033	440.960	439.274	448.522	449.105	438.893	439.991	439.15	439.735	438.183	438.202	445.013	445.419	444.796	436.277	-	435.786	435.522	437.772	440.917		
2016-05-16	437.914	440.486	439.305	448.395	448.851	438.778	439.965	439.108	439.78	438.093	438.161	444.895	445.835	445.227	436.381	436.321	435.654	435.401	437.699	440.921		
2016-09-16	437.604	440.076	439.238	448.989	449.496	438.073	439.982	439.113	439.67	437.818	437.895	444.219	444.796	445.201	436.399	-	435.698	435.362	438.474	440.777		
2016-11-24	438.006	439.998	439.318	448.54	449.078	438.759	-	439.193	439.66	437.888	438.028	444.645	445.025	445.331	436.245	-	435.748	435.486	438.004	440.82		
2017 Well Elevation																				441.042		
2017-03-21	438.260	440.280	439.405	448.705	449.321	439.053	-	439.335	439.69	438.218	438.631	445.273	445.523	-	436.602	-	-	435.6	439.432	441.067		
2017-06-05	438.422	440.560	439.507	448.224	447.76	439.031	440.163	439.365	439.743	438.598	438.552	445.187	445.782	-	436.601	-	-	435.527	438.782	441.305		
2017-08-16	438.009	NM	439.505	448.027	448.419	438.583	-	439.343	439.616	438.308	438.22	444.398	444.854	445.259	-	-	435.67	435.309	439.287	441.16		
2017-09-22	437.880	440.310	439.466	447.829	448.293	438.548	-	439.322	439.654	438.118	438.095	444.346	444.683	445.171	436.139	-	435.578	435.346	438.627	441.086		
2017-11-14	438.191	440.095	439.318	447.409	447.998	438.765	-	439.317	439.761	438.088	438.161	444.468	444.843	445.111	436.049	436.166	435.618	435.43	438.351	441.02		
2018 Well Elevation																						
2018-03-16	438.479	NM	439.608	447.799	448.705	439.008	-	439.565	440.099	438.678	438.717	445.226	445.649	-	-	-	-	-	-	441.305		
2018-05-25	438.515	440.723	439.668	448.435	448.993	438.941	-	439.505	440.304	438.688	438.585	445.347	445.844	-	436.47	-	-	435.566	-	-		
2018-08-30	437.945	440.284	439.401	448.572	448.946	438.851	439.959	439.302	440.001	437.673	438.393	444.43	444.844	-	436.385	-	435.768	435.564	439.682	441.225		
2018-11-16	438.206	439.958	439.248	447.748	448.231	438.96	Artesian	439.223	440.017	438.068	438.332	444.643	446.325	-	436.318	-	-	435.569	439.377	441.166		
2019 Well Elevation	439.418	442.251	439.759	452.322	452.039	439.577	440.247	439.783				441.138	446.597	447.568	445.37	440.985	436.348	435.827	435.884	441.011	441.442	
2019-03-21	438.480	439.766	439.328	447.301	447.921	438.827	440.247	439.251	Decommissioned			438.476	445.146	445.637	445.37	436.336	436.348	435.827	435.694	439.701	441.172	
2019-06-06	438.186	439.750	439.158	446.871	447.34	437.422	440.247	439.049				438.348	445.018	445.339	445.37	435.986	436.348	435.827	435.684	439.641	441.212	
2019-07-12	438.105	439.676	439.114	448.299	448.541	437.692	440.247	439.02				438.211	444.863	445.095	-	-	-	-	-	441.161		
2019-08-12	438.132	439.684	439.074	448.608	449.032	438.633	440.234	438.976				438.022	444.584	444.827	-	437.52	Artesian	Artesian	435.582	439.697	441.119	
2019-08-13	-	-	-	-	-	-	-	-				-	-	-	445.37	-	-	-	-	-	-	
2019-10-28	437.999	439.652	439.060	447.217	447.638	438.715	440.047	438.985				438.157	444.802	445.089	445.37	436.744	436.348	435.827	435.606	439.051	441.032	
2020 Well Elevation																						
2020-03-21	438.250	440.060	439.330	447.45	448.01	438.93	440.21	439.72				438.40	445.37	445.72	-	-	-	-	-	-	441.43	
2020-06-04	438.220	440.060	439.350	448.93	449.43	438.74	440.23	439.21	Decommissioned			438.28	445.36	445.59	Artesian	437.08	-	-	435.71	439.18	441.28	
2020-09-15	437.750	440.060	439.300	449.00	450.09	439.01	440.24	439.18				438.17	444.35	445.01	-	436.84	Artesian	Artesian	435.64	-	441.19	
2020-11-26	438.110	439.950	439.260	448.82	449.39	439.08	440.18	439.18				438.25	444.95	445.27	-	436.58	-	-	435.71	-	441.16	
2021 Well Elevation																						
2021-03-29	438.300	439.990	439.260	448.04	448.53	439.00	440.17	439.15	Decommissioned			438.38	445.26	445.43	Artesian	436.42			435.76	436.11	441.29	
2021-06-15	438.070	439.840	439.240	448.87	449.38	438.97	440.19	439.12				438.08	444.94	445.16	Artesian	436.97	Artesian	Artesian	435.71	Damaged	441.24	
2021-09-29	437.710	439.690	439.080	447.25	447.71	438.79	440.19	439.01				438.19	443.80	444.37	CNL	436.97	-	-	435.638	Damaged	441.01	
2021-10-26	437.890	439.660	439.090	447.50	448.11	438.47	440.13	439.03				437.99	444.73	444.86	CNL	436.80	-	-	435.663	Damaged	441.02	
2022 Well Elevation (piezo)	439.383	442.234	440.875	452.302	452.046	439.549	440.774	440.677				441.125	446.572	447.537	446.264	440.96	436.299	436.239	435.813	440.966	441.416	
2022-03-29	438.118	440.193	439.401	447.66	448.33	438.77	440.17	439.19	Decommissioned			438.28	444.78	445.26	damaged	436.94	Artesian	Artesian	435.76	-	440.98	
2022-06-24	438.097	440.201	439.420	447.97	448.60	438.93	440.15	439.27				438.33	445.00	445.13	445.869	437.12	-	-	435.73	-	441.15	
2022-09-29	437.620	439.983	439.258	448.47	449.02	438.62	440.20	439.12				438.03	444.39	-	445.912	Damaged	-	-	435.93	435.69	-	
2022-10-27	437.775	439.950	439.256	447.75	448.26	438.72	440.10	439.13				438.11	444.48	444.91	445.763	-	-	-	435.90	435.67	-	
2023 Well Elevation (piezo)	439.383			452.302	452.046	439.549						441.125	446.572	447.537	446.264	440.96	436.299	436.239	435.813	440.966	441.416	
2023-03-29	438.069	Decommissioned		447.09	447.62	438.70			Decommissioned			438.20	444.83	444.96	445.38	-	Artesian	Artesian	435.889	435.72	Damaged	441.03
2023-05-26	437.936			448.39	450.32	438.47						438.18	444.67	444.79	445.536	-	-	-	435.829	435.62	438.54	441.03
2023-09-26	437.253			446.67	447.19	438.47						438.04	443.93	443.99	-	-	-	-	435.80	435.56	Damaged	440.88
2023-11-21	437.593			443.37	446.83	438.51						438.11	443.46	444.19	445.564	-	-	-	435.76	435.55	-	440.79

Table 2a. Historical Groundwater Eleva

Well ID	GL26-2	GL26-3	GL26-4	GL27-1	GL27-2	GL27-3	GL27-4	GL28-1	GL28-2	GL28-3	GL29-1	GL29-2	GL30-1	GL30-2	GL30-3	GL31-1	GL31-2	GL31-3	GL32-1	GL32-2	GL32-3
Measurement date																					
2015 Well Elevation	441.533	441.516	441.575	440.089	439.314	439.32	439.143	442.111	441.862	441.781	445.083	444.879	440.13	440.852	440.709	440.273	440.048	440.359	438.993	438.692	438.682
2015-03-17	438.178	438.261	438.176	439.969	438.325	438.408	438.256	436.376	436.7	436.701	440.178	441.419	437.907	438.073	438.07	437.861	437.947	437.991	437.803	437.994	438.042
2015-06-04	438.608	438.566	438.435	439.617	438.135	438.302	438.154	436.236	436.454	436.459	440.227	441.444	437.922	438.084	438.137	437.868	437.979	437.994	437.855	438.003	438.079
2015-08-27	437.782	437.796	437.735	439.581	438.049	438.003	437.565	436.129	436.421	436.436	440.153	441.167	437.655	437.824	437.878	437.575	437.719	437.818	437.633	437.756	437.787
2015-11-02	438.293	438.253	438.097	439.594	438.039	438.022	437.724	436.113	436.293	436.309	440.164	440.994	437.647	437.804	437.91	437.503	437.606	437.695	437.553	437.72	437.752
2016 Well Elevation	441.513	441.498	441.568	440.047	439.273	439.286	439.092	442.067	441.783	441.723	445.047	444.744	439.992	440.719	440.559	440.253	439.987	440.33	438.97	438.666	438.644
2016-03-22	438.279	438.346	438.313	439.827	438.524	438.537	438.304	436.609	436.841	436.878	440.455	441.056	437.867	438.02	438.076	437.864	438.012	438.2	437.859	-	438.134
2016-05-16	438.183	438.2	438.153	439.847	438.231	438.351	438.002	436.448	436.697	436.693	440.467	441.364	437.943	438.102	438.172	437.862	438.002	438.031	437.885	-	438.094
2016-09-16	437.924	437.954	437.864	439.786	438.198	438.181	437.764	436.672	436.924	436.928	440.485	441.172	437.768	437.948	438.06	437.673	437.817	437.772	437.729	437.882	437.894
2016-11-24	438.264	438.343	438.246	440.032	438.413	438.406	438.474	436.599	436.851	436.855	440.462	441.395	437.853	438.03	438.099	437.761	437.888	437.87	437.75	437.964	437.989
2017 Well Elevation																					
2017-03-21	438.553	438.628	438.549	-	438.571	438.781	438.554	436.885	437.281	437.285	440.627	441.373	438.134	438.328	438.288	438.034	438.217	438.308	438.04	-	-
2017-06-05	438.654	438.724	438.635	-	438.609	438.711	438.587	436.802	437.1	437.095	440.826	441.764	438.367	438.527	438.521	438.222	438.406	438.565	-	-	-
2017-08-16	438.234	438.229	438.186	-	438.381	438.396	438.045	436.842	437.387	437.39	440.778	441.309	438.132	438.17	438.223	438.013	438.157	438.278	-	-	-
2017-09-22	438.129	438.123	438.092	-	438.291	438.346	437.971	436.518	436.821	436.814	440.726	441.015	438.013	438.144	438.127	437.908	438.042	438.169	438	-	-
2017-11-14	438.464	438.448	438.389	-	438.435	438.5	438.462	436.425	436.655	436.647	440.726	440.735	438.002	438.147	438.175	437.895	438.036	438.179	437.94	-	-
2018 Well Elevation				441.547	440.776	440.789	440.57														
2018-03-16	438.821	438.885	438.859	-	440.277	-	-	436.844	437.249	437.231	440.899	441.576	438.38	438.563	438.564	438.234	438.402	438.478	-	-	-
2018-05-25	438.749	438.783	438.789	-	-	-	-	436.858	437.328	437.313	441.055	441.849	438.487	438.628	438.639	438.361	438.519	438.59	-	-	-
2018-08-30	438.367	438.431	438.42	-	439.977	439.927	439.778	436.607	436.867	436.855	440.905	441.308	438.016	438.165	438.195	438.069	438.123	438.173	-	-	-
2018-11-16	438.468	438.51	438.477	440.187	438.316	438.534	438.36	436.698	437.051	437.044	440.928	441.259	438.102	438.258	438.287	438.028	438.21	438.315	-	-	-
2019 Well Elevation	441.56	441.491	441.507	441.562	440.796	440.807	440.585	442.056	441.787	441.736	445.05	444.756	439.998	440.699	440.555	440.241	439.985	440.325	439.018	438.693	438.718
2019-03-21	438.55	438.571	438.487	441.302	438.835	439.188	438.955	436.633	436.918	436.854	440.916	441.095	438.368	438.484	438.485	438.24	438.426	438.512	-	-	-
2019-06-06	438.458	438.402	438.319	440.24	438.646	438.458	438.551	436.595	436.819	436.815	440.8	441.244	438.21	438.32	438.364	438.092	438.246	438.317	-	-	-
2019-07-12	438.487	438.599	438.472	440.233	438.532	438.363	438.405	436.79	436.97	436.963	440.852	441.276	438.061	438.186	438.231	437.963	438.132	438.228	-	-	-
2019-08-12	438.487	438.846	438.686	440.241	438.449	438.251	438.292	436.791	436.934	436.929	440.811	441.379	437.858	438.057	438.111	437.833	438.01	438.099	-	-	-
2019-08-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019-10-28	438.338	438.386	438.292	440.11	438.387	438.333	438.214	436.677	436.872	436.862	440.74	441.123	Decommissioned			437.721	437.895	438.005	437.198	-	-
2020 Well Elevation																					
2020-03-21	438.50	438.49	438.41	440.10	438.64	438.61	438.59	-	-	-	440.94	441.56	Decommissioned			438.06	438.26	438.33	-	-	-
2020-06-04	438.59	438.61	438.53	440.25	438.65	438.56	438.60	436.89	437.17	436.16	440.93	441.73				438.06	438.23	438.33	-	-	-
2020-09-15	438.17	438.14	438.06	440.16	438.36	438.33	438.23	437.06	437.50	437.49	440.88	441.40				-	437.97	-	437.93	438.04	-
2020-11-26	438.38	438.41	438.34	440.16	438.41	438.48	438.38	436.79	437.09	437.08	440.83	441.37				-	438.07	-	437.94	-	-
2021 Well Elevation																					
2021-03-29	438.50	438.45	438.38	440.15	438.54	438.62	438.53	436.71	436.98	436.98	440.92	441.33	Decommissioned			Damaged	438.29	Damaged	-	CNA	CNA
2021-06-15	438.32	438.32	438.29	440.17	438.48	438.41	438.43	437.25	438.19	438.21	440.92	441.23				Damaged	438.12	Damaged	CNA	CNA	CNA
2021-09-29	438.16	438.21	438.17	440.00	438.23	438.20	438.03	436.78	437.08	437.08	440.74	440.90				Damaged	437.78	Damaged	-	Decommissioned	-
2021-10-26	438.30	438.39	438.35	440.09	438.24	438.23	438.08	436.71	436.98	436.98	440.77	440.79				Decommissioned	437.79	Decommissioned			-
2022 Well Elevation (piezo)	441.46	441.457	441.532	441.535	440.821	440.744	440.679	441.996	441.726	441.687	445.006	444.722					439.934				
2022-03-29	438.41	438.49	438.52	440.18	438.57	438.59	438.95	436.82	437.20	437.20	440.81	441.60	Decommissioned			Decommissioned	438.10	Decommissioned			-
2022-06-24	438.44	438.53	438.56	440.19	438.51	438.63	438.91	436.80	437.06	437.06	440.82	441.82					438.07				-
2022-09-29	438.06	438.19	438.26	440.14	438.25	438.27	438.52	436.78	436.98	436.98	440.74	441.27					437.75				-
2022-10-27	438.24	438.42	438.39	440.15	438.23	438.32	438.18	436.71	436.92	436.93	440.73	441.00					437.72				-
2023 Well Elevation (piezo)	441.46	441.457	441.532	441.535	440.821	440.744	440.679	441.996	441.726	441.687	445.006	444.722					439.934				
2023-03-29	438.30	438.40	438.42	440.08	438.61	438.51	438.39	436.61	436.80	436.80	Damaged	441.26	Decommissioned			Decommissioned	438.00	Decommissioned			-
2023-05-26	438.24	438.29	438.28	440.09	438.55	438.40	438.46	436.56	436.76	436.76	440.83	440.60					438.01				-
2023-09-26	438.19	438.05	437.81	440.01	438.33	438.20	438.29	436.67	436.82	436.82	440.61	441.00					437.54				-
2023-11-21	437.91	437.98	437.97	440.04	438.42	438.26	438.26	436.55	436.71	436.71	440.56	440.55					437.61				-

Table 2a. Historical Groundwater Eleva

Well ID	GL33-1	GL33-2	GL33-3	GL34-1	GL34-2	GL34-3	GL35-1	GL35-2	GL35-3	GL36-1	GL36-2	GL36-3	GL37	GL38	GL39-1	GL39-2	GL39-3	GL40-1	GL40-2	GL40-3	
Measurement date																					
2015 Well Elevation	440.448	440.516	440.518	440.061	439.982	440.15	438.955	439.043	439.264	440.148	440.135	440.080	440.248	440.228							
2015-03-17	438.11	438.121	438.117	437.935	438.382	438.395	438.17	438.739	438.734	438.099	438.390	438.460	437.888	437.880	-	-	-	-	-	-	
2015-06-04	438.146	438.161	438.156	437.996	438.384	438.41	438.167	438.663	438.653	438.156	438.436	438.490	437.864	437.858	-	-	-	-	-	-	
2015-08-27	437.848	437.862	437.856	437.683	437.84	437.855	437.023	437.575	437.734	438.030	438.236	438.292	437.527	437.521	-	-	-	-	-	-	
2015-11-02	437.859	437.881	437.88	437.443	437.547	437.552	436.754	437.273	437.265	437.987	438.284	438.337	437.568	437.568	-	-	-	-	-	-	
2016 Well Elevation	440.173	440.255	440.258	440.033	439.884	440.065	438.914	439.003	439.224	440.045	440.052	440.057	440.144	440.075							
2016-03-22	437.938	437.935	437.959	437.981	438.359	438.395	438.115	438.769	438.685	438.133	438.465	438.591	437.859	437.804	-	-	-	-	-	-	
2016-05-16	438.155	438.173	438.163	437.991	438.282	438.32	438.013	438.591	438.578	438.190	438.517	438.584	437.882	437.876	-	-	-	-	-	-	
2016-09-16	437.981	437.996	437.997	437.812	438.025	438.037	437.519	438.028	438.04	438.13	438.44	438.50	437.70	437.69	-	-	-	-	-	-	
2016-11-24	438.045	438.06	438.054	437.833	438.192	438.205	437.95	438.638	438.625		438.487	438.529	437.745	437.800	-	-	-	-	-	-	
2017 Well Elevation										439.861											
2017-03-21	438.334	438.345	438.343	438.161	438.585	438.597	438.289	438.958	438.936	438.096	438.603	438.666	438.152	438.143	-	-	-	-	-	-	
2017-06-05	438.543	438.55	438.539	438.402	438.726	438.735			439.056	438.332	438.726	438.768	438.370	438.371	-	-	-	-	-	-	
2017-08-16	438.275	438.286	438.284	438.205	438.412	438.426	438.029	438.542	438.542	438.183	438.554	438.558	438.054	438.043	-	-	-	-	-	-	
2017-09-22	438.148	438.16	438.15	438.074	438.299	438.315	437.976	438.492	438.49	438.13	438.48	438.48			-	-	-	-	-	-	
2017-11-14	438.141	438.164	438.157	438.058	438.357	438.37	438.132	438.663	438.655	438.196	438.529	438.525	Decommissioned					-	-	-	
2018 Well Elevation																					
2018-03-16	438.568	438.579	438.574	438.361	438.715	438.726			438.871	438.346	438.877	438.792			-	-	-	-	-	-	
2018-05-25	438.642	438.656	438.647	438.48	438.688	438.747				438.511	438.997	438.877			-	-	-	-	-	-	
2018-08-30	438.145	438.156	438.141	438.189	438.467	438.505	438.145		438.791	438.015	438.563	438.533	Decommissioned					-	-	-	
2018-11-16	438.235	438.243	438.236	438.275	438.612	438.622	438.315	438.883	438.864	438.259	438.621	438.598			-	-	-	-	-	-	
2019 Well Elevation	440.034	440.141	440.181	440.014	439.735	440.045	438.934	439.026	439.245	439.797	440.039	440.043			440.410	440.460	440.560	448.430	448.420	448.470	
2019-03-21	438.455	438.461	438.471	438.38	438.723	438.726				438.398	438.829	438.813			-	-	-	-	-	-	
2019-06-06	438.315	438.332	438.332	438.195	438.466	438.466	438.255	438.637	438.635	438.382	438.718	438.691			-	-	-	-	-	-	
2019-07-12	438.181	438.201	438.206	438.124	438.38	438.185	438.131	438.712	438.692	438.224	438.588	438.563	Decommissioned		-	-	-	-	-	-	
2019-08-12	438.071	438.086	438.079	438.02	438.261	438.271	437.941	438.598		438.041	438.466	438.446			-	-	-	-	-	-	
2019-08-13	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	
2019-10-28	Decommissioned			437.951	438.247	438.246	438.13	438.68	438.667	Decommissioned					-	-	-	-	-	-	
2020 Well Elevation																					
2020-03-21	Decommissioned			438.22	438.29	438.57	438.37	438.84	438.83	Decommissioned				Decommissioned		437.09	437.13	437.19	-	443.50	443.55
2020-06-04				438.20	438.48	438.48	438.13	438.69	438.67							437.14	437.23	437.21	-	443.27	443.29
2020-09-15				438.04	438.36	438.35	438.18	438.83	438.82							437.43	437.51	437.63	-	443.08	443.12
2020-11-26				438.11	438.49	438.48	438.26	439.00	438.98							437.13	437.20	437.28	-	441.58	441.61
2021 Well Elevation																					
2021-03-29	Decommissioned			438.27	438.60	438.60	438.36	CNA	438.91	Decommissioned				Decommissioned		437.02	437.06	437.14		442.91	442.96
2021-06-15				438.11	438.39	438.40	437.98	438.94	438.93							437.20	437.51	437.49		440.62	440.58
2021-09-29				437.87	438.21	438.22	438.12	438.70	438.69							437.04	437.09	437.12			
2021-10-26				437.88	438.18	438.18	437.94	438.41	438.41							437.04	437.08	437.05			
2022 Well Elevation (piezo)				440.001	439.719	440.021	438.902	438.979	439.206						440.353	440.385	440.521	450.489			
2022-03-29	Decommissioned			438.08	438.43	438.42	438.21	438.676	438.69	Decommissioned				Decommissioned		437.19	437.25	437.43			
2022-06-24				438.08	438.38	438.38	438.17	438.84	438.84							437.15	437.19	437.23			
2022-09-29				437.87	438.14	438.13	437.95	438.52	438.53							437.21	437.24	437.15			
2022-10-27				437.86	438.17	438.16	438.04	438.60	438.61							437.07	437.12	437.15			
2023 Well Elevation (piezo)				440.001	439.719	440.021	438.902	438.979	439.206						440.353	440.385	440.521				
2023-03-29	Decommissioned			437.98	438.32	438.32	438.16	438.559	438.58	Decommissioned				Decommissioned		436.89	436.93	437.83			
2023-05-26				437.97	438.21	438.41	437.99	438.38	438.39							436.84	436.88	436.89			
2023-09-26				-	437.99	437.98	437.90	438.33	438.34							436.95	436.96	436.93			
2023-11-21				-	438.06	438.02	437.92	438.38	438.38							436.78	436.83	436.87			

Table 2a. Historical Groundwater Eleva

Well ID	GL41-1	GL41-2	GL41-3	GL42-1	GL42-2	GL42-3
Measurement date						
2015 Well Elevation						
2015-03-17	-	-	-	-	-	-
2015-06-04	-	-	-	-	-	-
2015-08-27	-	-	-	-	-	-
2015-11-02	-	-	-	-	-	-
2016 Well Elevation						
2016-03-22	-	-	-	-	-	-
2016-05-16	-	-	-	-	-	-
2016-09-16	-	-	-	-	-	-
2016-11-24	-	-	-	-	-	-
2017 Well Elevation						
2017-03-21	-	-	-	-	-	-
2017-06-05	-	-	-	-	-	-
2017-08-16	-	-	-	-	-	-
2017-09-22	-	-	-	-	-	-
2017-11-14	-	-	-	-	-	-
2018 Well Elevation						
2018-03-16	-	-	-	-	-	-
2018-05-25	-	-	-	-	-	-
2018-08-30	-	-	-	-	-	-
2018-11-16	-	-	-	-	-	-
2019 Well Elevation	450.490	450.450	450.440	450.570	450.550	450.570
2019-03-21	-	-	-	-	-	-
2019-06-06	-	-	-	-	-	-
2019-07-12	-	-	-	-	-	-
2019-08-12	-	-	-	-	-	-
2019-08-13	-	-	-	-	-	-
2019-10-28	-	-	-	-	-	-
2020 Well Elevation						
2020-03-21	448.39	448.33	448.36	440.04	439.79	-
2020-06-04	448.13	448.15	448.16	440.05	439.79	-
2020-09-15	447.76	447.65	447.66	449.37	440.16	-
2020-11-26	447.41	447.36	447.38	440.04	439.82	-
2021 Well Elevation						
2021-03-29	448.23	448.18	448.20	439.99	439.72	Dry
2021-06-15	447.91	447.86	447.87	439.96	439.74	Dry
2021-09-29	447.86	447.80	447.82	439.90	439.71	Dry
2021-10-26	447.86	447.81	447.82	439.82	439.63	Dry
2022 Well Elevation (piezo)	450.574	450.571	450.588	448.406	448.407	448.435
2022-03-29	448.07	448.04	448.09	438.01	437.75	438.95
2022-06-24	448.18	448.15	448.20	Damaged	437.66	Dry
2022-09-29	448.06	448.04	448.09	-	437.64	-
2022-10-27	448.08	448.06	448.11	-	437.55	-
2023 Well Elevation (piezo)	450.574	450.571	450.588	448.406	448.407	448.435
2023-03-29	448.03	448.00	448.05	437.64	437.52	439.88
2023-05-26	448.01	447.98	448.03	437.59	437.40	439.57
2023-09-26	447.43	447.40	447.45	437.45	437.33	439.44
2023-11-21	446.99	446.94	446.99	437.40	437.27	439.03

Table 2b: Surface Water Elevations

Well ID	BREDIN POND	NORTHEAST POND	SLOUGH	TUTT POND
Measurement date				
2015 Elevation	439.211	444.22	439.249	440.72
2015-03-17	438.701	443.53	437.859	438.58
2015-06-04	438.761	443.58	437.839	438.59
2015-06-16	438.721	NM	437.639	438.569
2015-07-29	438.651	NM	437.624	437.58
2015-08-27	438.651	443.15	437.519	NM
2015-09-18	438.651	NM	437.504	436.67
2015-10-21	438.681	NM	437.514	NM
2015-11-02	438.691	443.18	437.559	436.47
2015-12-11	438.701	NM	437.671	437.515
2016 Elevation	NM	NM	NM	440.677
2016-01-21	438.691	NM	437.729	438.237
2016-02-23	438.751	NM	437.869	438.547
2016-03-22	438.781	443.83	437.959	438.447
2016-04-26	438.651	NM	437.959	438.397
2016-05-16	438.691	NM	437.899	438.177
2016-05-20	NM	443.85	NM	NM
2016-06-22	438.691	NM	437.859	438.417
2016-07-12	438.691	NM	437.809	438.427
2016-08-19	438.701	NM	437.749	437.927
2016-09-16	438.551	443.28	437.689	437.337
2016-10-18	438.701	NM	437.739	436.987
2016-11-24	438.721	443.18	437.809	438.367
2016-12-16	438.781	NM	437.779	438.427
2017 Elevation	NM	NM	NM	440.689
2017-02-21	438.711	443.66	437.999	438.479
2017-03-21	438.721	446.53	438.149	NM
2017-04-18	438.811	443.48	438.309	438.689
2017-05-08	438.811	443.48	438.359	438.709
2017-06-05	438.901	443.28	438.399	438.839
2017-06-21	438.851	443.16	438.359	438.799
2017-07-17	438.651	443.1	438.219	438.909
2017-08-16	438.581	443.07	438.059	438.009
2017-09-22	438.501	446.03	437.899	438.129
2017-10-26	438.691	446.12	437.859	438.399
2017-11-14	438.711	443.17	437.899	438.659
2017-12-08	438.911	443.31	437.919	438.889
2018 Elevation	439.171	444.216	439.238	440.719
2018-03-16	438.871	443.866	438.419	438.847
2018-04-17	438.991	NM	438.669	438.914
2018-05-25	438.931	NM	438.519	438.529
2018-06-19	438.821	443.686	438.379	438.639
2018-07-13	438.761	442.426	438.248	438.787
2018-08-13	438.741	442.511	437.908	438.369
2018-08-30	438.721	442.326	437.739	438.499
2018-09-17	438.761	442.326	437.568	438.819
2018-10-11	438.821	442.996	437.668	438.879
2018-11-16	438.781	443.016	437.968	438.819
2018-12-12	438.771	443.076	438.118	438.799
2019 Elevation	439.171	444.216	439.238	440.739
2019-01-04	438.791	443.126	438.193	438.859
2019-03-21	438.761	443.174	438.278	438.819
2019-03-28	438.741	443.236	438.403	438.799
2019-04-08	NM	444.165	439.222	NM
2019-04-09	438.461	443.516	438.436	438.689
2019-05-02	438.671	443.806	438.348	438.649
2019-05-09	438.751	443.546	438.288	438.599
2019-05-29	438.601	442.506	438.198	438.474
2019-06-06	438.661	442.566	438.148	438.599
2019-07-05	438.681	442.646	437.918	438.409
2019-07-12	NM	442.694	437.883	438.266
2019-07-17	438.651	442.709	437.835	438.084
2019-07-26	NM	442.089	437.774	437.932
2019-08-01	NM	442.716	437.718	437.909
2019-08-09	438.321	442.381	437.641	438.19
2019-08-12	438.281	442.394	437.631	438.06
2019-08-21	438.081	442.384	437.549	437.981
2019-08-28	438.071	442.406	437.498	438.124
2019-09-04	NM	442.446	437.468	438.079

Well ID	BREDIN POND	NORTHEAST POND	SLOUGH	TUTT POND
Measurement date				
2019-09-17	NM	442.546	437.468	438.149
2019-09-27	NM	442.645	437.523	438.209
2019-10-19	NM	442.714	437.593	438.288
2019-10-28	NM	442.836	437.683	438.677
2019-11-08	438.681	442.894	437.666	438.739
2020 Elevations				438.152
2020-01-28	438.791	443.477	438.039	438.781
2020-02-12	438.801	NM	438.108	438.78
2020-03-21	NM	443.786	438.149	NM
2020-04-07	438.751	NM	438.183	NM
2020-05-20	438.791	NM	NM	NM
2020-06-04	438.741	NM	438.129	NM
2020-07-22	438.731	NM	437.899	NM
2020-08-12	438.841	NM	437.784	NM
2020-09-11	NM	NM	NM	438.512
2020-09-15	438.691	442.986	437.676	NM
2020-09-23	NM	NM	NM	438.282
2020-09-28	NM	NM	NM	438.152
2020-10-07	NM	NM	NM	438.152
2020-10-15	438.741	442.326	437.659	438.212
2020-11-06	NM	NM	NM	438.572
2020-11-12	NM	NM	NM	438.572
2020-11-19	NM	NM	NM	438.572
2020-11-26	438.701	442.745	437.717	438.572
2020-12-09	NM	NM	NM	438.572
2020-12-21	438.711	442.946	437.789	438.572
2021 Elevations	439.166	444.165	439.219	437.707
2021-01-14	438.656	443.065	437.849	438.572
2021-02-25	438.656	443.305	438.019	438.572
2021-03-29	438.646	443.505	438.155	438.572
2021-04-22	438.336	443.585	438.139	438.557
2021-05-17	438.646	443.055	438.089	438.357
2021-06-15	438.67	442.44	437.97	<437.707
2021-07-12	438.636	442.405	437.789	438.167
2021-08-04	438.566	442.315	437.649	438.097
2021-09-29	438.556	442.43	437.508	438.647
2021-10-26	438.626	442.634	437.493	438.08
2021-11-08	438.486	442.755	437.519	438.137
2021-12-07	438.646	443.025	437.619	438.577
2022 Elevations	439.146	444.166	439.192	437.688
2022-01-11	438.636	443.26	437.572	438.558
2022-02-03	438.626	443.43	437.752	438.478
2022-03-09	438.636	NM	NM	438.428
2022-03-23	438.646	444.12	NM	438.428
2022-03-29	438.626	444.07	437.937	438.428
2022-04-20	438.626	444.07	437.971	438.438
2022-05-25	438.636	434.17	437.912	438.158
2022-06-24	438.646	443.46	437.862	438.308
2022-07-19	438.636	442.91	437.721	438.088
2022-08-25	438.636	442.58	437.491	438.438
2022-09-29	438.636	442.61	437.285	438.258
2022-10-27	438.526	442.73	437.236	438.398
2022-11-23	438.646	442.93	437.249	438.438
2022-12-12	438.636	443.01	437.286	438.438
2023 Elevations	439.146	444.166	439.190	437.688
2023-01-20	438.646	443.20	437.522	438.468
2023-02-27	438.656	443.36	437.642	438.478
2023-03-15	438.656	443.47	437.696	438.468
2023-04-25	438.666	443.57	437.707	438.922
2023-05-26	438.616	443.56	437.659	438.632
2023-06-27	438.716	442.77	437.547	438.842
2023-07-28	438.626	441.64	437.402	438.602
2023-08-15	438.626	441.64	NM	NM
2023-09-14	438.626	441.66	NM	438.812
2023-10-24	438.651	442.53	NM	438.912
2023-11-21	438.691	442.66	NM	438.912
2023-12-13	437.056	442.75	436.816	NM

Table 4: Summary of Surface Water Analytical Results - Ponds, Sloughs

DESCRIPTION			BC Water Quality Guidelines				Slough#2				Bubna Slough				NE Pond				Bredin Pond			
CLIENT ID		Slough #2					Slough #2	Slough #2	Slough #2	Bubna Slough	Bubna Slough	Bubna Slough	Bubna Slough	NE Pond	NE Pond	NE Pond	NE Pond	Bredin Pond	Bredin Pond	Bredin Pond	Bredin Pond	
DATE SAMPLED			AW-LT	AW-ST	IW-LT	IW-ST	2023-03-29 Water	2023-05-18 Water	2023-09-27 Water	2023-11-02 Water	2023-03-29 Water	2023-05-18 Water	2023-09-28 Water	2023-11-02 Water	2023-03-29 Water	2023-05-18 Water	2023-09-27 Water	2023-11-01 Water	2023-03-29 Water	2023-05-18 Water	2023-09-27 Water	2023-11-01 Water
MATRIX																						
Total Metals																						
Aluminum	ug/L	2	1.85	-	-	5000	65.5	29.1	63	29.2	4.1	2.4	3.3	5.1	31	233	113	278	14	8.6	22.6	21.2
Antimony	ug/L	0.05	74	250	-	-	0.206	0.293	0.404	0.32	0.084	0.117	0.187	0.155	0.128	0.174	0.308	0.246	0.09	0.089	0.136	0.131
Arsenic	ug/L	0.05	5	5	100	100	2.62	4.2	5.66	4.69	0.996	1.5	1.66	1.53	2.08	3.06	4.35	3.62	0.744	1.04	1.56	1.5
Barium	ug/L	0.1	-	-	-	-	26	35.7	42.1	34.2	18.4	8.58	9.52	8.66	82.2	107	112	117	93.8	87.2	108	95.8
Beryllium	ug/L	0.01	-	-	-	-	<0.020	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	0.011	<0.010	<0.010	<0.010	<0.010
Bismuth	ug/L	0.01	-	-	-	-	<0.020	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Boron	ug/L	2	1200	-	500	-	16.2	20.8	23.9	20.2	18.3	27.6	36.5	29.1	50.1	64.5	42.7	41.9	26.6	30.6	32.7	25.4
Cadmium	ug/L	0.002	0.018 - 0.457	0.038 - 2.801	-	5.1	<0.0040	<0.0100	<0.0100	<0.0100	<0.0020	<0.0020	<0.0020	<0.0020	0.0086	<0.0120	<0.0120	<0.0360	<0.0020	<0.0030	<0.0060	<0.0120
Calcium	ug/L	50	-	-	-	-	41,000	40,800	26,700	26,500	42,700	35,700	18,600	21,300	40,700	47,500	22,600	26,300	37,500	35,800	18,700	22,400
Chromium	ug/L	0.5	-	-	4.9	-	<0.20	<2.50	<2.50	<2.50	<0.10	<0.50	<0.50	<0.50	0.14	0.62	<0.50	0.7	0.48	<0.50	0.52	<0.50
Cobalt	ug/L	0.005	4	110	-	-	0.229	0.293	0.205	0.158	0.0342	0.0392	0.0447	0.0447	0.301	0.48	0.341	0.497	0.122	0.12	0.128	0.114
Copper	ug/L	0.2	0.2	0.9	-	200	0.78	<1.00	<1.00	<1.00	0.26	0.46	<0.20	0.7	3.62	1.19	0.56	0.92	1.4	0.41	0.56	0.37
Iron	ug/L	2	-	1000	-	-	107	65.6	106	70	8.3	5.2	9.2	6.3	51.9	338	133	366	24.9	13.7	36	34.3
Lead	ug/L	0.05	3.438 - 19.575	3.278 - 454.173	-	200	0.145	0.269	<0.250	<0.250	<0.050	<0.050	<0.050	<0.050	0.057	0.289	0.113	0.241	<0.050	<0.050	0.055	<0.050
Lithium	ug/L	0.05	-	-	750	-	84.8	105	153	130	39.3	71.6	100	91.4	33.5	35.1	50.3	45.2	28.4	27.6	36.9	33.8
Magnesium	ug/L	5	-	-	-	-	115,000	142,000	194,000	181,000	108,000	189,000	251,000	256,000	202,000	217,000	260,000	266,000	136,000	123,000	162,000	150,000
Manganese	ug/L	0.05	0.768 - 2.585	0.816 - 3.394	-	-	37.1	31.6	26.6	32.6	14.9	10	7.33	3.5	132	326	28.9	54.1	37.1	16.4	35.9	18.4
Mercury	ug/L	0.01	-	-	-	2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Molybdenum	ug/L	0.01	7600	46000	10	50	4.46	7.57	8.42	10.8	0.975	1.35	1.41	1.57	23	23.1	46.9	47.4	12.5	13.2	14.3	16.9
Nickel	ug/L	0.04	-	-	-	-	0.979	1.59	1.36	1.09	0.363	0.448	0.492	0.785	2.58	3.33	3.37	3.85	1.01	1.07	1.31	1.2
Phosphorus	ug/L	10	5-15	5-15	-	-	81	159	93	457	44	18	<20	30	225	517	220	253	67	52	92	87
Potassium	ug/L	20	-	-	-	-	63,700	86,300	123,000	109,000	16,100	27,300	37,900	37,000	14,300	16,200	20,100	19,100	12,000	10,900	15,000	13,500
Selenium	ug/L	0.1	1	1	10	10	0.21	0.91	<0.50	<0.50	0.17	0.22	0.16	0.13	0.43	0.49	0.44	0.42	0.9	0.93	1.11	1.02
Silicon	ug/L	100	-	-	-	-	4,650	2,650	4,390	3,830	6,850	7,800	15,300	11,600	4,640	2,390	1,940	3,160	5,190	4,290	5,330	7,310
Silver	ug/L	0.01	0.05..1.5	0.1..3	-	-	<0.020	<0.050	<0.050	<0.050	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	<0.010	<0.010	<0.010
Sodium	ug/L	20	-	-	-	-	742,000	960,000	1,390,000	1,540,000	203,000	345,000	474,000	522,000	281,000	300,000	408,000	391,000	187,000	164,000	225,000	207,000
Strontium	ug/L	0.1	-	-	-	-	1,080	1,380	1,370	1,200	1,780	1,480	658	834	3,380	3,810	3,950	4,170	3,220	2,990	3,300	3,130
Sulfur	ug/L	1000	-	-	-	-	331,000	432,000	576,000	536,000	38,700	70,900	94,200	91,800	180,000	197,000	261,000	229,000	76,100	72,300	108,000	95,500
Tellurium	ug/L	0.05	-	-	-	-	<0.100	<0.250	<0.250	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Thallium	ug/L	0.004	-	-	-	-	<0.0080	<0.0200	<0.0200	<0.0200	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thorium	ug/L	0.01	-	-	-	-	0.067	<0.050	0.186	<0.050	0.022	<0.010	0.051	<0.010	0.072	0.042	0.104	0.046	0.039	<0.010	0.073	0.013
Tin	ug/L	0.05	-	-	-	-	<0.100	<0.250	<0.250	<0.250	<0.050	<0.050	<0.050	0.053	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Titanium	ug/L	0.2	-	-	-	-	3.81	2.29	3.45	1.87	0.23	<0.20	0.2	0.23	2.04	12.6	6.28	14.1	1.25	0.43	1.26	0.93
Tungsten	ug/L	0.2	-	-	-	-	<0.40	<1.00	<1.00	<1.00	<0.20	<0.20	<0.20	<0.20	<0.20	0.22	0.37	0.39	<0.20	<0.20	<0.20	<0.20
Uranium	ug/L	0.001	-	-	-	-	20	33.5	37	39.3	4.54	5.49	4.9	5.33	34.1	35.9	47.4	51.2	22.3	23.6	22.6	25.2
Vanadium	ug/L	1	-	-	-	-	<2.00	<5.00	<5.00	<5.00	2.46	1.14	<1.00	1.32	1.33	3	3.92	4.51	2.46	2.8	2.49	2.74
Zinc	ug/L	1	0.829	5.6..341	1000..5000	-	<2.0	<5.0	<5.0	<5.0	1.5	<1.0	<1.0	<1.0	1.8	2.6	1.1	2	1.5	<1.0	2.6	1.9
Zirconium	ug/L	0.02	-	-	-	-	0.565	0.903	0.845	0.602	0.052	0.025	0.128	0.03	0.649	0.721	0.871	0.995	0.151	0.084	0.087	0.095
Copper, dissolved	ug/L	0.1	0.2	0.9	-	200	0.62	0.75	<0.50	<0.50	0.43	0.12	0.16	0.21	3.53	0.67	0.44	0.39	0.52	0.4	0.21	0.42
Inorganics																						
Bromide	mg/L	0.1	-	-	-	-	1.3	2.33	2.17	<2.50	<1.00	<0.10	<1.00	<2.50	<0.10	<0.10	<1.00	<0.10	<0.10	<0.10	<1.00	<1.00
Chloride	mg/L	0.1	150	600	100	100	481	705	856	772	203	633	753	717	166	182	248	228	166	151	180	163
Fluoride	mg/L	0.1	-	1.876	1	2	<1.00	0.78	0.85	0.75	<1.00	0.37	<1.00	0.37	1.35	1.54	1.38	1.47	0.87	0.87	1.15	1.01
Nitrate (as N)	mg/L	0																				

Table 4: Summary of Surface Water Analytical Results - Ponds, Sloughs

DESCRIPTION		BC Water Quality Guidelines					Tutt Pond				Slough				Little Robert Lake				Robert Lake			
CLIENT ID	Tutt Pond						Tutt Pond	Tutt Pond	Tutt Pond	Slough	Slough	Slough	Slough	Little Robert Lake	Little Robert Lake	Little Robert Lake	Little Robert Lake	Robert Lake	Robert Lake	Robert Lake	Robert Lake	
DATE SAMPLED	2023-03-29	2023-05-18	2023-09-27	2023-11-01	2023-03-29	2023-05-18	2023-09-27	2023-11-01	2023-03-29	2023-05-18	2023-09-27	2023-11-01	2023-03-29	2023-05-18	2023-09-28	2023-11-02	2023-03-29	2023-05-18	2023-09-28	2023-11-02		
MATRIX	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water		
Total Metals																						
Aluminum	ug/L	2	1.85	-	-	5000	143	49.6	97	98.5	432	436	573	490	526	234	723	416	294	340	4,930	1,080
Antimony	ug/L	0.05	74	250	-	-	0.169	0.185	0.243	0.292	3.44	3.48	9.79	17.3	0.52	0.465	0.177	0.389	0.265	<0.500	0.691	0.613
Arsenic	ug/L	0.05	5	5	100	100	2.59	2.99	4.85	5.25	29.5	34	70.6	115	5.92	5.87	5.56	6.16	6.71	8.22	10.7	11.3
Barium	ug/L	0.1	-	-	-	-	75	69	75.8	76.4	42.7	20.5	26.3	44.1	68.4	57.4	94.7	69.1	36.2	48.2	107	64.5
Beryllium	ug/L	0.01	-	-	-	-	<0.010	<0.010	<0.010	<0.010	0.025	<0.050	<0.100	<0.050	<0.020	<0.050	0.045	0.019	<0.050	<0.100	0.275	<0.100
Bismuth	ug/L	0.01	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.020	<0.050	<0.100	<0.050	<0.020	<0.050	<0.010	<0.010	<0.050	<0.100	0.077	<0.100
Boron	ug/L	2	1200	-	500	-	38.7	40.7	39.5	36.3	226	397	1,010	586	30.1	35	6.7	28.7	50.8	60.7	356	70.2
Cadmium	ug/L	0.002	0.018 - 0.457	0.038 - 2.801	-	5.1	0.0077	<0.0050	<0.0060	<0.0120	0.0184	<0.0100	<0.0400	0.0107	0.0081	<0.0100	0.0108	<0.0160	<0.0300	<0.0200	0.182	<0.160
Calcium	ug/L	50	-	-	-	-	87,300	82,700	66,300	63,200	42,900	44,700	11,300	28,600	176,000	179,000	83,400	186,000	39,000	44,900	947,000	31,000
Chromium	ug/L	0.5	-	-	4.9	-	0.47	<0.50	<0.50	<0.50	1.68	<2.50	<5.00	<2.50	1.11	<2.50	1.3	0.8	0.66	<5.00	11.5	<5.00
Cobalt	ug/L	0.005	4	110	-	-	0.531	0.454	0.449	0.5	1.14	0.931	3.14	1.14	0.769	0.53	0.719	0.503	0.684	0.652	12.7	0.944
Copper	ug/L	0.2	0.2	0.9	-	200	1.71	0.95	0.83	0.63	3.31	1.54	7.15	1.42	1.69	1.04	0.99	0.92	2.15	3.18	31.3	3.06
Iron	ug/L	2	-	1000	-	-	205	70.7	106	156	600	594	1,220	658	663	317	1,120	508	363	368	9,350	1,160
Lead	ug/L	0.05	3.438 - 19.575	3.278 - 454.173	-	200	0.107	0.076	0.093	0.12	0.394	0.311	0.581	0.428	0.319	0.26	0.766	0.265	0.366	<0.500	99.3	0.811
Lithium	ug/L	0.05	-	-	750	-	29	30	34.9	34.2	39.4	51.7	118	72.8	43.6	41.4	6.37	52.0	17.1	19.1	136	26.6
Magnesium	ug/L	5	-	-	-	-	188,000	187,000	223,000	231,000	203,000	224,000	353,000	378,000	298,000	276,000	24,500	389,000	303,000	323,000	128,000	484,000
Manganese	ug/L	0.05	0.768 - 2.585	0.816 - 3.394	-	-	167	48.3	46	148	75.1	28.7	57.5	51.4	2,700	793	51.6	1,580	222	122	510	84.6
Mercury	ug/L	0.01	-	-	-	2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.022
Molybdenum	ug/L	0.01	7600	46000	10	50	11.3	11.6	13.6	13.2	12.4	12.1	46.2	15.1	8.03	9.18	0.156	10.8	64.3	68.6	3.98	113
Nickel	ug/L	0.04	-	-	-	-	2.52	2.61	2.55	2.66	6.88	8.46	17.4	11.6	2.49	2.3	1.37	1.91	4.19	4.66	22.4	5.77
Phosphorus	ug/L	10	5-15	5-15	-	-	172	132	314	612	1,320	1,620	6,090	1,550	2,100	1,660	<60	2,220	2,730	3,090	296	3,530
Potassium	ug/L	20	-	-	-	-	13,700	13,400	16,600	15,800	120,000	152,000	619,000	332,000	26,500	22,600	942	39,300	49,400	57,900	4,630	91,000
Selenium	ug/L	0.1	1	1	10	10	0.74	0.83	0.71	0.62	0.7	1.52	1.57	0.83	0.54	1.18	<0.10	0.45	0.92	2.48	<0.50	1.35
Silicon	ug/L	100	-	-	-	-	5,670	1,230	4,070	4,200	4,790	3,300	2,680	3,870	8,510	4,360	4,500	7,550	5,910	3,740	16,700	7,360
Silver	ug/L	0.01	0.05-1.5	0.1-3	-	-	<0.010	0.011	0.017	<0.010	<0.020	<0.050	<0.100	<0.050	<0.020	<0.050	<0.010	<0.010	<0.050	<0.100	0.951	<0.100
Sodium	ug/L	20	-	-	-	-	320,000	317,000	396,000	397,000	962,000	1,130,000	5,420,000	3,230,000	836,000	788,000	999	1,320,000	2,220,000	2,430,000	68,600	4,590,000
Strontium	ug/L	0.1	-	-	-	-	4,870	4,830	5,650	5,980	2,560	3,020	828	2,860	5,040	4,860	137	6,500	3,340	4,210	11,100	5,650
Sulfur	ug/L	1000	-	-	-	-	257,000	272,000	326,000	318,000	514,000	613,000	2,850,000	1,610,000	893,000	898,000	3,700	1,360,000	1,580,000	1,780,000	700,000	2,710,000
Tellurium	ug/L	0.05	-	-	-	-	<0.050	<0.050	<0.050	0.052	<0.100	<0.250	<0.500	<0.250	<0.100	<0.250	<0.050	<0.050	<0.250	<0.500	<0.250	<0.500
Thallium	ug/L	0.004	-	-	-	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.0200	<0.0400	<0.0200	<0.0080	<0.0200	0.0221	<0.0040	<0.0200	<0.0400	0.121	<0.0400
Thorium	ug/L	0.01	-	-	-	-	0.073	0.013	0.108	0.029	0.171	0.065	1.79	0.117	0.159	0.057	0.064	0.063	0.196	0.118	1.29	0.167
Tin	ug/L	0.05	-	-	-	-	<0.050	<0.050	<0.050	<0.050	0.531	<0.250	0.626	2.18	<0.100	<0.250	0.126	0.059	<0.250	<0.500	3.77	<0.500
Titanium	ug/L	0.2	-	-	-	-	8.03	2.75	4.91	5.28	25.6	21.7	40.1	20.1	29.7	13.9	12.1	22.1	16.9	17.4	55.6	53.9
Tungsten	ug/L	0.2	-	-	-	-	<0.20	<0.20	0.24	0.26	1.43	2.2	9.27	3.76	<0.40	<1.00	<0.20	<0.20	1.07	<2.00	3.08	2.26
Uranium	ug/L	0.001	-	-	-	-	37.5	41.8	40	40.2	33.1	35.2	120	75.4	49.9	46.9	0.301	43.5	90.9	98.2	16	137
Vanadium	ug/L	1	-	-	-	-	3.64	4.02	4.7	4.49	6.71	9.65	<10.0	9.1	3.68	<5.00	1.02	2.76	<5.00	<10.0	9.2	10.6
Zinc	ug/L	1	0.829	5.6-341	1000-5000	-	1.9	<1.0	1.2	1.1	5.7	<5.0	27.9	6.4	2.1	<5.0	5.4	2.1	<5.0	<10.0	101	<10.0
Zirconium	ug/L	0.02	-	-	-	-	0.541	0.426	0.459	0.476	2.76	3.05	5.22	4.84	0.647	0.399	0.261	0.641	2.37	7.18	1.26	3.76
Copper, dissolved	ug/L	0.1	0.2	0.9	-	200	1.04	0.84	0.62	0.33	2.15	0.94	1.04	<0.50	0.65	0.65	0.17	0.25	1.74	1.96	0.61	1.6
Inorganics																						
Bromide	mg/L	0.1	-	-	-	-	<1.00	<0.10	<2.50	<1.00	1.21	1.36	5.62	2.64	<1.00	<5.00	<1.00	<2.50	1.05	<5.00	1.91	<2.50
Chloride	mg/L	0.1	150	600	100	100	226	254	261	259	391	497	1,920	1,200	106	113	152	113	243	293	458	367
Fluoride	mg/L	0.1	-	1.876	1	2	<1.00	0.67	0.9	<1.00	<1.00	0.55	<2.50	<1.00	<1.00	0.25	<1.00	<2.50	<1.00	0.64	<1.00	<2.50
Nitrate (as N)	mg/L	0.01	3	-	-	-	<0.100	<0.500	<0.250	<0.100	<0.100	<0.500	<0.250	<0.100	<0.100	<0.500	<0.100	<0.250	<0.100	<0.500	<0.100	<0.250
Nitrite (as N)	mg/L	0.01	0.2(Eq)	0.6(Eq)	-	-	<0.100	<0.010	<0.010	0.115	<0.100	0.019	<0.250	<0.100	<0.100	<0.010	&lt					

Date Field ID			Q1							
			21 Mar 2023	21 Mar 2023	21 Mar 2023	21 Mar 2023	21 Mar 2023	21 Mar 2023	21 Mar 2023	21 Mar 2023
			N Pumphouse MH	N Pumphouse MH	P1 Leachate MH-2	P1 Leachate MH-2	P2 A2 Leachate MH	P2 A2 Leachate MH	S Leachate Wet Well	S Leachate Wet Well
	Unit	EQL	Analytical Results							
Calculations										
Hardness as CaCO3 (filtered)	mg/L	0.25	1,250	1,310	2,250	2,490	2,170	2,210	1,090	1,120
General Parameters										
Bromine	µg/L	1,000	<1,000	-	<1,000	-	2,110	-	<1,000	-
Chloride	mg/L	10	549	-	1,370	-	1,360	-	640	-
Fluoride	mg/L	1	<1.00	-	<1.00	-	<1.00	-	<1.00	-
Nitrate (as N)	mg/L	0.1	<0.100	-	<0.100	-	23.2	-	3.39	-
Nitrite (as N)	mg/L	0.1	<0.100	-	<0.100	-	0.599	-	9.45	-
Phosphate	µg/L	50	26,800	-	6,870	-	<50.0	-	11,400	-
Sulphate	mg/L	10	1,520	-	<10.0	-	185	-	1,570	-
Alkalinity (total) as CaCO3	mg/L	1	3,510	-	6,930	-	3,170	-	4,040	-
Alkalinity (P)	mg/L	1	<1.0	-	<1.0	-	<1.0	-	222	-
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	3,510	-	6,930	-	3,170	-	3,600	-
Alkalinity (Carbonate as CaCO3)	mg/L	1	<1.0	-	<1.0	-	<1.0	-	443	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Ammonia	mg/L	0.5	77	-	1,010	-	139	-	50.2	-
Biochemical Oxygen Demand	mg/L	16.2	241	-	311	-	155	-	217	-
Dissolved Organic Carbon (filtered)	mg/L	5	88.4	-	528	-	182	-	367	-
Chemical Oxygen Demand	mg/L	20	562	-	1,840	-	509	-	580	-
Phosphorus (P)	mg/L	0.1	3.91	-	12	-	0.472	-	4.32	-
Total Dissolved Solids (Lab) (filtered)	mg/L	150	6,820	-	7,390	-	5,970	-	8,000	-
Hydrogen sulfide	mg/L	0.02	51.4	-	2.03	-	<0.020	-	69.1	-
pH (Lab)	-	0.1	7.95	-	7.59	-	7.91	-	8.47	-
Electrical Conductivity (Lab)	µS/cm	2	9,860	-	16,500	-	9,900	-	11,200	-
Hydrocarbons										
VH (C6-C10)	µg/L	100	<100	-	470	-	<100	-	121	-
VPH (VH C6-C10 - BTEX)	µg/L	100	<100	-	324	-	<100	-	<100	-
EPH C10-C19	µg/L	250	772	-	1,890	-	459	-	449	-
EPH C19-C32	µg/L	250	862	-	377	-	<250	-	<250	-
LEPH	µg/L	250	760	-	1,890	-	459	-	443	-
HEPH	µg/L	250	861	-	377	-	<250	-	<250	-
Benzene	µg/L	0.5	3.2	-	2.9	-	<0.5	-	5.7	-
Bromodichloromethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromoform	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Carbon tetrachloride	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chlorobenzene	µg/L	1	1.1	-	<1.0	-	<1.0	-	<1.0	-
Chloroethane	µg/L	2	4.5	-	<2.0	-	<2.0	-	<2.0	-
Chloroform	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Chlorodibromomethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,2-dibromoethane	µg/L	0.3	<0.3	-	<0.3	-	<0.3	-	<0.3	-
Dibromomethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
1,3-dichlorobenzene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	3.2	-
1,4-dichlorobenzene	µg/L	1	2.2	-	<1.0	-	<1.0	-	3.5	-
1,1-dichloroethane	µg/L	1	3.2	-	<1.0	-	<1.0	-	2.6	-
1,2-dichloroethane	µg/L	1	<1.0	-	17.7	-	<1.0	-	<1.0	-
1,1-dichloroethene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
cis-1,2-dichloroethene	µg/L	1	<1.0	-	4.9	-	<1.0	-	<1.0	-
trans-1,2-dichloroethene	µg/L	1	<1.0	-	6.1	-	<1.0	-	<1.0	-
Dichloromethane	µg/L	3	<3.0	-	9.3	-	<3.0	-	<3.0	-
1,2-dichloropropane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,3-Dichloropropene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Ethylbenzene	µg/L	1	37.7	-	13.4	-	<1.0	-	77.6	-
MTBE	µg/L	1	<1.0	-	5.7	-	4.5	-	<1.0	-
Styrene	µg/L	1	<1.0	-	10.8	-	<1.0	-	1.4	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Tetrachloroethene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Toluene	µg/L	1	1.2	-	83.6	-	<1.0	-	2.1	-
1,1,1-trichloroethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,1,2-trichloroethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Trichloroethene	µg/L	1	<1.0	-	1.4	-	<1.0	-	<1.0	-
Trichlorofluoromethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl chloride	µg/L	1	<1.0	-	3.8	-	<1.0	-	<1.0	-
Xylene Total	µg/L	2	24.7	-	35.8	-	<2.0	-	58.6	-
Metals										
Mercury (filtered)	mg/L	0.00001	<0.000010	-	<0.000100	-	<0.000010	-	<0.000010	-
Aluminium (filtered)	mg/L	0.002	0.0537	-	0.266	-	0.0175	-	0.0641	-
Antimony (filtered)	mg/L	0.0001	0.0153	-	0.0168	-	0.00226	-	0.0226	-
Arsenic (filtered)	mg/L	0.0001	0.0339	-	0.0338	-	0.0128	-	0.0528	-
Barium (filtered)	mg/L	0.0002	0.15	-	0.27	-	0.994	-	0.112	-
Beryllium (filtered)	mg/L	0.00002	<0.000050	-	0.000061	-	<0.000050	-	<0.000050	-
Bismuth (filtered)	mg/L	0.00002	<0.000050	-	<0.000050	-	<0.000050	-	<0.000050	-
Boron (filtered)	mg/L	0.004	1.45	-	10.6	-	6.54	-	1.63	-
Cadmium (filtered)	mg/L	0.000004	0.000017	-	0.0000444	-	0.0000322	-	0.0000169	-
Calcium (filtered)	mg/L	0.1	103	-	321	-	150	-	91.5	-
Chromium (III+VI) (filtered)	mg/L	0.0005	0.0144	-	0.159	-	0.0152	-	0.018	-
Cobalt (filtered)	mg/L	0.00001	0.00415	-	0.0301	-	0.0413	-	0.00267	-
Copper (filtered)	mg/L	0.0002	<0.00050	-	0.00149	-	0.0159	-	0.0005	-
Iron (filtered)	mg/L	0.004	0.0277	-	1.81	-	0.909	-	0.0221	-
Lead (filtered)	mg/L	0.0001	<0.000250	-	0.00028	-	0.000484	-	<0.000250	-
Lithium (filtered)	mg/L	0.0001	0.0608	-	0.217	-	0.0335	-	0.0704	-
Magnesium (filtered)	mg/L	0.01	255	-	410	-	445	-	215	-
Manganese (filtered)	mg/L	0.0001	0.242	-	2.26	-	0.126	-	0.122	-
Molybdenum (filtered)	mg/L	0.00002	0.00351	-	0.00352	-	0.0244	-	0.00294	-
Nickel (filtered)	mg/L	0.00008	0.0164	-	0.233	-	0.231	-	0.0136	-
Phosphorus (filtered)	mg/L	0.02	4.21	-	12.8	-	0.205	-	4.92	-
Potassium (filtered)	mg/L	0.04	151	-	728	-	228	-	182	-
Selenium (filtered)	mg/L	0.0002	0.00099	-	0.0056	-	0.00284	-	0.00117	-
Silicon (filtered)	µg/L	200	13,400	-	24,000	-	23,600	-	10,500	-
Silver (filtered)	mg/L	0.00002	<0.000050	-	<0.000050	-	<0.000050	-	<0.000050	-
Sodium (filtered)	mg/L	0.04	1,940	-	1,460	-	1,360	-	2,570	-
Strontium (filtered)	mg/L	0.0002	3.11	-	3.79	-	7.52	-	2.11	-
Sulfur (filtered)	mg/L	6	-	-	-	-	-	-	-	-
Sulphur as S (filtered)	mg/L	2	567	-	23.7	-	75.9	-	751	-
tellurium (filtered)	µg/L	0.1	<0.250	-	<0.250	-	<0.250	-	<0.250	-
Thallium (filtered)	mg/L	0.000008	<0.0000200	-	<0.0000200	-	<0.0000200	-	<0.0000200	-
Thorium (filtered)	mg/L	0.00002	0.00008	-	0.00017	-	<0.000050	-	0.000098	-
Tin (filtered)	mg/L	0.0001	0.023	-	0.0111	-	0.00194	-	0.0634	-
Titanium (filtered)	mg/L	0.0004	0.0352	-	0.13	-	0.0107	-	0.0307	-
Tungsten (filtered)	mg/L	0.0004	0.00233	-	0.00502	-	0.00323	-	0.00244	-
Uranium (filtered)	µg/L	0.002	21.9	-	4.51	-	9.97	-	27.8	-
Vanadium (filtered)	mg/L	0.002	0.00816	-	0.0692	-	0.0176	-	0.00622	-
Zinc (filtered)	mg/L	0.002	<0.0050	-	0.0231	-	0.0413	-	<0.0050	-
Zirconium (filtered)	µg/L	0.04	17.8	-	50.2	-	104	-	17.9	-
PAHs										
Acenaphthene	µg/L	0.05	2.03	-	<0.050	-	<0.050	-	0.384	-
Acenaphthylene	µg/L	0.2	<0.200	-	<0.200	-	<0.200	-	<0.2	

Date Field ID			Q2							
			17 May 2023	17 May 2023	17 May 2023	17 May 2023	17 May 2023	17 May 2023	17 May 2023	17 May 2023
			N Pumphouse MH	N Pumphouse MH	P1 Leachate MH-2	P1 Leachate MH-2	P2 A2 Leachate MH	P2 A2 Leachate MH	S Leachate Wet Well	S Leachate Wet Well
	Unit	EQL								
Calculations										
Hardness as CaCO3 (filtered)	mg/L	0.25	1,070	1,170	2,230	2,510	2,060	2,190	1,100	1,140
General Parameters										
Bromine	µg/L	1,000	<1,000	-	<1,000	-	2,100	-	1,030	-
Chloride	mg/L	10	473	-	1,470	-	1,410	-	566	-
Fluoride	mg/L	1	<1.00	-	<1.00	-	<1.00	-	<1.00	-
Nitrate (as N)	mg/L	0.1	<0.100	-	<0.100	-	<0.100	-	3.53	-
Nitrite (as N)	mg/L	0.1	<0.100	-	0.117	-	<0.100	-	17.7	-
Phosphate	µg/L	50	7,260	-	5,240	-	<50.0	-	23,200	-
Sulphate	mg/L	10	1,240	-	53.4	-	106	-	1,540	-
Alkalinity (total) as CaCO3	mg/L	1	2,380	-	6,620	-	3,460	-	2,990	-
Alkalinity (P)	mg/L	1	<1.0	-	<1.0	-	<1.0	-	11.1	-
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	2,380	-	6,620	-	3,460	-	2,970	-
Alkalinity (Carbonate as CaCO3)	mg/L	1	<1.0	-	<1.0	-	<1.0	-	22.3	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Ammonia	mg/L	0.5	41.2	-	841	-	152	-	41.1	-
Biochemical Oxygen Demand	mg/L	16.2	58.1	-	183	-	25.4	-	60.7	-
Dissolved Organic Carbon (filtered)	mg/L	5	58.4	-	458	-	191	-	90.5	-
Chemical Oxygen Demand	mg/L	20	270	-	1,810	-	712	-	502	-
Phosphorus (P)	mg/L	0.1	2.43	-	12.2	-	1.33	-	3.76	-
Total Dissolved Solids (Lab) (filtered)	mg/L	150	5,520	-	7,560	-	5,820	-	6,920	-
Hydrogen sulfide	mg/L	0.02	3.55	-	8.02	-	0.028	-	52.7	-
pH (Lab)	-	0.1	8.1	-	7.65	-	7.85	-	8.25	-
Electrical Conductivity (Lab)	µS/cm	2	7,620	-	15,500	-	9,500	-	9,160	-
Hydrocarbons										
VH (C6-C10)	µg/L	100	<100	-	452	-	<100	-	<100	-
VPH (VH C6-C10 - BTEX)	µg/L	100	<100	-	350	-	<100	-	<100	-
EPH C10-C19	µg/L	250	1,900	-	1,780	-	917	-	1,340	-
EPH C19-C32	µg/L	250	10,800	-	<250	-	949	-	6,090	-
LEPH	µg/L	250	1,900	-	1,780	-	917	-	1,330	-
HEPH	µg/L	250	10,800	-	<250	-	949	-	6,090	-
Benzene	µg/L	0.5	2.8	-	2.9	-	1	-	9.6	-
Bromodichloromethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Bromoform	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Carbon tetrachloride	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Chlorobenzene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Chloroethane	µg/L	2	3.2	-	<2.0	-	<2.0	-	<2.0	-
Chloroform	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Chlorodibromomethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,2-dibromoethane	µg/L	0.3	<0.3	-	<0.3	-	<0.3	-	<0.3	-
Dibromomethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	0.8	-
1,3-dichlorobenzene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,4-dichlorobenzene	µg/L	1	1.4	-	<1.0	-	<1.0	-	5	-
1,1-dichloroethane	µg/L	1	2.7	-	<1.0	-	1.9	-	4.3	-
1,2-dichloroethane	µg/L	1	<1.0	-	11.3	-	<1.0	-	<1.0	-
1,1-dichloroethene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
cis-1,2-dichloroethene	µg/L	1	<1.0	-	4.5	-	2.9	-	<1.0	-
trans-1,2-dichloroethene	µg/L	1	<1.0	-	5.3	-	<1.0	-	<1.0	-
Dichloromethane	µg/L	3	<3.0	-	3.3	-	3.6	-	<3.0	-
1,2-dichloropropane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,3-Dichloropropene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Ethylbenzene	µg/L	1	22	-	12	-	<1.0	-	77.8	-
MTBE	µg/L	1	<1.0	-	5.4	-	9.9	-	<1.0	-
Styrene	µg/L	1	<1.0	-	5.2	-	<1.0	-	<1.0	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Tetrachloroethene	µg/L	1	<1.0	-	<1.0	-	1.3	-	<1.0	-
Toluene	µg/L	1	<1.0	-	60.6	-	1.4	-	2.6	-
1,1,1-trichloroethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
1,1,2-trichloroethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Trichloroethene	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Trichlorofluoromethane	µg/L	1	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Vinyl chloride	µg/L	1	<1.0	-	6.3	-	1.8	-	1.4	-
Xylene Total	µg/L	2	16.7	-	21.4	-	<2.0	-	79.6	-
Metals										
Mercury (filtered)	mg/L	0.00001	<0.000010	-	<0.000020	-	<0.000020	-	<0.000020	-
Aluminium (filtered)	mg/L	0.002	0.022	0.0248	0.237	0.263	0.0192	<0.0250	0.054	0.0551
Antimony (filtered)	mg/L	0.0001	0.00415	0.00461	0.0157	0.0167	0.00168	0.00185	0.0102	0.0113
Arsenic (filtered)	mg/L	0.0001	0.00919	0.00959	0.0258	0.0314	0.016	0.0176	0.0292	0.031
Barium (filtered)	mg/L	0.0002	0.145	0.169	0.242	0.268	1.02	1.04	0.0859	0.0918
Beryllium (filtered)	mg/L	0.00002	<0.000020	-	0.000104	<0.00100	<0.000050	-	<0.000050	-
Bismuth (filtered)	mg/L	0.00002	<0.000020	-	0.000145	<0.00100	<0.000050	-	<0.000050	-
Boron (filtered)	mg/L	0.004	0.952	1.04	11.1	11.3	6.29	6.6	1.31	1.63
Cadmium (filtered)	mg/L	0.000004	0.0000051	<0.000020	<0.0000200	-	0.00000616	0.000007	0.0000114	<0.000050
Calcium (filtered)	mg/L	0.1	107	115	254	277	146	150	127	133
Chromium (III+VI) (filtered)	mg/L	0.0005	0.00587	0.00612	0.159	0.171	0.016	0.0169	0.0131	0.0143
Cobalt (filtered)	mg/L	0.00001	0.00301	0.00322	0.0331	0.0346	0.0255	0.0271	0.00262	0.00288
Copper (filtered)	mg/L	0.0002	<0.00020	-	0.00102	<0.00400	0.00296	0.00301	0.00069	<0.00200
Iron (filtered)	mg/L	0.004	0.277	0.303	1.62	1.78	12.5	13.7	0.0198	<0.05
Lead (filtered)	mg/L	0.0001	<0.000100	-	<0.000500	-	<0.000250	-	<0.000250	-
Lithium (filtered)	mg/L	0.0001	0.0538	0.0585	0.233	0.238	0.0355	0.0363	0.0636	0.0825
Magnesium (filtered)	mg/L	0.01	196	213	387	441	411	440	190	196
Manganese (filtered)	mg/L	0.0001	0.454	0.489	1.58	1.8	0.206	0.22	0.155	0.162
Molybdenum (filtered)	mg/L	0.00002	0.00122	0.0014	0.00422	0.00439	0.012	0.0121	0.00194	0.00199
Nickel (filtered)	mg/L	0.00008	0.0119	0.0132	0.257	0.267	0.193	0.207	0.0107	0.0119
Phosphorus (filtered)	mg/L	0.02	1.88	2.03	10.5	17.4	0.192	<0.25	3.8	3.96
Potassium (filtered)	mg/L	0.04	82.8	92.9	717	784	219	230	164	166
Selenium (filtered)	mg/L	0.0002	0.00058	<0.00100	0.00543	0.0141	0.00305	0.00325	0.00086	<0.00250
Silicon (filtered)	µg/L	200	12,100	13,300	22,400	23,500	28,200	28,600	10,400	10,500
Silver (filtered)	mg/L	0.00002	<0.000020	-	<0.000100	-	<0.000050	-	0.000104	<0.000250
Sodium (filtered)	mg/L	0.04	850	939	1,510	1,730	1,300	1,400	2,060	2,150
Strontium (filtered)	mg/L	0.0002	3.15	3.45	3.55	3.85	7.95	8.53	2.36	2.37
Sulfur (filtered)	mg/L	6	273	-	43.4	-	48.8	-	583	-
Sulphur as S (filtered)	mg/L	2	250	-	66.7	-	52.2	-	563	-
tellurium (filtered)	µg/L	0.1	<0.100	-	<0.500	-	<0.250	-	<0.250	-
Thallium (filtered)	mg/L	0.000008	<0.0000080	-	<0.0000400	-	<0.0000200	-	<0.0000200	-
Thorium (filtered)	mg/L	0.00002	0.000041	<0.00020	0.000168	<0.00100	0.000138	<0.00050	0.000158	<0.00050
Tin (filtered)	mg/L	0.0001	0.00576	0.00662	0.0127	0.0131	0.002	0.00209	0.0332	0.0335
Titanium (filtered)	mg/L	0.0004	0.0122	0.0129	0.151	0.164	0.00713	&lt		

APPENDIX A

MOE OPERATION CERTIFICATE 12218



MINISTRY OF
ENVIRONMENT

OPERATIONAL CERTIFICATE

12218

Under the Provisions of the Environmental Management Act

CITY OF KELOWNA

**City Hall
1435 Water Street
Kelowna BC V1Y 1J4**

is authorized to manage waste and recyclable material from the Regional District of Central Okanagan and environs including the Big White area, at the Glenmore Landfill located 9 kilometres north-east of the Kelowna city centre, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may result in prosecution. This Operational Certificate is issued pursuant to the provisions of Section 28 of the *Environmental Management Act*. This Operational Certificate supersedes all previous versions of Operational Certificate 12218 issued under the authority of the *Waste Management Act* and the *Environmental Management Act*.

“Director” means the Director or a person delegated to act on behalf of the Director, as defined in the *Environmental Management Act*.

1. AUTHORIZED DISCHARGES

1.1 This section applies to the discharge of refuse from municipal, commercial and light industrial sources to a sanitary landfill known as the Glenmore Landfill. The site reference number for this discharge is E104956.

1.1.1 The maximum authorized rate of waste discharge is 170,000 tonnes annually. The maximum quantity of waste discharged must not exceed the design capacity of the landfill as specified in an approved Design and Operations Plan. The final footprint and profile of the discharged waste must be within that specified in the Design and Operations Plan and approximately as shown on the attached locations map.

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)

Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

1.1.2 The characteristics of the waste discharged to the landfill are those of municipal solid waste as defined in the *Environmental Management Act* and other waste as may be authorized by the Director.

1.1.3 The following types of wastes must not be discharged:

- (1) Hazardous wastes, other than those specifically approved for disposal to authorized landfills, as defined in the Hazardous Waste Regulation under the *Environmental Management Act*.
- (2) Anatomical, pathological, and untreated biomedical wastes as defined in the *Guidelines for the Management of Biomedical Wastes in Canada* (Canadian Council of Ministers of the Environment, February 1992). With exception of the limited biomedical wastes described within the City of Kelowna Solid Waste Management Regulation Bylaw.
- (3) Bulk liquids and semi-solid wastes, which contain free liquids, as determined by US EPA Method 9095A Paint Filter Liquids Test, Test Methods for Evaluating Solid Wastes-Physical/Chemical Methods (EPA Publication No. Sw-846).
- (4) Hog fuel, log yard debris and chipped wood waste. The reuse of these materials for temporary roads, dust control or a component of alternative daily cover is permitted.
- (5) Recyclable materials, including automobiles, white goods, other large metallic objects and tires, as directed by the Director.
- (6) Dead animals and slaughter house, fish hatchery and farming wastes or cannery wastes and by-products with the exception of slaughter waste from small (less than 200 bird) independent backyard chicken farms. Limited biomedical and carcass wastes described within the City of Kelowna Solid Waste Management Regulation Bylaw will also be accepted.

Burial of these wastes in dedicated locations (i.e. avoiding co-disposal) at the landfill site may be authorized by the Director only if there is no other viable alternative such as treatment/disposal, recycling, reprocessing or composting.

Date issued:
Date amended:
(most recent)

December 8, 2000
June 29, 2015



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

The viability of alternatives is to be determined by the Director based on submission of cost data by the holder of the Operational Certificate. For those cases in which the dedicated disposal of otherwise prohibited wastes is authorized, the specific on-site location of the disposal must be recorded to allow ready access to the waste should corrective or further action pertaining to the management of these wastes be required by the Ministry at some time in the future.

- 1.1.4** Notwithstanding the requirements of section 1.1.3(1) the disposal of waste asbestos in compliance with the requirements of Section 40 of the Hazardous Waste Regulation under the *Environmental Management Act* is hereby authorized.
- 1.1.5** Notwithstanding the requirements of section 1.1.3(1), the deposit of hydrocarbon contaminated soils below the Hazardous Waste Regulation criteria is authorized at this landfill subject to the following conditions:
- (1) Soil contaminated with hydrocarbons must be deposited in layers less than 0.3 meters; and
 - (2) Soil contaminated with hydrocarbons must be deposited a minimum of 1.2 meters above the seasonal high groundwater level and a minimum of 2.0 meters below the final grade of the landfill to prevent the impact on groundwater and any future vegetation on the site.
- 1.1.6** Composting of yard waste must be in accordance with the Organic Matter Recycling Regulation under the *Environmental Management Act*.
- 1.1.7** The discharged waste must originate from within the Regional District of Central Okanagan and Big White area, subject to the following:
- (a) Waste discharged to this landfill must satisfy the requirements of the Central Okanagan Regional District Solid Waste Management Plan.
 - (b) Waste discharged to this landfill must not contravene the Regional Solid Waste Management Plan of the Regional District from which the waste originated.
- 1.1.8** The works authorized are a sanitary landfill and related appurtenances as specified in the approved Design and Operations Plan. The landfill and

Date issued:
Date amended:
(most recent)

December 8, 2000
June 29, 2015



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

any new works must be operated to meet or surpass the requirements for a sanitary landfill as described in the *BC Landfill Criteria for Municipal Solid Waste* unless otherwise approved by the Director.

1.1.9 Municipal solid waste that has value for the purposes of reuse or reprocessing must be considered recyclable material. Recyclable materials may be diverted from disposal and temporarily stored at the landfill facility prior to removal from the site. The nature of the recyclable material authorized for storage at the landfill facility must be to the satisfaction of the Director.

2. OPERATING REQUIREMENTS

2.1 Design, Operations and Closure Plans

2.1.1 The City must submit a Design, Operations and Closure Plan prepared by a suitably qualified professional for approval by the Director by June 30, 2016, and a Financial Security Plan by June 30, 2017. The Design, Operations and Closure Plan must address, but not be limited to, each of the subsections in the Landfill Criteria for Municipal Solid Waste unless otherwise approved by the Director, including performance, siting, design, operational, closure and post-closure criteria. The facilities must be developed, operated and closed in accordance with the Design, Operations and Closure Plan. Should there be any inconsistency between this Operation Certificate and the Design, Operations and Closure Plan, this Operational Certificate must take precedence.

2.1.2 The Design, Operations and Closure plans must be reviewed every 5 years throughout the operating life of the landfill and updated to encompass the next 10 years of landfill operation and/or post-closure activities. The updated landfill design, operating and closure plans must be prepared by a professional engineer or geoscientist licensed to practice in the province of British Columbia and knowledgeable in such matters. The updated plans must be submitted to the Director for approval and must include any information relevant to the design, operations, closure and post-closure care of the landfill.

2.1.3 The landfill facility must be constructed and maintained in accordance with the approved Design, Operations and Closure plans and subject to the conditions set therein. A knowledgeable professional engineer must carry out field reviews of the landfill construction and installation of

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

works. As-constructed drawings of the landfill and all works, including elevations relative to a common datum, must be submitted (or retained on site) to the Director. The as-constructed drawings must be sealed by a professional engineer or geoscientist who is licensed to practice in the province of British Columbia and knowledgeable in the appropriate field of study.

- 2.1.4** Written authorization from the Director must be obtained prior to implementing any changes to the approved plans. Based on any information obtained in connection with this facility, the Director may require revision of, or addition to, the design, operations and closure plans.
- 2.1.5** The following design, operations and closure plans are approved:
- (1) Comprehensive Site Development Plan for Glenmore landfill, dated August 2001, prepared by CH2MHill.
 - (2) Comprehensive Site Development Plan for Glenmore landfill, dated June 2008, prepared by CH2MHill.
 - (3) Landfill Gas Management Facilities Design Plan (Final) Glenmore Landfill site, dated January 2012, prepared by CH2MHill
- 2.1.6** In accordance with Section 40 of the *Environmental Management Act* and Part 2 of the Contaminated Sites Regulation, the Operational Certificate holder must submit a site profile to the Director at least ten days prior to decommissioning the facilities authorized in Section 1.

2.2 Qualified Professionals

All information, including plans, drawings, assessments, investigations, surveys, programs and reports, must be certified by a qualified professional. As-built plans and drawings of the facilities and works must be certified by a qualified professional

2.2.1 "qualified professional" means a person who:

- (a) is registered in British Columbia with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association; and

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

- (b) through suitable education, experience, accreditation and knowledge may be reasonably relied on to provide advice within his or her area of expertise as it relates to this Operational Certificate

2.3 Maintenance of Works and Emergency Procedures

The authorized works must be inspected regularly and maintained in good working order. In the event of an emergency or condition beyond the control of the City of Kelowna including, but not limited to, unauthorized fires arising from spontaneous combustion or other causes, or detection of surfacing leachate on the property, the City of Kelowna must take appropriate remedial action and notify the Regional Ministry Office. The Director may reduce or suspend operations to protect the environment until the authorized works has been restored, and/or corrective steps taken to prevent unauthorized discharges.

2.4 Additional Information, Facilities or Works

The Director may, in writing, require investigations, surveys, the submission of additional information, and the construction of additional facilities or works. The Director may also, in writing, amend the information, including plans, drawings, assessments, investigations, surveys, programs and reports, required by this Operational Certificate. Any amendments to the information are without effect unless the Director has approved of such amendments in writing.

2.5 Landfill Site Development

- 2.5.1** In accordance with the approved Design, Operations and Closure Plan, surface water diversions and groundwater drainage works must be installed to prevent surface water run-off and groundwater seepage from entering the waste discharge area. The effect of sediment transport from areas upgradient and within the landfill site must be considered when designing, installing and maintaining the surface water diversion system. Diversion and drainage structures must be maintained by the Operational Certificate Holders on a regular basis to the satisfaction of the Director.
- 2.5.2** A berm of suitable material must be constructed to limit visibility of the active waste discharge area where practical for travellers using the Glenmore Road and John Hindle Drive.

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

- 2.5.3** The buffer zone between any municipal solid waste discharged and the property boundary is to be at least 50 metres of which the 15 metres closest to the property boundary must be reserved for natural or landscaped screening (berms or vegetative screens). Depending on adjacent land use and environmental factors, buffer zones of less than 50 metres but not less than 15 metres may be authorized by the Director.

2.6 Waste Compaction and Coverage

- 2.6.1** The City must ensure that waste deposition and compaction meets or exceeds the requirements specified in the latest version of the Landfill Criteria for Municipal Solid Waste for daily, intermediate and final cover unless otherwise approved by the Director. Control must be exercised to ensure keeping freshly deposited refuse in a well defined and small/manageable working face.

Discharged wastes must be compacted and cover material applied as outlined in section 2.6. Wastes must be compacted and covered on a continuous basis. However, if operations are reduced to less than 24 hours per day, then provisions such as security, fencing, and/or other measures approved by the Director must be deployed to prevent wildlife access. All wastes must be covered within 24 hours of discharge to the landfill.

- 2.6.2** The area of the active landfill working face must be minimized as much as possible. Wastes must be spread in thin layers of 60 centimetres, or less, on the working face and compacted. A compacted layer of at least 15 centimetres of suitable soils, or a functionally equivalent depth of other cover material acceptable to the Director, must be placed on all exposed compacted waste.
- 2.6.3** An intermediate cover of at least 30 centimetres of compacted soils, or a functionally equivalent depth of other cover material acceptable to the Director, must be applied on any areas of the active landfill site to which waste will not be discharged for a period of 30 days or more.

Date issued:
Date amended:
(most recent)

December 8, 2000
June 29, 2015



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

- 2.6.4** Final cover must be installed within 180 days of completion of the landfill to the final elevations as specified in the approved plans. Completed portions of the landfill must progressively receive final cover during the active life of the landfill. Final cover must consist of at least 1 metre of low permeability compacted mineral soil, overlain by at least 15 centimetres of topsoil capable of supporting indigenous vegetation. With the written approval of the Director, the topsoil used for this final covering may be mixed with conditioning agents such as sludge (biosolids), compost and the like to add organics and improve the moisture holding capacity and nutrient value of the soil. Final cover must be constructed and maintained with adequate drainage and erosion controls and seeded with suitable grasses.
- 2.6.5** The Director may vary the frequency of covering when freezing conditions adversely affect normal operation.

2.7 Landfill Management

- 2.7.1** The landfill must be supervised to the satisfaction of the Director. Landfill supervisors must be trained in landfill operations pertaining to the conditions of this Operational Certificate and the approved design, operating and closure plans. Personnel must be trained to industry standards and at least one employee of the City must be trained and certified as a Manager of Landfill Operations or a British Columbia Qualified Landfill Operator by the Solid Waste Association of North America or equivalent.
- 2.7.2** Access to the site must be controlled and supervised. All access points must have locking gates and must be locked during periods when supervision is not available.
- 2.7.3** Public scavenging and salvaging of waste at the landfill site is prohibited. Designated safe areas for reuse as identified by the City of Kelowna will be permitted.
- 2.7.4** Designated areas must be maintained for the storage of recyclable materials. These designated area(s) must be separate from the active landfill area and must be maintained free of litter. Storage of recyclable materials at the landfill site must be limited to a reasonable length of time subject to the approval of the Director.

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

- 2.7.5** Litter and wind strewn waste must be controlled by limiting the area of the working face, installing a wind blown litter collection fence in a location which is in the anticipated prevailing downwind direction of the landfill working face, instituting a regular litter pickup, general good site maintenance practises or any other measures required by the Director.
- 2.7.6** The landfill must be operated in a manner acceptable to the Director to reduce the potential of public nuisance.
- 2.7.7** The landfill must be operated so as not to create a significant threat to public health or safety, with respect to landfill gas, odours, unauthorized access, roads, traffic, airport activity, noise, dust, litter, vectors, or wildlife attraction using methods and materials acceptable to the Director.
- 2.7.8** Open burning of waste is prohibited. It is recognized that open burning may be required at the landfill when volumes of wood waste stored at the landfill become large, or shipping wastes to offsite solutions become unfeasible. The City will apply to the Director for a burning permit as needed.
- 2.7.9** The landfill must be operated so as to minimize the attraction of nuisance wildlife and disease vectors such as birds and rodents by applying adequate cover to the waste and by maintaining the site free of litter. Additional control measures may be specified by the Director if wildlife and/or vector attraction to the site becomes a public safety hazard.
- 2.7.10** The landfill works must be inspected on a regular basis by the landfill supervisor. In the event of an emergency or any condition, which prevents continuing operation of the approved method of landfill operation and control, or results in non-compliance with the terms and conditions of this Operational Certificate, the Director must be notified immediately and appropriate remedial action taken.
- 2.7.11** The Director may require future upgrading of the landfill control works to protect the environment during the operating life of the landfill and for a minimum post-closure period of 25 years.

2.8 Ground and Surface Water Quality Impairment

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

The quality of ground and surface water at the property boundary must not exceed the appropriate (e.g. freshwater aquatic life, drinking water, etc.) water quality criteria in the British Columbia Approved Water Quality Guidelines and A Compendium of Working Water Quality Guidelines for British Columbia, as amended from time to time, or their replacements approved by the Director in writing. Where natural background water quality exceeds the appropriate water quality criteria, the quality of ground and surface water at the property boundary must not exceed natural background water quality. Water quality criteria from other jurisdictions can only be used for contaminants which have not been dealt with in the British Columbia Guidelines. After considering existing and potential future uses of ground and surface water, a qualified professional may recommend the appropriate water quality criteria. The appropriate water quality criteria are subject to the approval of the Director in writing.

If excursions result to the specified water quality criteria, the Director may require that leachate management control measures or works be undertaken. Terms of reference for any leachate management study and/or design work is subject to the authorization of the Director.

2.9 Landfill Gas Management

The Landfill must not cause combustible gas concentrations to exceed the lower explosive limit in soils at the property boundary or 20% of the lower explosive limit at or in on-site or off-site structures.

The City must ensure that the facility is in compliance with the requirements of the Landfill Gas Management Regulation under the *Environmental Management Act*.

3. MONITORING

3.1 Environmental Protection Monitoring

The City must implement and maintain ground, surface water, leachate collection sump fluids and landfill gas monitoring programs prepared by a qualified professional in accordance with the monitoring programs approved in the Design, Operations and Closure plans approved by the Director. The monitoring programs must identify potential environmental impacts of the authorized facility and must address but not be limited to the Landfill Criteria for Municipal Solid Waste and Guidelines for Environmental Monitoring. It must take into

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

consideration results from previous monitoring programs and any other investigations conducted at the site to ensure that early detection of potential impacts is possible.

The monitoring programs must be reviewed in the annual report required under section 4.2. Based on the information submitted in the annual report, or any other information obtained in connection with this site, the Director may vary the frequency, location and analyses of ground and surface water, leachate collection sump fluid and landfill gas sampling.

3.2 Management of Leachate Collection System Fluid

Leachate collection sump fluid levels must be monitored and fluid removed from the leachate collection system as specified in the approved design, operating and closure plans. A sample of fluid from each of the leachate collection sumps must be collected on a quarterly basis and laboratory analyses obtained for the leachate indicator parameters identified in the monitoring program. The Director may vary the location and frequency of sampling and analyses of leachate collection system fluid should conditions warrant. Fluid recovered from the leachate collection system may be used within the landfill footprint for irrigation, dust suppression and/or re-circulated within the buried waste as well as directed to the Kelowna Wastewater Treatment facility unless otherwise directed by the Director. Other methods of treatment and/or disposal of the leachate collection sump fluids must have the prior approval of the Director.

3.3 Groundwater Contamination by Leachate

Should it be determined that leachate is being generated and carried in the groundwater or surface water and, in the opinion of the Director, requires interception and treatment, appropriate remedial measures as approved by the Director must be implemented.

4. REPORTING

4.1 Interim Reporting and Record Keeping

The leachate collection sump fluid level readings, groundwater elevation and combustible gas monitoring data, and the sump fluid, groundwater and gas sampling analyses results must be available for inspection at the Glenmore Landfill office. Data from monitoring and sample analysis must be submitted to the Director with the annual report in accordance with section 7.2. Between

Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)



Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

annual reporting events, the Director must be promptly informed of any significant changes from long term trends observed in the parameters that are monitored.

4.2 Annual Report

An annual report must be electronically submitted by March 31 of each year for the previous calendar year of landfill operation or post-closure activities. The report should contain the Annual Environmental Monitoring Report and the Annual Operation Report.

The Annual Environmental Monitoring Report must include:

- Results of the environmental monitoring program.
- Data tabulation, comparison to performance criteria, interpretation, trend analysis, graphs, etc.
- Identification of any current or predicted future non-compliance with performance criteria.
- Conclusions, recommendation and proposed changes to the environmental monitoring program.

The Annual Operation Report should include at a minimum:

- Total volume, tonnage, and types of waste discharged into the landfill for the year.
- Types and tonnages of waste that were not directly disposed of into the landfill such as recycled, composted, etc.
- Leachate quantities collected, treated and discharged.
- Landfill gas quantities collected, flared and utilized. If applicable, an annual report should be done in the format required by the Landfill Gas Management Regulation and submitted either separately or as a part of the Annual Report.
- Operational plan for the next 12 months.
- Remaining site life and capacity.
- Closure works completed.
- Any changes from approved reports, plans and specifications.
- Any complaints received and the action taken as a result of a complaint.
- Financial Security Plan update.
- Identification of any non-compliance with the Solid Waste Management Plan, operational certificate and a proposed action plan

Date issued:
Date amended:
(most recent)

December 8, 2000
June 29, 2015



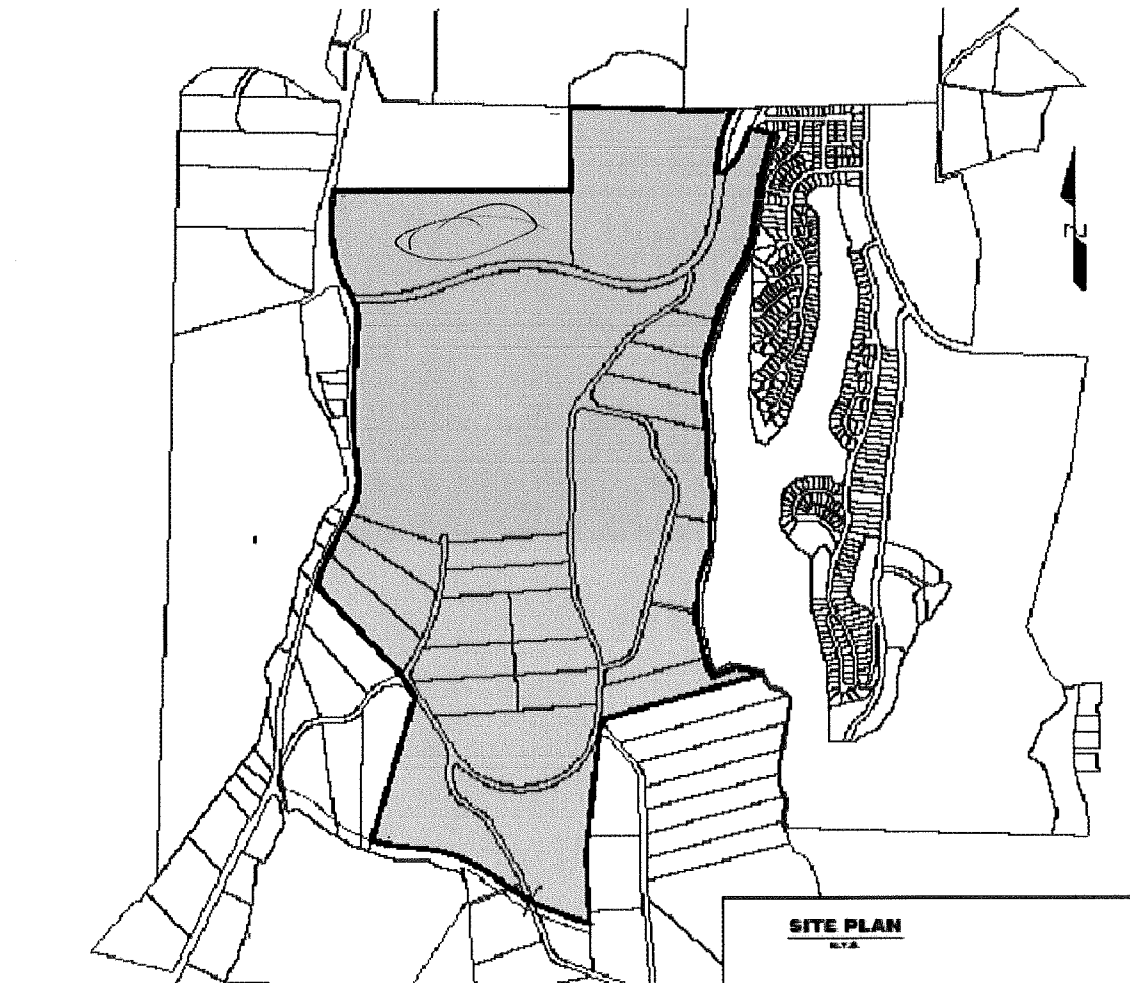
Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

and schedule to measure the performance of the proposed measures in achieving compliance.

- If possible: compaction, waste to cover ratio and airspace utilization factor.

Copies of the annual report must be provided to the public library in Kelowna and posted on the Operational Certificate holder's web sites.

SITE PLAN



Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)

Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

LOCATION MAP



Date issued: December 8, 2000
Date amended: June 29, 2015
(most recent)

Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Southern Interior Region - Okanagan

APPENDIX B

LEACHATE MANAGEMENT SYSTEM

APPENDIX A – LEACHATE MANAGEMENT SYSTEM

A leachate management plan (LMP) is implemented to provide short-term and long-term solutions for leachate collection, storage, treatment, and disposal at the Site. The objectives of the leachate management plan are to provide methods for Landfill leachate collection, treatment, and disposal; estimate leachate generation rates; forecast leachate quality; and identify the discharge requirements that are protective of groundwater, surface water, and the receiving environment. The LMP is summarized in the subsections below. The existing Landfill footprint includes Phase 1, Phase 2 and Phase 3 areas. These areas are constructed with a natural control liner system that includes greater than 2 metres of in-situ native clay with a hydraulic conductivity of between 10^{-6} and 10^{-9} cm/s. The cell located at the far north end of Phase 1 (referred to as the Northern Expansion) is equipped with an engineered geomembrane liner. Vertical groundwater flow throughout the Site is generally noted to be upwards provided the leachate level is maintained at an elevation at or below 437 m above mean sea level (AMSL).

Leachate collection within the existing landfilled areas of Phase 1 and Phase 2 consists of gravity drains that convey leachate via a leachate forcemain located along the west side of the Landfill for eventual discharge to the municipal sanitary sewer system. Three lift stations facilitate the movement of leachate across the Site: Lift Station #1 (LS#1), located in the northwest portion of the Site, Lift Station #2 (LS#2), located in the southwest corner of Phase 2, and combined sewer and leachate Lift Station #3 (LS#3), located at the leachate pre-treatment system in the northwest portion of the Site. LS#3 (or McKinley Lift Station) was constructed in 2016 as part of property development in the residential areas northwest of the Landfill and construction of an upgraded sewer line in the Glenmore Road corridor next to the Site. LS#2 pumps leachate collected from Phase 2 into a gravity system that feeds into LS#1 and LS#3.

Collected leachate is pre-treated with Bioxide at LS#3 to address potential elevated hydrogen sulfide levels. The combined sewage and leachate is also aerated and treated for odours by a Biorem Multi-Stage Biofilter. The effluent is discharged into the municipal sanitary sewer system at Glenmore Road North and is ultimately treated at the City's wastewater treatment plant. The leachate management system also includes an emergency back-up leachate discharge forcemain to the Quail Ridge subdivision, however; as of November 2016, leachate is no longer regularly discharged to the sewer force main to the Quail Ridge system.

Leachate collection within the existing areas of Phase 1 and Phase 2 consists of the following components:

- A 0.3 m thick leachate collection system and perforated collection piping within the lined Northern Expansion area.
- A perforated leachate collection pipe oriented east-west across the central portion of Phase 1 and Phase 2 that drains to the west.
- A perforated leachate collection pipe oriented east-west installed on the Phase 2 and Phase 3 boundary that drains to the western leachate lift station (LS#2).
- Non-perforated leachate forcemain to convey collected leachate to appropriate lift stations and/or leachate manholes.

APPENDIX C
FIELD METHODOLOGY

APPENDIX E – FIELD METHODOLOGY

2023 FIELD METHODS

In 2023, water monitoring and sampling events at the Site were completed by City of Kelowna (CoK) staff. Field activities were conducted according to BC ENV regulatory requirements including the *BC Field Sampling Manual, Part E Water and Wastewater Sampling, Groundwater Pollution Monitoring*, available online at: https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_part_e.pdf

During the sampling events, equipment and tools used to collect the samples were washed with laboratory grade detergent and rinsed with distilled water. Dedicated new nitrile gloves were worn at each sample point for handling sampling equipment and samples and were changed between sample locations.

The 2023 field methods were consistent with those of previous years and are summarized below.

GROUNDWATER MONITORING AND SAMPLING

CoK and Keltech Environmental Ltd. (Keltech) staff conducted groundwater monitoring and sampling for the semi-annual Spring (May, June, July) and Fall (October) events. Monitoring of select wells for depth to water and depth to bottom of the well was completed using a water level probe lowered into the well and measured against the top of the well casing.

Prior to sample collection, purging of groundwater from the well was completed which consisted of removing water from each well using a dedicated bailer and string. Field water quality parameters of temperature, pH, conductivity, redox and dissolved oxygen using a YSI Pro Multiparameter Meter (YSI) were measured at regular intervals purging of the well continued until three well volumes were removed, and the field parameters had stabilized.

Sample coolers, bottles, preservatives, and filters were obtained from CARO Analytical Services (CARO) by CoK. Groundwater samples were collected from select monitoring wells using a dedicated bailer, and/or a peristaltic pump with dedicated tubing at each well.

Representative groundwater samples were collected in clean, pre-charged laboratory-supplied sample bottles provided by CARO. Samples collected for dissolved metals were field filtered using a 0.45-micron filter. Samples were stored in an ice-chilled cooler in the field, and refrigerated as needed, then submitted to CARO for analysis of select parameters. Standard chain of custody procedures were followed and duplicate samples were not identified to the laboratory. Samples were received and analyzed by the laboratory within the recommended holding time.

Duplicate samples were collected at a rate of one for up to every ten samples collected.

Groundwater purging and sampling records are provided in Appendix D.

Purged groundwater generated during well development and sampling was stored in a secure drum on-Site, pending characterization.

SURFACE WATER SAMPLING

Surface water sampling was conducted by CoK and Keltech staff generally quarterly in March, May, September and November.

APPENDIX E – FIELD METHODOLOGY

As with groundwater, surface water sample coolers, bottles, preservatives, and filters were obtained from CARO. Surface water samples were collected using a swing sampler. Representative water samples were collected in clean, pre-charged laboratory-supplied sample bottles provided by CARO. Samples collected for dissolved metals were field filtered using a 0.45-micron filter. Samples were stored in an ice-chilled cooler in the field, and refrigerated as needed, then submitted to CARO for analysis of select parameters. Standard chain of custody procedures were followed and duplicate samples were not identified to the laboratory. Samples were received and analyzed by the laboratory within the recommended holding time. Duplicate samples were collected at a rate of one for up to every ten samples collected.

LEACHATE SAMPLING

Leachate sampling was conducted by CoK and Keltech staff generally quarterly, in March, May, September and October/November. Sample coolers, bottles, preservatives, and filters were obtained from CARO by CoK. Leachate samples were collected using a dedicated bailer and string and/or a peristaltic pump with dedicated tubing. Representative leachate samples were collected in clean, pre-charged laboratory-supplied sample bottles provided by CARO. Samples collected for dissolved metals were field filtered using a 0.45-micron filter. Samples were stored in an ice-chilled cooler in the field, and refrigerated as needed, then submitted to CARO for analysis of select parameters. Standard chain of custody procedures were followed and duplicate samples were not identified to the laboratory. Samples were received and analyzed by the laboratory within the recommended holding time.

LABORATORY

CARO provided sampling containers and performed the laboratory analysis of water samples. CARO is certified by the Canadian Association for Laboratory Accreditation (CALA) for analytical methods used for this program.

APPENDIX D
2023 FIELD DATA RECORDS



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Opk sun/cloud
Temperature: 12.2

Date: 24-May-23
Tech: MD/MS

Well No: GL2-1
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 0920
Depth of Water (A): 0.186
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
pH 4 _____ pH 7 / pH10 /
1413 μ S/cm _____ 5000 μ S/cm - DO -
ORP 240mV

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
0927	0.5	12.2	7.62	1722	39.7	3.59	0.766	60 L/min clean / orange flecks
0930	1.0	11.8	7.58	1764	-78.1	1.42	0.494	100 L/min yellow tint
0937	1.5	12.0	7.58	1750	-80.8	0.93	0.542	
0936	1.8	12.2	7.58	1750	-92.2	0.79	0.578	
0937	2.0	12.7	7.58	1751	-95.2	0.62	0.609	
0942	2.4	12.2	7.59	1745	-100.2	0.56	0.642	
			- sample -					

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ I ☐ II ☐ III ☐ IV ☐ V ☐ VI ☐ VII ☐ VIII ☐ IX ☐ X ☐ XI ☐ XII ☐ XIII ☐ XIV ☐ XV ☐ XVI ☐ XVII ☐ XVIII ☐ XIX ☐ XX ☐ XXI ☐ XXII ☐ XXIII ☐ XXIV ☐ XXV ☐ XXVI ☐ XXVII ☐ XXVIII ☐ XXIX ☐ XXX ☐ XXXI ☐ XXXII ☐ XXXIII ☐ XXXIV ☐ XXXV ☐ XXXVI ☐ XXXVII ☐ XXXVIII ☐ XXXIX ☐ XL ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX ☐ LXXI ☐ LXXII ☐ LXXIII ☐ LXXIV ☐ LXXV ☐ LXXVI ☐ LXXVII ☐ LXXVIII ☐ LXXIX ☐ LXXX ☐ LXXXI ☐ LXXXII ☐ LXXXIII ☐ LXXXIV ☐ LXXXV ☐ LXXXVI ☐ LXXXVII ☐ LXXXVIII ☐ LXXXIX ☐ XLX ☐ XLI ☐ XLII ☐ XLIII ☐ XLIV ☐ XLV ☐ XLVI ☐ XLVII ☐ XLVIII ☐ XLIX ☐ L ☐ LI ☐ LII ☐ LIII ☐ LIV ☐ LV ☐ LVI ☐ LVII ☐ LVIII ☐ LIX ☐ LX ☐ LXI ☐ LXII ☐ LXIII ☐ LXIV ☐ LXV ☐ LXVI ☐ LXVII ☐ LXVIII ☐ LXIX ☐ LXX <

City of Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather:
Temperature:

sun/cloud
130C

Date:

Date: 24-May-21
Tech: m/ps

Well No:

Well No: G42-2
Field Dup:

MONITORING WELL INFORMATION

Time of Measurement: 0:02

One Well Volume: _____

Depth of Water (A): **0.616**

Diameter of Well:

Bottom of Well (B):

(B-A)*2 _____ Litres for 51mm ϕ well

Well Condition:

(B-A)*8 Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Pump Details:

Multi-meter Model: YSI Pro

- ☐
- Field Bump
- ☒
- Field Calibration

pH 4 pH 7 pH10

1413 μ s/cm 5000 μ s/cm DO

ORP 240mV ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X =

Sample Intake Depth:

Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe

Seen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear 0 | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | XIII | XIV | XV | XVI | XVII | XVIII | XIX | XX | XXI | XXII | XXIII | XXIV | XXV | XXVI | XXVII | XXVIII | XXIX | XXX | Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

City of Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: clear
Temperature: 16°C

Date: 23-May-23
Tech: B3/D5

Well No: 9247
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 13:24
Depth of Water (A): 1.104
Bottom of Well (B):
Well Condition: 

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Pump Details: _____

Multi-meter Model: YSI Pro

- ☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH10

1413 μ s/cm _____ 5000 μ s/cm _____ DO _____

QRP 240mV ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe

Turbidity: Clear Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy Date: 23 May 23 Well No: GL4-2
 Temperature: 16°C Tech: BO/DS Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 2:02 One Well Volume: _____
 Depth of Water (A): 1.862 m Diameter of Well: _____
 Bottom of Well (B): _____ (B-A)*2 _____ Litres for 51mm ϕ well
 Well Condition: _____ (B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra Multi-meter Model: YSI Pro
☐ Hydrolift ☐ Field Bump ☒ Field Calibration
☐ Bailer pH 4 _____ pH 7 ✓ pH10 ✓
☒ Peristaltic 1413 μ S/cm _____ 5000 μ S/cm ✓ DO 2.0
☐ Bladder ORP-
 Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
 Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
2:06	0.5	12.5	7.55	1987	65.4	2.64	2.084	
2:09	0.9	11.9	7.51	1941	63.0	0.99	2.259	
2:12	1.4	11.9	7.51	1935	62.1	0.69	2.460	~~100 ml/min~~ 180 μ
2:15	1.9	12.0	7.50	1934	61.9	0.58	2.639	- 180 ml/min
2:18	2.4	12.1	7.51	1933	61.7	0.56	2.810	- 110 ml/min
2:21	2.8	12.2	7.51	1930	61.4	0.51	2.928	
2:24	3.3	12.2	7.51	1928	60.5	0.47	3.061	~~100 ml/min~~
2:27	3.7	12.5	7.51	1922	59.8	0.46	3.137	- 108 ml/min, 100 ml/min
2:30	3.9	13.0	7.52	1922	59.2	0.44	3.179	
2:33	4.3	13.3	7.51	1931	58.2	0.46	3.211	
- Sample -								

Odour: ☐ Yes ☒ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear 0 ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☐ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☐ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☐ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloudy
Temperature: 15°C

Date: May 24/23
Tech: BB/PS

Well No: 6LS-2
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 11:06
Depth of Water (A): 1.663
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
pH 4 _____ pH 7 / pH10 /
1413 μ S/cm _____ 5000 μ S/cm / DO % -
ORP 240 mV -

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:11	0.5	11.4	7.43	1632	125.2	1.80	1.666	-240 ml/min
11:14	1.2	11.3	7.42	1591	119.8	0.62	1.671	
11:17	1.8	11.4	7.41	1597	115.4	0.52	1.670	
11:20	2.5	11.4	7.39	1603	111.9	0.42	1.669	
11:23	3.2	11.4	7.41	1605	108.3	0.41	1.668	
			- Sample -					

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun, windy
Temperature: 13°C

Date: 24-May-23
Tech: BCI/DS

Well No: GL16-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 13:21
 Depth of Water (A): 1.068
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Pump Details: _____

Multi-meter Model: YSI Pro

- ☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH10

1413us/cm 5000us/cm ✓ DO 7.

OTCP 240. ✓✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____

Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear (1) I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloudy
Temperature: 14°C

Date: May 25 / 2023
Tech: BB/DS

Well No: GL 27-1
Field Dup: —

Time of Measurement: 08:50
 Depth of Water (A): 1.456
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
 Pump Details: _____

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH 10

1413 μ s/cm _____ 5000 μ s/cm ✓ DO ✓
ORP 290mV ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Some bubbles in sample tube - Not related to outgassing problem.

Samples reactive in TOC vials



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloudy
Temperature: 15°C

Date: May 25/23
Tech: BIB/PS

Well No: G2 27-3
Field Dup: —

Time of Measurement: 09:33
Depth of Water (A): 2.328
Bottom of Well (B):
Well Condition: new manhole covering

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Pump Details: _____

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH 10

1413 μ s/cm 5000 μ s/cm ✓ DO ✓ 2

ORP 240mV -

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☒ Yes ☐ No If Yes, describe some little smell (mild)

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Some white particles / powder around tube
- possibly from Well work (PVC)



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Well No: GL 28-1
Field Dup: 1000 3

Time of Measurement: 11:05
 Depth of Water (A): Σ.419m
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
 pH 4 _____ pH 7 ✓ pH10 ✓
 1413µs/cm _____ 5000µs/cm ✓ DO 7.2 ✓
OSP 290m ✓

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear (1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun
Temperature: 25°C

Date: 30-May-03
Tech: ESD/103

Well No: GL28-2
Field Dup: _____

Time of Measurement: 11:53 am
 Depth of Water (A): 4.953
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____

Diameter of Well: _____

(B-A)*2 _____ Litres for 51mm ϕ well

(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Bladder

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH10

1413 μ s/cm 5000 μ s/cm DO

Pump Details: gas 1/4" HOPE

Purge Volume: Well Vol. X _____ = _____
Average Flow Rate: _____

Sample Intake Depth: $\approx 200\text{m} - 0.7\text{m}$

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear 1 I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Well No: GL28-3
Field Dup: 2

Time of Measurement: 4:01/4 One Well Volume: _____
 Depth of Water (A): _____ Diameter of Well: _____
 Bottom of Well (B): _____ (B-A)*2 _____ Litres for 51mm ϕ well
 Well Condition: good (B-A)*8 _____ Litres for 102mm ϕ well

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
 Pump Details: gear pump 1/4" HDPE

Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
 pH 4 _____ pH 7 pH10
 1413µs/cm _____ 5000µs/cm _____ DO
CRP 210-U

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: 1.5m - 0.7m
Average Flow Rate: _____

[illegible]

Turbidity: Clear (1) I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: _____

Date: July 6, 2023
Tech: A, IG

Well No: 61 29-1
Field Dup: No

MONITORING WELL INFORMATION

Time of Measurement: _____
Depth of Water (A): 4.32 m
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: 5L
Diameter of Well: 1"
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

lab calibrated.

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = 5L Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:11	0	19.3	7.56	1837	-20	1.8	5.549	
11:15	0.3	18.7	7.43	1778	-70.6	0.67	5.503	
11:19	0.6	17.7	7.44	1758	-80.5	0.44	5.495	
11:23	0.9	18.4	7.43	1731	-86.2	0.31	5.487	
11:27	1.2	18.4	7.42	1734	-93.5	0.23	5.49	
11:30	1.5	18.5	7.44	1732	-97.4	0.20	5.495	
11:34	1.8	18.4	7.44	1739	-102.4	0.19	5.505	

Odour: ☒ Yes ☐ No If Yes, describe Organic, yellow tint to water. Dissolved gases
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐ 25 ☐ 26 ☐ 27 ☐ 28 ☐ 29 ☐ 30 ☐ 31 ☐ 32 ☐ 33 ☐ 34 ☐ 35 ☐ 36 ☐ 37 ☐ 38 ☐ 39 ☐ 40 ☐ 41 ☐ 42 ☐ 43 ☐ 44 ☐ 45 ☐ 46 ☐ 47 ☐ 48 ☐ 49 ☐ 50 ☐ 51 ☐ 52 ☐ 53 ☐ 54 ☐ 55 ☐ 56 ☐ 57 ☐ 58 ☐ 59 ☐ 60 ☐ 61 ☐ 62 ☐ 63 ☐ 64 ☐ 65 ☐ 66 ☐ 67 ☐ 68 ☐ 69 ☐ 70 ☐ 71 ☐ 72 ☐ 73 ☐ 74 ☐ 75 ☐ 76 ☐ 77 ☐ 78 ☐ 79 ☐ 80 ☐ 81 ☐ 82 ☐ 83 ☐ 84 ☐ 85 ☐ 86 ☐ 87 ☐ 88 ☐ 89 ☐ 90 ☐ 91 ☐ 92 ☐ 93 ☐ 94 ☐ 95 ☐ 96 ☐ 97 ☐ 98 ☐ 99 ☐ 100 ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☐ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☐ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☐ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny, Clouds
Temperature: 17°C

Date: May 25/2023
Tech: DS/BIB

Well No: GL 29-2
Field Dup: —

MONITORING WELL INFORMATION

Time of Measurement: 12:18
Depth of Water (A): 3.474
Bottom of Well (B): —
Well Condition: good

One Well Volume: —
Diameter of Well: —
(B-A)*2 — Litres for 51mm ϕ well
(B-A)*8 — Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 — pH 7 ✓ pH10 ✓

1413 μ S/cm — 5000 μ S/cm — DO 1.0

ORP 240mv ✓

Pump Details: —

WELL DEVELOPMENT

Purge Volume: Well Vol. X — = — Sample Intake Depth: —
Average Flow Rate: —

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
12:30	0.5	15.6	7.37	7908	81.8	1.76	3.668	-210ml/min, compact particles
12:33	1.0	14.4	7.28	7833	71.8	0.45	3.936	
12:36	1.5	15.2	7.26	7788	71.3	0.29	4.114	-130ml/min slight yellow tint
12:39	1.9	15.0	7.26	7805	70.1	0.28	4.281	-110ml/min
12:42	2.2	14.8	7.44	7759	58.1	0.25	4.442	
12:45	2.6	14.7	7.73	7691	50.2	0.26	4.606	
12:48	2.9	15.2	7.51	7612	56.4	0.30	4.733	-100ml/min
12:51	3.3	15.2	7.53	7554	59.5	0.46	4.870	
12:54	3.6	15.1	7.81	7473	62.0	0.66	5.029	-80ml/min
12:57	3.9	15.1	7.62	7438	63.0	0.70	5.136	
13:00	4.1	15.3	7.61	7461	63.8	0.76	5.256	

Odour: ☐ Yes ☒ No If Yes, describe —

Sheen: ☐ Yes ☒ No If Yes, describe —

Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



GROUNDWATER SAMPLING FORM

P217 GLENMORE LANDFILL

Weather: _____
Temperature: _____

Date: 25-May
Tech:

Well No: 6121-2
Field Dup: -

Time of Measurement: _____ One Well Volume: _____
 Depth of Water (A): _____ Diameter of Well: _____
 Bottom of Well (B): _____ (B-A)*2 _____ Litres for 51mm ϕ well
 Well Condition: _____ (B-A)*8 _____ Litres for 102mm ϕ well

☐ Waterra Multi-meter Model: _____ YSI Pro _____
☐ Hydrolift ☐ Field Bump ☐ Field Calibration
☐ Bailer pH 4 _____ pH 7 _____ pH10 _____
☐ Peristaltic 1413µs/cm _____ 5000µs/cm _____ DO _____
☐ Bladder
 Pump Details:

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☐ No If Yes, describe _____

Seen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I I I Very Silty

not achievable
for drawdown
everything
else
stable

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

City of Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy
Temperature: 16°C

Date: May 25/2023
Tech: B3/DS

Well No: GL 35-3
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 10:37
 Depth of Water (A): ~~0.883~~ 0.806
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
- Pump Details

Multi-meter Model: YSI Pro

- ☐
- Field Bump
- ☒
- Field Calibration

pH 4 pH 7 pH 10

1413 $\mu\text{s}/\text{cm}$ 5000 $\mu\text{s}/\text{cm}$ ✓ DO % ✓
ORP 290 mV ✓

Pump Details:

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☒ Yes ☐ No If Yes, describe *Sulphur like*

Sheen: ☐ Yes ☐ No If Yes, describe See above

Turbidity: Clear (1) Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

tube replaced

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun/cloud.
Temperature: ~20°CDate: 28-May-23
Tech: 883/125Well No: G639-1
Field Dup: DUP42**MONITORING WELL INFORMATION**Time of Measurement: 14:00
Depth of Water (A): 3.507
Bottom of Well (B): _____
Well Condition: _____One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well**EQUIPMENT LIST**☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
Pump Details: _____Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm ✓ DO 7.0
ORP 240mV ✓**WELL DEVELOPMENT**Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
14:02	0.9	12.2	9.35	4998	88.4	0.64	3.640	
14:05	1.7	12.3	8.42	5001	86.0	0.47	3.565	clear
14:08	2.3	12.1	8.12	5004	84.3	0.39	3.567	
14:11	2.9	12.3	7.79	5002	83.1	0.34	3.566	
14:14	3.7	12.2	7.68	4998	81.5	0.29	3.567	
14:17	4.3	12.1	9.12	4994	80.4	0.27	3.567	
14:20	4.9	11.9	8.36	5001	79.4	0.27	3.567	
14:23	5.7	11.9	8.49	4992	78.6	0.25	3.566	
14:26	6.3	11.8	7.95	4994	77.6	0.24	3.567	
14:30	7.2	11.6	7.72	4983	76.3	0.23	3.566	
14:34	7.9	11.6	7.67	4987	75.7	0.21	3.567	
14:37	8.5	11.5	7.64	4978	75.1	0.21	3.566	sample

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloud
Temperature: 19°C

Date: 25-May-23
Tech: BO/DS

Well No: GL39-2
Field Dup: —

MONITORING WELL INFORMATION

Time of Measurement: 14:58
Depth of Water (A): 3.500
Bottom of Well (B): —
Well Condition: —

One Well Volume: —
Diameter of Well: —
(B-A)*2 — Litres for 51mm ϕ well
(B-A)*8 — Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Bladder
Pump Details: —

Multi-meter Model: YSI Pro
☐ Field Bump ☒ Field Calibration
pH 4 — pH 7 ✓ pH10 ✓
1413 μ S/cm — 5000 μ S/cm ✓ DO ✓
OR 240mV ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X — = — Sample Intake Depth: —
Average Flow Rate: —

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
5:02	0.9	11.1	7.63	1895	69.0	4.43	3.554	250m/min Clear.
15:05	1.5	10.7	7.63	1843	68.0	0.91	3.554	
15:08	2.2	10.6	7.63	1835	64.6	0.67	3.555	
15:11	3.1	10.6	7.63	1841	57.0	0.47	3.556	
15:14	3.7	10.5	7.62	1848	56.3	0.38	3.557	
15:17	4.5	10.5	7.62	1844	55.3	0.35	3.557	
			- sample -					

Odour: ☐ Yes ☒ No If Yes, describe —
Sheen: ☐ Yes ☒ No If Yes, describe —
Turbidity: Clear 0 ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 16°C

Date: May 31/2023
Tech: 13B/PS

Well No: GL 41-1
Field Dup: -

Time of Measurement: 09:01
 Depth of Water (A): 2.611
 Bottom of Well (B): _____
 Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☒ Bladder

Pump Details:

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 pH 7 pH10

1413 μ s/cm 5000 μ s/cm / DO 2.1

5sD/10sU/24Ps:ORP 240mm ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Seen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear (I) I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☒ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 20°C

Date: May 31 / 2023
Tech: B3/D5

Well No: GL 41-3
Field Dup: —

MONITORING WELL INFORMATION

Time of Measurement: 11:06
Depth of Water (A): 2.598
Bottom of Well (B): —
Well Condition: —

One Well Volume: —
Diameter of Well: —
(B-A)*2 — Litres for 51mm ϕ well
(B-A)*8 — Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☐ Peristaltic
☒ Bladder

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 — pH 7 — pH10 —
1413 μ S/cm — 5000 μ S/cm — DO —

ORP 240mV

Pump Details: —

WELL DEVELOPMENT

Purge Volume: Well Vol. X — = — Sample Intake Depth: —
Average Flow Rate: —

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:10	0.6	12.7	7.39	1722	185.9	7.63	2.653	350 ml/min
11:13	1.6	10.5	7.34	1660	185.8	2.64	2.653	cloudy
11:16	2.5	10.4	7.38	1657	181.9	2.51	2.656	clear
11:19	3.2	10.3	7.38	1654	178.6	2.37	2.656	clear
11:22	4.1	10.5	7.38	1657	172.8	2.34	2.656	clear
- Sample -								

Odour: ☐ Yes ☒ No If Yes, describe —

Sheen: ☐ Yes ☒ No If Yes, describe —

Turbidity: Clear (1) ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☒ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 18°C

Date: May 31/23
Tech: BS/PS

Well No: 6641-2
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 10:40
Depth of Water (A): 2.637
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☐ Peristaltic

Multi-meter Model: YSI Pro

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 - pH10 -

1413 μ S/cm _____ 5000 μ S/cm - DO 1.1

☒ Bladder

Pump Details: _____

ORP 240mv

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
10:44	0.7	11.7	7.34	1779	207.8	5.45	2.630	clear
10:47	2.1	11.0	7.35	1640	201.4	2.97	2.631	
10:50	3.4	10.9	7.38	1636	195.7	2.90	2.633	
10:53	4.6	10.9	7.39	1634	192.8	2.86	2.631	
10:56	5.9	11.0	7.40	1632	187.5	2.79	2.632	
			Sample					

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear (1) ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: _____
Temperature: _____

Date: June 21, 2005
Tech: AK

Well No: GL 42-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: _____
Depth of Water (A): 10.824
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☐ Peristaltic
☒ Bladder

Multi-meter Model: YSI Pro lab calibrated
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:22	0	12.6	7.22	3783	-3.1	3.04	13.755	
13:26	0.3	14.3	7.25	3848	14.0	0.62	13.635	
13:28	0.6	14.0	7.25	3828	11.3	0.51	13.604	
13:30	0.9	13.7	7.26	3835	0	0.45	13.604	
13:32	1.2	13.6	7.28	3844	-16.8	0.38	13.606	
13:34	1.5	13.5	7.27	3835	-25.1	0.36	13.602	
13:36	1.8	13.6	7.28	3848	-30.0	0.33	13.602	
13:38	2.1	13.8	7.28	3854	-33.3	0.29	13.602	

Odour: ☒ Yes ☐ No If Yes, describe slight organic odour
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: _____

Date: June 21, 2023
Tech: AK

Well No: 6C 42-2
Field Dup: _____

Time of Measurement:	08:55
Depth of Water (A):	11.004 (60.42)
Bottom of Well (B):	12.576
Well Condition:	

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☒ Bladder

Pump Details:

Multi-meter Model: YSI Pro *Calibrated in lab*
☐ Field Bump ☐ Field Calibration
 pH 4 _____ pH 7 _____ pH10 _____
 1413us/cm 5000us/cm DO _____

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Oudour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I

Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



WATER SAMPLING FORM

GLENMORE LANDFILL

Well No: 09BHE06-D
Field Dup: -

MONITORING WELL INFORMATION

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- 1413 μ s/cm 5000 μ s/cm ✓ DO 72 ✓

Pump Details: geopump HDPE new 1/4" HDPE inserted to bottom.

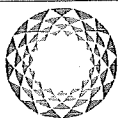
WELL DEVELOPMENT

Sample Intake Depth: bottom - 0.5m

[illegible]

Turbidity: Clear (1) I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: 17-18
Temperature: _____

Date: 17-May
Tech: BS

Well No: GL42-1 (GL42-1)
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: _____
Depth of Water (A): _____
Bottom of Well (B): 20.733
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☒ Waterra
☐ Hydrolift
☐ Bailer
☐ Peristaltic
☐ Bladder
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

GL well redevelopment city.

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
3:26	21							
3:21	29							
<i>- return 23-May -</i>								
23-May-23	10:22						10.831	
10:32						0		<i>Silty-brown milky white silt clear step-clear.</i>
10:42						30		
10:42						40		
10:50						44		
11:50	0							<i>return 16-Sue w/ hydrolift.</i>
11:48	62L							<i>poly. silty-clear-silty.</i>

Odour: ☐ Yes ☐ No If Yes, describe _____
Sheen: ☐ Yes ☐ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

City of Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 23°C

Date: June 1 / 2023
Tech: BB/DS

Well No: G142-1
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 12:25

Depth of Water (A): 10.881

Bottom of Well (B): _____

Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☒ Bladder

Pump Details: _____

Multi-meter Model: YSI Pro

- ☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 ✓ pH10 ✓
1413 μ S/cm 5000 μ S/cm ✓ DO ✓

1413 μ s/cm _____ 5000 μ s/cm ✓ DO ✓
off 290mV ✓

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:15	0.7	15.2	7.19	7165	245.8	1.43	11.199	- 125 ml/min
13:18	1.2	15.0	7.19	7141	237.1	0.80	11.324	
13:21	1.8	13.9	7.21	7120	231.9	0.64	11.545	- ~~125~~ ml/min
								- failed pump
								fixed pump continued (beginning)
14:02	1.4	14.5	7.17	7613	226.0	2.67	11.739	- particles in water
14:05	2.5	13.7	7.17	7184	220.7	0.72	12.080	
14:08	3.4	13.9	7.20	7455	218.8	0.56	12.324	- 300 ml/min
14:11	4.2	13.8	7.20	7418	217.3	0.51	12.529	- some particles
14:14	5.0	13.8	7.20	7406	216.7	0.44	12.696	
14:17	5.8	13.5	7.20	7353	214.6	0.41	13.008	

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No



GROUNDWATER SAMPLING FORM

8/2/7 GLENMORE LANDFILL

Weather: _____
Temperature: _____

Date: June 1/23
Tech:

Well No: GL42-1
Field Dup:

Time of Measurement:

Depth of Water (A): _____
Bottom of Well (B): _____
Well Condition: _____

One Well Volume: _____
Diameter of Well: _____
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☐ Bladder

Pump Details

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 pH 7 pH10

1413μs/cm 5000μs/cm DO

Purge Volume: Well Vol. X _____ = _____ · Sample Intake Depth: _____
Average Flow Rate: _____

[illegible]

Odour: ☐ Yes ☐ No If Yes, describe

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun
Temperature: 20°C

Date: 6-June-23
Tech: RB

Well No: GL34-3
Field Dup: -

MONITORING WELL INFORMATION

Time of Measurement: 0927
Depth of Water (A): 1.922
Bottom of Well (B): 15.306
Well Condition: cleaning. Well inspection.

One Well Volume: ~26L
Diameter of Well: -
(B-A)*2 - Litres for 51mm ϕ well
(B-A)*8 - Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☒ Hydrolift
☐ Bailer
☐ Peristaltic
☐ Bladder

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 - pH 7 - pH10 -

1413us/cm - 5000us/cm - DO -

Pump Details: 1/2" x 5/8" Waterra. Hope well re-development only.

WELL DEVELOPMENT

Purge Volume: Well Vol. X 5 = 10/130
Average Flow Rate: -

Sample Intake Depth: Bottom - 0.5m

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
9:50	25L						5.679	draw silt -> grey silt.
10:00	25L						5.003	grey silt. sand.
10:08	63						6.366	pump running
10:13	75L						5.900	pump stop grey sand - fine
10:25	100L						6.801	pump stop.
10:36	125L						6.398	pump stop
10:49	150L						6.998	pump stop
10:57	175L						9.130	pump running.
11:05	200L						9.430	pump running.
11:12	225L						9.800	pump stop.
11:22	250L						9.912	pump stop

Odour: ☐ Yes ☐ No If Yes, describe -

Sheen: ☐ Yes ☐ No If Yes, describe -

Turbidity: Clear ||||| Very Silty

11:30 275L 10.611 pump stop
↓
Grey silt + sand.

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun, Smoke
Temperature: _____

Date: 17-May
Tech: _____

Well No: GL42-2 (S&W)
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: _____ One Well Volume: _____
Depth of Water (A): _____ Diameter of Well: _____
Bottom of Well (B): R-544 (B-A)*2 _____ Litres for 51mm ϕ well
Well Condition: _____ (B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☒ Waterra Multi-meter Model: YSI Pro
☐ Hydrolift ☐ Field Bump ☐ Field Calibration
☐ Bailer pH 4 _____ pH 7 _____ pH10 _____
☐ Peristaltic 1413 μ S/cm _____ 5000 μ S/cm _____ DO _____
☐ Bladder
Pump Details: _____ GL well redevelopment only.

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____
Average Flow Rate: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (μ S/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
	<u>2</u>							<u>Dry.</u>
<u>10:11</u>	<u>3.5</u>		<u>Return 23-May-23</u>				<u>10.995</u>	<u>static wL</u>
			<u>Return 31-May-23</u>					<u>Dry. Silty water removed.</u>
<u>13:25</u>							<u>11.002</u>	<u>silly.</u>
<u>13:33</u>	<u>~4</u>						<u>Dry</u>	<u>- water still silty.</u>
			<u>Returned 01-June-23</u>					
<u>08:10</u>	<u>~3L</u>						<u>before: 11.273</u>	<u>Silty, waterra broken</u>
			<u>Return 16-June-23</u>					
<u>04:50:3</u>	<u>~6L</u>		<u>return, waterra + surge block.</u>					<u>Silly.</u>

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☐ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☐ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☐ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: sun Temperature: 12°C Date: 21-Mar-23
 Sample Location: Leachate wet well Tech: BS/AK

EQUIPMENT LIST

☐ Grab Sampler Multi-meter Model: ☐ YSI Pro Plus Other: _____
☐ Bailer ☒ Field Bump
☒ Peristaltic pH 4 _____ pH 7 ☒ pH10 ☒ 12880µs/cm ☒ CRP ✓
☐ Other _____ ☒ Field Calibration _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
1:48	10.2	7.79	11413.0	7416	-350.7	4.27	brown / clear ~~at the~~ white clear.

Odour: ☒ Yes ☐ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☒ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☒ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☒ No

Notes: -pumps on + biocide being added during sampling.

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: SUN! Temperature: 12°C Date: 21-March-23
 Sample Location: P1 Leachate M4-2 Tech: JS/AL

EQUIPMENT LIST

☐ Grab Sampler Multi-meter Model: ☒ YSI Pro Plus Other: _____
☐ Bailer ☐ Field Bump
☒ Peristaltic pH 4 _____ pH 7 ✓ pH10 ✓ 12880µs/cm ✓ ORP ✓
☐ Other _____ ☒ Field Calibration _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
<u>1:15 PM</u>	<u>11.0</u>	<u>7.13</u>	<u>16433</u>	<u>10679.5</u>	<u>-226.7</u>	<u>7.31</u>	<u>very dark very dark brown, lots of solids.</u>

Odour: ☒ Yes ☐ No If Yes, describe LFG
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic ☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic ☐ Glass		1				☐ Yes	☒ No
VOC/BTEX	☐ Plastic X Glass	2					☐ Yes	☒ No
BOD	X Plastic ☐ Glass				1		☐ Yes	☒ No
VFA	☐ Plastic X Glass	2					☐ Yes	☒ No

Notes: cannot wait for PD to stabilize - hole too gassy. CH₄, CO, H₂ in the cement.



Weather: sun Temperature: 10° Date: 21-Mar-2023
Sample Location: N Pomphose Mt Tech: MS/AL

ORP - ✓

Notes: floaties / sludge on surface of wet well. water is fairly milky in appearance.



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun Temperature: 8°C Date: 21-March-23
Sample Location: PZ42 Leachate M/H Tech: BOS/AL

☐ Grab Sampler
☐ Bailer
☒ Peristaltic
☐ Other

Multi-meter Model: ☒ YSI Pro Plus Other:☐ Field Bump

pH 4 _____ pH 7 ✓ pH10 ✓ 12880 μ S/cm ✓ ONP ✓

✓ Field Calibration 1/11 5mV → -173mV ✓

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
11:55a	12.2	7.54	9599	6259.5	259.9	3.72	dark green to black - Very turbid, lots of suspended solids.

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☒ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☒ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☒ No

PFAS ^x
Notes: Very little flow in this manhole. Sample cleared ^{no} with sample to a tea brown color.



Pond: Little Rohok Lake

Location of Sample: E side.
Location of Elevation: -

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☒ Field Calibration
pH 4 _____ pH 7 pH10
1413 μ S/cm 5000 μ S/cm DO

[illegible]

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: Some algae in sample.

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun
Temperature: 7°C

Date: 29-Mar-23
Tech: BSJ/MK

Pond: Slough #2

POND INFORMATION

Time of Measurement: 12:57
Pond Elevation: _____

Location of Sample: _____
Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☐ Peristaltic

Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413µs/cm _____ 5000µs/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:57	8.7	8.86	3883.0	2522.0	174.7	21.86	mostly.

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun
Temperature: 6°C

Date: 29-MAR-23
Tech: BS/K

Pond: Burna Slough

POND INFORMATION

Time of Measurement: 12:28
Pond Elevation: _____

Location of Sample: _____
Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☐ Peristaltic

Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 ☒ pH10 ☒

1413µs/cm _____ 5000µs/cm _____ DO ☒

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:32	11.7	8.29	2314.0	1501.5	191.9	18.87	clear. some small invertebrates.

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun
Temperature: 6°C

Date: 29-March-2023
Tech: TSJ/AB

Pond: Bredin Pond

POND INFORMATION

Time of Measurement: 11:09
Pond Elevation: 0.50

Location of Sample: Rock
Location of Elevation: Rock sensor

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☐ Peristaltic

Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 ☒ pH10 ☒

1413µs/cm _____ 5000µs/cm ☒ DO ☒

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
<u>10:58</u>	<u>8.0</u>	<u>8.80</u>	<u>1696</u>	<u>1098</u>	<u>200.0</u>	<u>21.33</u>	<u>metal green</u>

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: _____



Pond: NE Pond

Location of Sample: _____
Location of Elevation: _____

Others

Turbidity: Clear (I) I I I I I I I I I I I I I I I I I I I I I I Very Silty

Notes: _____



Tut Pond
DWP 1

Location of Sample: _____
Location of Elevation: _____

1413 μ s/cm 5000 μ s/cm DO

Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear | | | | () | | | | | | | | | | | | | | | | | | | | Very Silty

Notes: _____



Pond: Slough

Location of Sample: JS-series well?
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☒ Field Calibration
 pH 4 _____ pH 7 ☒ pH 10 ☒
 1413 μ S/cm 5000 μ S/cm _____ DO ☒

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
11:59	9.5	9.22	5121	3334.5	189.7	16.71	

[illegible]

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun Date: 29-Mar-23 Pond: Robert Lake
 Temperature: 6°C Tech: ES

POND INFORMATION

Time of Measurement: 15:00 Location of Sample: stall gauge
 Pond Elevation: 47cm Location of Elevation: stall gauge

EQUIPMENT LIST

☒ Swing Sampler Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Hydrolift ☐ Field Bump ☒ Field Calibration
☐ Submersible pH 4 _____ pH 7 _____ pH10 _____
☒ Peristaltic 1413µs/cm _____ 5000µs/cm _____ DO _____
 Others _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
15:04	12.8	9.16	2929.0	1904.5	162.2	18.00	lots of algae.

Odour: ☐ Yes ☒ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ☐ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: lots of algae in sample.

Glenmore Landfill Water Level Monitoring



1303

AK 15-March-2023 Q1

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	Decom	-	-	24.4	
GL0-2	Decom	-	-	18.4	Sub. Pump
GL0-3	Decom	-	-	13.8	Sub. Pump
GL1-1	1.994	1.926		12.7	
GL1-2	2.074	2.006		5.7	
GL2-1	0.195	0.020		10.5	
GL2-2	0.485	0.388		6.4	
GL4-1	1.562	1.300		9.8	
GL4-2	2.205	1.950		5.9	
GL5-1	1.465	1.355		20.4	Sub. Pump
GL5-2	1.604	1.500		10.3	
GL5-3	1.642	1.541		5.6	
GL6-1 (2011)	-	-		5.7	decommissioned
GL7-1	1.958	1.693		6.1	Sub Pump
GL8-1	0.961	0.981		10.1	
GL8-2	1.500	1.274		4.3	
GL9-1	-	-		33.2	decommissioned
GL9-2	-	-		12.9	decommissioned
GL9-3	-	-		5.8	decommissioned
GL10-1	1.608	1.314		9.4	
GL12-1	2.284	-		9.3	decommissioned
GL13-1	1.619	-		8.6	decommissioned
GL15-1	4.555	5.212		18.2	
GL15-2	3.789	4.422		6.4	
GL16-1	0.832	0.853		15.3	
GL17-1	0.673	-		23.1	decommissioned
GL17-2	1.552	-		9.1	decommissioned
GL20-1	3.014	2.926		5.5	
GL23-1	2.089	1.744		9.8	
GL24-1	2.624	2.581		5.4	
GL26-1	0.400	0.384		26.6	
GL26-2	3.225	3.163		7.5	
GL26-3	3.042	3.009		6.0	
GL26-4	3.139	3.110		4.2	
GL27-1	1.390	1.457		26.2	
GL27-2	2.587	2.208		12.8	
GL27-3	2.422	2.239		10.7	
GL27-4	2.497	2.293		2.3	
GL28-1	5.286	5.385		22.7	
GL28-2	4.802	4.929		9.5	
GL28-3	4.761	4.883		7.5	
GL29-1	4.276	-		46.2	damaged
GL29-2	3.718	3.461		12.1	
GL31-1	-	-		9.0	decommissioned
GL31-2	2.212	1.935		11.5	
GL31-3	-	-		15.2	decommissioned

Glenmore Landfill Water Level Monitoring



Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-1	-	—		6.9	decommissioned
GL32-2	-	—		9.9	decommissioned
GL32-3	-	—		11.8	decommissioned
GL34-1	2.140	2.019		8.3	
GL34-2	1.550	1.399		12.3	
GL34-3	1.865	1.704		15.3	
GL35-1	0.862	0.746		8.4	
GL35-2	0.381	0.420 (froze!)		13.0	
GL35-3	0.600	blocked @ 0.630 -> froze!		15.4	✱
GL39-1	3.280	3.461		10.5	
GL39-2	3.261	3.456		6.5	
GL39-3	3.375	2.688		3.8	
GL40-1	dry	dry		5.4	
GL40-2	-	—		17.4	decom
GL40-3	-	—		12.4	decom
GL41-1	2.494	2.546		11.5	
GL41-2	2.513	2.568		8.2	
GL41-3	2.483	2.340		5.2	
GL42-1 N	-	10.769		21.1	
GL42-2 S	10.855	10.890		12.5	
GL42-3	-	8.551	9.481	9.4	
06BH02	0.501	0.889		10.9	raised in Q2 2022
09BH03	-	4.868 damaged		9.0	appears to have been hit by tractor - damaged
09BH04	artesian	art		12.9	
09BH06-S	0.146	0.097		5.8	
09BH06-D	0.341	0.35		10.3	raised in Q3 2022
09BH07	-	- d.		4.9	damaged
Bredin Pond	0.620	0.49 (ice)			sensor
NE Pond MH	1.441	0.700			
NE 1st Bench	1.155	0.516			
Tutt Pond MH	-	—		4.3	destroyed. Use staff gauge.
Slough MH	1.956	1.496			
Trench MH	3.822	3.176			
Tutt (Staff Gauge)	71	78 (72?)			
Slough (Staff Gauge)	BG	BG			
Bredin Leachate Transd	2.09	1.95			sensor



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

DUP 1

☒ Field Calibration ORP 240mV.

Notes: pumps on at time of sample, bioxide added at time of sample

City of Kelowna

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun/Smoke Temperature: 27°C Date: 17-May-23
Sample Location: N Rumphouse WH Tech: AD/DS

EQUIPMENT LIST

- Grab Sampler

Multi-meter Model: ☒ YSI Pro Plus Other: _____☐ Bailer☐ Field Bump

☒ Peristaltic

pH 4 _____ pH 7 ☒ pH10 ☒ 12880 μ s/cm ☒

☐ Other _____

☐ Field Calibration OR FTHO

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:15	13.3	7.43	666.7	4212.0	-290.4	1.38	
~~11:44~~	~~12.1~~	~~7.82~~	~~8136~~	~~5291.0~~	~~-293.4~~	~~2.75~~	

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
DOC, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☐ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes: pumping GW into MH, cover open. Turned off pump and waited 15 min before sampling. Still possible influence.

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun / smoke

Temperature: ~25°C

Date: 17-May-23

Sample Location:

P2 A2

Leachate m/f

Tech: ASDS

EQUIPMENT LIST

- Grab Sampler

☐ Bailer

☒ Peristaltic

☐ OtherMulti-meter Model: ☒ YSI Pro Plus Other: _____☐ Field Bump

pH 4 pH 7 pH 10 12880 $\mu\text{S}/\text{cm}$

☒ Field Calibration ORP + T₄₀-V.

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
11:09	12.8	7.14	9929	6435.0	-116.8	1.30	

Odour:

☒ Yes ☐ No

If Yes, describe Thin Shell

Sheen:

☐ Yes ☒ No

If Yes, describe

Turbidity:

Clear

I I I I I I I I I I I I I I I I I I I I I

Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
DOC, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☐ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes: Dirt around MH, suspect lots of dirt in ~~the~~ MH and leachate due to construction activities. Dirt particles/debris observed in some samples.



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Smoky, warm Temperature: 22°C
Sample Location: pl. acetate mh-2

Date: May 17/23
Tech: DB/DS

- Grab Sampler

☐ Bailer

☒ Peristaltic

☐ Other _____Multi-meter Model: ☒ YSI Pro Plus Other: _____☐ Field Bump

pH 4 pH 7 ☒ pH 10 ☒ 12880 $\mu\text{S}/\text{cm}$ ☒

☒ Field Calibration 8/2/24 NP 240W

FIELD MONITORING

Odour: ☒ Yes ☐ No If Yes, describe rotten eggs
Sheen: ☐ Yes ☐ No If Yes, describe _____
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☐ No
Metals	X Plastic	☐ Glass		1				☐ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☐ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
DOC, etc	☐ Plastic	X Glass		1				☐ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☐ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes: Brown colour. Highly reactive w/ acid preservatives (insufficient + sulphide bottles). created lots of gas + foam.

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun / smoke
Temperature: 22°C

Date: May 18/23
Tech: B3/DS

Pond: Bubna Slough

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Sample: W side
Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☐ Peristaltic

Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 ☒ pH10 ☒

1413µS/cm _____ 5000µS/cm ☒ DO ☒

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:32	22.7	8.57	3107	2015	134.6	8.19	Shrimp observed

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ I ☐ II ☐ III ☐ IV ☐ V ☐ VI ☐ VII ☐ VIII ☐ IX ☐ X ☐ XI ☐ XII ☐ XIII ☐ XIV ☐ XV ☐ XVI ☐ XVII ☐ XVIII ☐ XIX ☐ XX ☐ XXI ☐ XXII ☐ XXIII ☐ XXIV ☐ XXV ☐ XXVI ☐ XXVII ☐ XXVIII ☐ XXIX ☐ XXX Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: _____



Pond: Slough #2

Location of Sample: W side rd
Location of Elevation:

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☒ Field Calibration _____
 pH 4 _____ pH 7 _____ pH10 _____
 1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Odour: ☐ Yes ☒ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: lots of green flecks - algae?



Pond: Tuttl Pond

Location of Sample: East edge / level
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☒ Field Calibration
 pH 4 _____ pH 7 ✓ pH10 ✓
 1413µs/cm _____ 5000µs/cm ✓ DO ✓
 ORP 240mV ✓

Odour: ☐ Yes ☒ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: _____



Pond: Slough

Location of Sample: Shallow gully @ 35'
Location of Elevation:

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☒ Field Calibration
 pH 4 _____ pH 7 1 pH10 1
 1413 μ S/cm _____ 5000 μ S/cm 1 DO 1
 ORP 2462

[illegible]

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: _____



SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun, Smoke
Temperature: 30°C

Date: 18-May-23
Tech: BO/DJ

Pond: NE Pond

POND INFORMATION

Time of Measurement: -

Location of Sample: North side Run beach

Pond Elevation: -

Location of Elevation: -

EQUIPMENT LIST

☒ Swing Sampler

Multi-meter Model: ☒ YSI Pro ☐ Other -

☐ Hydrolift

☐ Field Bump ☒ Field Calibration

☐ Submersible

pH 4 - pH 7 - pH10 ✓

☐ Peristaltic

1413µS/cm - 5000µS/cm - DO ✓

Others -

ORP 240mV ✓

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
13:52	25.3	8.68	2830	1833.6	150.4	10.30	

Odour: ☐ Yes ☒ No If Yes, describe -

Sheen: ☐ Yes ☒ No If Yes, describe -

Turbidity: Clear ☒ I ☐ II ☐ III ☐ IV ☐ V ☐ VI ☐ VII ☐ VIII ☐ IX ☐ X ☐ XI ☐ XII ☐ XIII ☐ XIV ☐ XV ☐ XVI ☐ XVII ☐ XVIII ☐ XIX ☐ XX ☐ XXI ☐ XXII ☐ XXIII ☐ XXIV ☐ XXV ☐ XXVI ☐ XXVII ☐ XXVIII ☐ XXIX ☐ XXX Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: -

-

-

-

-

-

-

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun / smoke
Temperature: 20°C

Date: 18-May
Tech: AB/DS

Pond: Robert Lake

POND INFORMATION

Time of Measurement: _____

Location of Sample: _____

Pond Elevation: _____

Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☒ Peristaltic

Others _____

Multi-meter Model: YSI Pro

☐ Other _____

☐ Field Bump

☒ Field Calibration

pH 4 _____

pH 7 _____

pH10 _____

1413µs/cm _____

5000µs/cm _____

DO _____

ORP 240mV ✓

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
<u>0844</u>	<u>21.7</u>	<u>9.03</u>	<u>11017</u>	<u>7176.0</u>	<u>80.0</u>	<u>7.8</u>	<u>green/brown water</u>

Odour: ☐ Yes ☒ No

If Yes, describe _____

Sheen: ☐ Yes ☒ No

If Yes, describe _____

Turbidity: _____

Clear

|||||

Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: sun / smoke
Temperature: 23°C

Date: 18 May -23
Tech: AD/DS

Pond: Little Robert Lake

POND INFORMATION

Time of Measurement: _____

Location of Sample: NE side.

Pond Elevation: _____

Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☒ Peristaltic

Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☒ Field Calibration

pH 4 _____ pH 7 - pH10 -

1413µs/cm _____ 5000µs/cm - DO ÷

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
<u>0952</u>	<u>22.7</u>	<u>8.91</u>	<u>5324</u>	<u>3490</u>	<u>117.3</u>	<u>12.65</u>	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear 0-0 Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: Some silt down bottom. Some algae. Shallow.

Glenmore Landfill Water Level Monitoring



May 26, 2023 / D. Stoddard

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	Decom	-	-	24.4	
GL0-2	Decom	-	-	48.4	Sub. Pump
GL0-3	Decom	-	-	43.8	Sub. Pump
GL1-1	1.926	2.088		12.7	
GL1-2	2.006	2.180		5.7	
GL2-1	0.020	0.224		10.5	
GL2-2	0.388	0.805		6.4	
GL4-1	1.300	1.907		9.8	
GL4-2	1.950	1.860		5.9	
GL5-1	1.355	1.533		20.4	Sub. Pump
GL5-2	1.500	1.686		10.3	
GL5-3	1.541	1.758		5.6	
GL6-1 (2014)	-	—		5.7	decommissioned
GL7-1	1.693	1.601		6.1	Sub Pump
GL8-1	0.981	1.210		10.1	
GL8-2	1.274	1.512		4.3	
GL9-1	-	—		33.2	decommissioned
GL9-2	-	—		12.9	decommissioned
GL9-3	-	—		5.8	decommissioned
GL10-1	1.314	1.447		9.4	
GL12-1	-	—		9.3	decommissioned
GL13-1	-	—		8.6	decommissioned
GL15-1	5.212	3.915		18.2	
GL15-2	4.422	1.723		6.4	same as Lake Balling a / unrec. readings
GL16-1	0.853	1.079		15.3	
GL17-1	-	—		23.1	decommissioned
GL17-2	-	—		9.1	decommissioned
GL20-1	2.926	2.943		5.5	
GL23-1	1.744	1.899		9.8	
GL24-1	2.581	2.748		5.4	
GL26-1	0.384	0.391		26.6	lock broken
GL26-2	3.163	3.220		7.5	
GL26-3	3.059	3.164		6.0	
GL26-4	3.110	3.251		4.2	
GL27-1	1.457	1.443		26.2	NO lock
GL27-2	2.208	2.267		12.8	
GL27-3	2.239	2.343		10.7	
GL27-4	2.293	2.214		2.3	
GL28-1	5.385	5.436		22.7	
GL28-2	4.929	4.969		9.5	
GL28-3	4.883	4.931		7.5	
GL29-1	-	4.173		46.2	damaged, fixed for perizometric
GL29-2	3.461	4.119		12.1	sampled day before
GL34-1	-	—		9.0	decommissioned
GL31-2	1.935	1.920		11.5	
GL34-3	-	—		15.2	decommissioned
GL32-1	-	—		6.9	decommissioned

Glenmore Landfill
Water Level Monitoring



Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-2	-	—		9.9	decommissioned
GL32-3	-	—		11.8	decommissioned
GL34-1	2.019	2.030		8.3	
GL34-2	1.399	1.506		12.3	
GL34-3	1.704	1.608		15.3	
GL35-1	0.746	0.913		8.4	
GL35-2	0.420	0.596		13.0	frozen in well pipe
GL35-3	0.630	0.815		15.4	frozen in well pipe - hard stop
GL39-1	3.461	3.515		10.5	
GL39-2	3.456	3.506		6.5	
GL39-3	2.688	3.635		3.8	
GL40-1	dry	dry		5.4	
GL40-2	-	—		17.4	
GL40-3	-	—		12.4	
GL41-1	2.546	2.563		11.5	
GL41-2	2.568	2.592		8.2	
GL41-3	2.540	2.559		5.2	
GL42-1	10.769	10.821 (with)	10.821	21.1	no labels or numbers - steel
GL42-2	10.890	10.821 (with)	11.012 S	12.5	183
GL42-3	8.551	8.864	9.481	9.4	
06BH02	0.884	0.728		10.9	raised in Q2 2022
09BH03	-	—		9.0	appears to have been hit by tractor, nice
09BH04	artesian	artesian		12.9	
09BH06-S	0.097	0.194		5.8	
09BH06-D	0.350	0.410		10.3	raised in Q3 2022
09BH07	-	2.426		4.9	damaged
Bredin Pond	0.490	0.530			ice level
NE Pond MH	0.7	0.606			
NE 1st Bench	0.546	0.548			
Tutt Pond MH	-	—		4.3	destroyed. Use staff gauge.
Slough MH	1.496	1.533			
Trench MH	3.176	3.134			
Tutt (Staff Gauge)	78	< 50 ~ 46-48			unreadable
Slough (Staff Gauge)	BG	dry on land			dry sitting below 10
Bredin Leachate Transduce	1.95	2.02			sensor

Robert Lake

39 am



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Rainy Temperature: _____ Date: sep. 27/23
Sample Location: N Pumphouse MH Tech: A.B.

☐ Other☐ Field Calibration D.O.

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
9:36	14.9	7.80	11345	-	176.0	15.10	yellow colour
10:16	14.7	7.71	8897	-	-	1.40	" "

Turbidity: Clear Very Silty

Sampled @ 10:10

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes: Dup 1

Consumables: Silicon tubing: 1 ft
HDPE V: 10 ft
1 groundwater filter

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: rainy Temperature: _____ Date: Sep. 27/23
 Sample Location: A2 P2 leachate MH Tech: A.B.

EQUIPMENT LIST

☐ Grab Sampler Multi-meter Model: ☒ YSI Pro Plus Other: _____
☐ Bailer ☐ Field Bump
☐ Peristaltic pH 4 _____ pH 7 _____ pH10 _____ 1413µs/cm _____
☐ Other _____ ☐ Field Calibration D.O.

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:41	13.0	7.20	10154	—	129.1	0.96	Black Silty

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear ☐ Very Silty

sampled @ 10:50

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	☒ Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	☒ Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	☒ Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	☒ Glass			2			☐ Yes	☒ No
Sulfide	☒ Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
BOD	☒ Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	☒ Glass	2					☐ Yes	☐ No

Notes: _____

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy Temperature: 14°C Date: Sep. 28/23
 Sample Location: Leachate 2 wet well Tech: AB

EQUIPMENT LIST

☐ Grab Sampler Multi-meter Model: ☒ YSI Pro Plus Other: _____
☐ Bailer ☐ Field Bump
☒ Peristaltic pH 4 _____ pH 7 _____ pH10 _____ 1413µs/cm _____
☐ Other _____ ☐ Field Calibration D.O.

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:51	15.7	7.84	13658	-	-22.8	0.69	Yellow
12:54	15.5	7.82	13720	-	-	0.80	

Odour: ☒ Yes ☐ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear ||||| Very Silty

sampled @ 12:55

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	☒ Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	☒ Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	☒ Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	☒ Glass			2			☐ Yes	☒ No
Sulfide	☒ Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
BOD	☒ Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	☒ Glass	2					☐ Yes	☐ No

Notes: _____

Consumables: Silicon Tubing 1 ft
HDPE: 15 ft
1 groundwater filter



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Date: Sep. 28/23

Tech: A.B

Consumables: Silicon tubing: 1 ft
HDPE: 20 ft
1 Groundwater filter

Glenmore Landfill Water Level Monitoring



Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	-	X	-	24.4	
GL0-2	-	X	-	18.4	Sub. Pump
GL0-3	-	X	-	13.8	Sub. Pump
GL1-1	2.088	3.857		12.7	
GL1-2	2.18	2.94		5.7	
GL2-1	0.224	0.272		10.5	
GL2-2	0.505	0.515		6.4	
GL4-1	1.907	1.757		9.8	
GL4-2	1.86	2.365		5.9	
GL5-1	1.533	X NA		20.4	Sub. Pump
GL5-2	1.686	1.655		10.3	
GL5-3	1.758	1.695		5.6	
GL6-1 (2011)	-	X		5.7	decommissioned
GL7-1	1.601	X		6.1	Sub Pump
GL8-1	1.21	1.186		10.1	
GL8-2	1.512	1.613		4.3	
GL9-1	-	X		33.2	decommissioned
GL9-2	-	X		12.9	decommissioned
GL9-3	-	X		5.8	decommissioned
GL10-1	1.447	2.13m		9.4	rock needs to replace
GL12-1	-	X		9.3	decommissioned
GL13-1	-	X		8.6	decommissioned
GL15-1	3.915	5.628		18.2	rock needs work, change
GL15-2	1.723	4.859		6.4	questionable reading - levels seemed to be falling
GL16-1	1.079	1.078		15.3	
GL17-1	-	X		23.1	decommissioned
GL17-2	-	X		9.1	decommissioned
GL20-1	2.943	3.088		5.5	
GL23-1	1.899	2.643		9.8	
GL24-1	2.748	3.545		5.4	
GL26-1	0.391	0.540		26.6	
GL26-2	3.22	3.271		7.5	
GL26-3	3.164	3.403		6.0	
GL26-4	3.251	3.72		4.2	
GL27-1	1.443	1.525		26.2	replace tubing - put back
GL27-2	2.267	2.495		12.8	
GL27-3	2.343	2.54		10.7	
GL27-4	2.214	2.393		2.3	
GL28-1	5.436	5.325		22.7	
GL28-2	4.969	4.903		9.5	need J-plug
GL28-3	4.931	4.870		7.5	
GL29-1	4.173	4.393		46.2	
GL29-2	4.119	3.72		12.1	sampled on previous day
GL31-1	-	X		9.0	decommissioned
GL31-2	1.92	2.392		11.5	
GL31-3	-	X		15.2	decommissioned

Sept 26/23
2023-063

Glenmore Landfill Water Level Monitoring



26th Sep 2023

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-1	-	X		6.9	decommissioned
GL32-2	-	N		9.9	decommissioned
GL32-3	-	X		11.8	decommissioned
~~GL34-1~~	2.03	X		8.3	
GL34-2	1.506	1.725m		12.3	
GL34-3	1.608	2.045m		15.3	
GL35-1	0.913	1.003		8.4	
GL35-2	0.596	0.654		13.0	
GL35-3	0.815	0.868		15.4	put well up
GL39-1	3.515	3.406		10.5	
GL39-2	3.506	3.425		6.5	
GL39-3	3.635	3.595		3.8	
GL40-1	dry	dry		5.4	written as GL40-9
GL40-2	-	X		17.4	
GL40-3	-	X		12.4	
GL41-1	2.563	3.142		11.5	
GL41-2	2.592	3.170		8.2	
GL41-3	2.559	3.135		5.2	
GL42-1	10.821	10.960		21.1	
GL42-2	11.012	11.082		12.5	
GL42-3	8.864	8.999	9.481	9.4	
X 06BH02	0.728	X		10.9	
09BH03	-	~~1.990m~~ 4.040m		9.0	appears to have been hit by tractor ^{yes} but intact
09BH04	artesian			12.9	
09BH06-S	0.194	0.255		5.8	
09BH06-D	0.41	0.438		10.3	raised in Q3 2022
X 09BH07	2.426	X		4.9	damaged
Bredin Pond	0.53				
NE Pond MH	0.606				
NE 1st Bench	0.548				
Tutt Pond MH	-			4.3	destroyed. Use staff gauge.
Slough MH	1.533				
Trench MH	3.134				
Tutt (Staff Gauge)	48				coated in algae, difficult to read
Slough (Staff Gauge)	BG				
Bredin Leachate Transd	2.02				sensor

GL-40-9 - dry to 5.43m

09BH02 0.305m Field

09BH03 - 4.040m damage pipe separated about 1ft 6 bgs



City of Kelowna

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: MOSTLY SUNNY

Temperature: 4°C

Date: Oct 31, 2025

Sample Location: (L2) S USACHAPE WWS

Tech: KL

EQUIPMENT LIST

- ☐ Grab Sampler
☐ Bailer
☒ Peristaltic
☐ Other

Multi-meter Model: ☒ YSI Pro Plus Other: _____

- ☐
- Field Bump

pH 4 _____ pH 7 _____ pH 10 _____ 12880 $\mu\text{S}/\text{cm}$ _____

- ☐
- Field Calibration

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:20	13.6	7.77	8055	5284.50	-333.9	0.88	

Odour:

☒ Yes ☐ No

If Yes, describe

ROTTEN EGG

Sheen:

☐ Yes ☒ No

If Yes, describe

Turbidity:

Clear

☐ NO If Yes, describe _____ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☒ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☒ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☒ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☒ No

Notes:

[illegible]



Weather: Mostly cloudy Temperature: 70° Date: Nov 3, 2023
Sample Location: P1 - Leachate MH-2 Tech: KE

Notes:

- AREA AROUND MH SHOULD BE CLEANED UP
- DIRT ENTERS MH WHEN WD LIFTED



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: MOSTLY SUNNY Temperature: 6°C Date: OCT 31, 2025
Sample Location: (L) N PUMPHOUSE MH Tech: VL

- Grab Sampler

☐ Bailer

☒ Peristaltic

☐ Other _____

Multi-meter Model: ☒ YSI Pro Plus Other: _____

☐ Field Bump

pH 4 _____ pH 7 _____ pH 10 _____ 12880 $\mu\text{s}/\text{cm}$ _____

☐ Field Calibration _____

FIELD MONITORING

FIELD MONITORING							
Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
13:45	14.2	8.41	8893	5785.50		0.54	Mucky

Odour: ☒ Yes ☐ No If Yes, describe None

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: ☐ Clear ☒ Very Silty

Turbidity:			Clear						
Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☒ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☒ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☒ No

Notes: THE LEVELS WERE VERY SHALLOW IN MH -
UNABLE TO GET THE SUPERNATANTS - SOME Silt FROM
BOTTOM GOT PUMPED-UP

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: PARTLY CLOUDY Temperature: 9°C Date: Nov 3, 2023
 Sample Location: P2A2 LEACHATE MH Tech: KR

EQUIPMENT LIST

- ☐ Grab Sampler
☐ Bailer
☒ Peristaltic
☐ Other _____

Multi-meter Model: ☒ YSI Pro Plus Other: _____
☐ Field Bump
 pH 4 _____ pH 7 _____ pH10 _____ 12880µs/cm _____
☐ Field Calibration _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:30	11.7°	7.71 -42.4	9672	6285.30	-101.7	0.73	

Odour: ☐ Yes ☐ No If Yes, describe _____
 Sheen: ☐ Yes ☐ No If Yes, describe _____
 Turbidity: Clear ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass			1			☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, etc	☐ Plastic X Glass		1				☐ Yes ☒ No	
DOC, etc	☐ Plastic X Glass		1				☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass			2			☐ Yes ☒ No	
Sulfide	X Plastic ☐ Glass		1				☐ Yes ☒ No	
VOC/BTEX	☐ Plastic X Glass	2					☐ Yes ☒ No	
BOD	X Plastic ☐ Glass				1		☐ Yes ☒ No	
VFA	☐ Plastic X Glass	2					☐ Yes ☒ No	

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: overcast
Temperature: 4°

Date: Nov 1, 2023
Tech: KR

Pond: BREDIN POND

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Pond: _____
Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☒ Peristaltic filter
Others +

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Field Bump ☐ Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413µS/cm _____ 5000µS/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:04	5.5	8.94	1861	1209	183.7	8.28	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic ☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic ☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic ☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic ☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic ☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic ☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic ☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic ☒ Glass	2					☒ Yes	☐ No

Notes: _____



Pond: TUT POND

Location of Sample: _____
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
 pH 4 _____ pH 7 _____ pH10 _____
 1413us/cm 5000us/cm DO _____

[illegible]

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: LOTS OF GELS!



Pond: SUN CH

Location of Sample: _____
Location of Elevation: _____

Others

Notes: RUSTY COLOUR ON SURFACE
TRIT IS TRICKLING IN



Pond: NE POND

Location of Sample: _____
Location of Elevation: _____

Others

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I Very Silty

Notes: _____



Pond: BOBNA SWUG

Location of Sample: _____
Location of Elevation: _____

1413 μ s/cm 5000 μ s/cm DO _____

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: CLOUDY / MISTY
Temperature: 4°C

Date: NOV 2, 2023
Tech: KD

Pond: SWOOSH #2

POND INFORMATION

Time of Measurement: 10:00

Location of Sample: _____

Pond Elevation: _____

Location of Elevation: _____

EQUIPMENT LIST

☒ Swing Sampler

☐ Hydrolift

☐ Submersible

☒ Peristaltic PUMPED

Others _____

Multi-meter Model: ☐ YSI Pro ☐ Other _____

☐ Field Bump ☐ Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413µs/cm _____ 5000µs/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:00	4.1	8.95 -105.6	5797	3770	176.4	8.70	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass					1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No
Mercury-Dis	☐ Plastic	☒ Glass	1					☒ Yes	☐ No

Notes: AT POWER ON SURFACE



Pond: ROBERTY LAKE

Location of Sample: _____
Location of Elevation: _____

1413 μ s/cm 5000 μ s/cm DO _____

Notes: Sup 2



Pond: LITTLE ROBERT LAKE

Location of Sample: _____
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413µs/cm 5000µs/cm _____ DO _____

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
14:15	4.6	8.79 -98.1	5947	3867.5	138.7	8.79	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☒ Yes ☐ No If Yes, describe POLYMER FILM
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass			1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No
Mercury-Dis	☐ Plastic	X Glass	1					X Yes	☐ No

Notes: LOT'S OF PLANT DERIVS - POWER?

Glenmore Landfill Water Level Monitoring



Nov 21/23 - RL

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	-		-	24.4	
GL0-2	-		-	48.4	Sub. Pump
GL0-3	-		-	43.8	Sub. Pump
GL1-1	2.088	2.663		12.7	
GL1-2	2.18	2.742		5.7	
GL2-1	0.224			10.5	
GL2-2	0.505			6.4	
GL4-1	1.907	1.590		9.8	
GL4-2	1.86	2.266		5.9	
GL5-1	1.533			20.4	Sub. Pump
GL5-2	1.686			10.3	
GL5-3	1.758			5.6	
GL6-1 (2011)	-			5.7	decommissioned
GL7-1	1.601			6.1	Sub Pump
GL8-1	1.21	1.162		10.1	
GL8-2	1.512	1.538		4.3	
GL9-1	-			33.2	decommissioned
GL9-2	-			12.9	decommissioned
GL9-3	-			5.8	decommissioned
GL10-1	1.447	1.790		9.4	
GL12-1	-			9.3	decommissioned
GL13-1	-			8.6	decommissioned
GL15-1	3.915	8.935		18.2	
GL15-2	1.723	5.213		6.4	questionable reading - levels seemed to be falling
GL16-1	1.079	1.042		15.3	
GL17-1	-			23.1	decommissioned
GL17-2	-			9.1	decommissioned
GL20-1	2.943	3.019		5.5	
GL23-1	1.899	3.115		9.8	
GL24-1	2.748	3.348		5.4	
GL26-1	0.391	0.625		26.6	
GL26-2	3.22	3.555		7.5	
GL26-3	3.164	3.480		6.0	
GL26-4	3.251	3.567		4.2	
GL27-1	1.443	1.499		26.2	
GL27-2	2.267	2.405		12.8	
GL27-3	2.343	2.482		10.7	
GL27-4	2.214	2.420		2.3	
GL28-1	5.436			22.7	
GL28-2	4.969			9.5	
GL28-3	4.931			7.5	
GL29-1	4.173	4.448		46.2	
GL29-2	4.119	4.177		12.1	sampled on previous day
GL31-1	-			9.0	decommissioned
GL31-2	1.92	2320		11.5	
GL31-3	-			15.2	decommissioned

Glenmore Landfill Water Level Monitoring



Nov 21/23 -KL

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-1	-			6.9	decommissioned
GL32-2	-			9.9	decommissioned
GL32-3	-			11.8	decommissioned
GL34-1	2.03			8.3	
GL34-2	1.506	1.664		12.3	
GL34-3	1.608	1.998		15.3	
GL35-1	0.913	0.983		8.4	
GL35-2	0.596	0.602		13.0	
GL35-3	0.815	0.829		15.4	
GL39-1	3.515			10.5	
GL39-2	3.506			6.5	
GL39-3	3.635			3.8	
GL40-1	dry	dry		5.4	
GL40-2	-			17.4	
GL40-3	-			12.4	
GL41-1	2.563	3.600 3.88		11.5	
GL41-2	2.592	3.627		8.2	
GL41-3	2.559	3.600		5.2	
GL42-1	10.821			21.1	
GL42-2	11.012			12.5	
GL42-3	8.864		9.481	9.4	
06BH02	0.728			10.9	
09BH03	-			9.0	appears to have been hit by tractor
09BH04	artesian			12.9	
09BH06-S	0.194			5.8	
09BH06-D	0.41			10.3	raised in Q3 2022
09BH07	2.426			4.9	damaged
Bredin Pond	0.53				
NE Pond MH	0.606	1.573			
NE 1st Bench	0.548	1.510			
Tutt Pond MH	-			4.3	destroyed. Use staff gauge.
Slough MH	1.533	?			
Trench MH	3.134	4.304			
Tutt (Staff Gauge)	48	76			coated in algae, difficult to read *
Slough (Staff Gauge)	BG	BG			
Bredin Leachate Transd	2.02				sensor

Glenmore Landfill Water Level Monitoring



Nov 21/23 - AG

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	-		-	24.4	
GL0-2	-		-	48.4	Sub. Pump
GL0-3	-		-	43.8	Sub. Pump
GL1-1	2.088			12.7	
GL1-2	2.18			5.7	
GL2-1	0.224	0.165		10.5	
GL2-2	0.505	0.440		6.4	
GL4-1	1.907			9.8	
GL4-2	1.86	1.894		5.9	
GL5-1	1.533	1.455		20.4	Sub. Pump
GL5-2	1.686	1.575		10.3	
GL5-3	1.758	1.612		5.6	
GL6-1 (2014)	-			5.7	decommissioned
GL7-1	1.601	2.162		6.1	Sub Pump
GL8-1	1.21			10.1	
GL8-2	1.512			4.3	
GL9-1	-			33.2	decommissioned
GL9-2	-			12.9	decommissioned
GL9-3	-			5.8	decommissioned
GL10-1	1.447			9.4	
GL12-1	-			9.3	decommissioned
GL13-1	-			8.6	decommissioned
GL15-1	3.915			18.2	
GL15-2	1.723			6.4	questionable reading - levels seemed to be falling
GL16-1	1.079			15.3	
GL17-1	-			23.1	decommissioned
GL17-2	-			9.1	decommissioned
GL20-1	2.943			5.5	
GL23-1	1.899			9.8	
GL24-1	2.748			5.4	
GL26-1	0.391			26.6	
GL26-2	3.22			7.5	
GL26-3	3.164			6.0	
GL26-4	3.251			4.2	
GL27-1	1.443			26.2	
GL27-2	2.267			12.8	
GL27-3	2.343			10.7	
GL27-4	2.214			2.3	
GL28-1	5.436	5.445		22.7	
GL28-2	4.969	5.013		9.5	
GL28-3	4.931	4.976		7.5	
GL29-1	4.173			46.2	
GL29-2	4.119			12.1	sampled on previous day
GL31-1	-			9.0	decommissioned
GL31-2	1.92			11.5	
GL31-3	-			15.2	decommissioned

Glenmore Landfill Water Level Monitoring



Nov 21/23 - AG

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-1	-			6.9	decommissioned
GL32-2	-			9.9	decommissioned
GL32-3	-			11.8	decommissioned
GL34-1	2.03			8.3	
GL34-2	1.506			12.3	
GL34-3	1.608			15.3	
GL35-1	0.913			8.4	
GL35-2	0.596	~~1.575~~		13.0	
GL35-3	0.815	~~1.615~~		15.4	
GL39-1	3.515	3.575		10.5	
GL39-2	3.506	3.560		6.5	
GL39-3	3.635	3.651		3.8	
GL40-1	dry	~~2.850~~		5.4	
GL40-2	-			17.4	
GL40-3	-			12.4	
GL41-1	2.563			11.5	
GL41-2	2.592			8.2	
GL41-3	2.559			5.2	
GL42-1	10.821	~~11.003~~	~~11.881~~	21.1	
GL42-2	11.012	11.137		12.5	
GL42-3	8.864	9.403	9.481	9.4	
09? 06BH02	0.728	0.700		10.9	
09BH03	-			9.0	appears to have been hit by tractor
09BH04	artesian	Artesian		12.9	
09BH06-S	0.194	0.260		5.8	
09BH06-D	0.41	0.475		10.3	raised in Q3 2022
09BH07	2.426			4.9	damaged
Bredin Pond	0.53				
NE Pond MH	0.606				
NE 1st Bench	0.548				
Tutt Pond MH	-			4.3	destroyed. Use staff gauge.
Slough MH	1.533				
Trench MH	3.134				
Tutt (Staff Gauge)	48				coated in algae, difficult to read
Slough (Staff Gauge)	BG				
Bredin Leachate Transd	2.02				sensor

Pond .48
Ground 2.11

Glenmore Landfill Water Level Monitoring



Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL0-1	-	X	-	24.4	
GL0-2	-	X	-	18.4	Sub. Pump
GL0-3	-	X	-	13.8	Sub. Pump
GL1-1	2.088	3.857		12.7	
GL1-2	2.18	2.94		5.7	
GL2-1	0.224	0.272		10.5	
GL2-2	0.505	0.515		6.4	
GL4-1	1.907	1.757		9.8	
GL4-2	1.86	2.365		5.9	
GL5-1	1.533	X NA		20.4	Sub. Pump
GL5-2	1.686	1.655		10.3	
GL5-3	1.758	1.695		5.6	
GL6-1 (2011)	-	X		5.7	decommissioned
GL7-1	1.601	X		6.1	Sub Pump
GL8-1	1.21	1.186		10.1	
GL8-2	1.512	1.613		4.3	
GL9-1	-	X		33.2	decommissioned
GL9-2	-	X		12.9	decommissioned
GL9-3	-	X		5.8	decommissioned
GL10-1	1.447	2.13m		9.4	rock needs to replace
GL12-1	-	X		9.3	decommissioned
GL13-1	-	X		8.6	decommissioned
GL15-1	3.915	5.628		18.2	rock needs work, change
GL15-2	1.723	4.859		6.4	questionable reading - levels seemed to be falling
GL16-1	1.079	1.078		15.3	
GL17-1	-	X		23.1	decommissioned
GL17-2	-	X		9.1	decommissioned
GL20-1	2.943	3.088		5.5	
GL23-1	1.899	2.643		9.8	
GL24-1	2.748	3.545		5.4	
GL26-1	0.391	0.540		26.6	
GL26-2	3.22	3.271		7.5	
GL26-3	3.164	3.403		6.0	
GL26-4	3.251	3.72		4.2	
GL27-1	1.443	1.525		26.2	replace tubing - put back
GL27-2	2.267	2.495		12.8	
GL27-3	2.343	2.54		10.7	
GL27-4	2.214	2.393		2.3	
GL28-1	5.436	5.325		22.7	
GL28-2	4.969	4.903		9.5	need J-plug
GL28-3	4.931	4.870		7.5	
GL29-1	4.173	4.393		46.2	
GL29-2	4.119	3.72		12.1	sampled on previous day
GL31-1	-	X		9.0	decommissioned
GL31-2	1.92	2.392		11.5	
GL31-3	-	X		15.2	decommissioned

Sept 26/23
2023-063

Glenmore Landfill Water Level Monitoring



26th Sep 2023

Monitoring Well ID	Previous Level (m)	Water Level (m)	Measured EOH (m)	EOH	Notes
GL32-1	-	X		6.9	decommissioned
GL32-2	-	N		9.9	decommissioned
GL32-3	-	X		11.8	decommissioned
~~GL34-1~~	2.03	X		8.3	
GL34-2	1.506	1.725m		12.3	
GL34-3	1.608	2.045m		15.3	
GL35-1	0.913	1.003		8.4	
GL35-2	0.596	0.654		13.0	
GL35-3	0.815	0.868		15.4	put well up
GL39-1	3.515	3.406		10.5	
GL39-2	3.506	3.425		6.5	
GL39-3	3.635	3.595		3.8	
GL40-1	dry	dry		5.4	written as GL40-9
GL40-2	-	X		17.4	
GL40-3	-	X		12.4	
GL41-1	2.563	3.142		11.5	
GL41-2	2.592	3.170		8.2	
GL41-3	2.559	3.135		5.2	
GL42-1	10.821	10.960		21.1	
GL42-2	11.012	11.082		12.5	
GL42-3	8.864	8.999	9.481	9.4	
X 06BH02	0.728	X		10.9	
09BH03	-	~~1.990m~~ 4.040m		9.0	appears to have been hit by tractor ^{yes} but intact
09BH04	artesian			12.9	
09BH06-S	0.194	0.255		5.8	
09BH06-D	0.41	0.438		10.3	raised in Q3 2022
X 09BH07	2.426	X		4.9	damaged
Bredin Pond	0.53				
NE Pond MH	0.606				
NE 1st Bench	0.548				
Tutt Pond MH	-			4.3	destroyed. Use staff gauge.
Slough MH	1.533				
Trench MH	3.134				
Tutt (Staff Gauge)	48				coated in algae, difficult to read
Slough (Staff Gauge)	BG				
Bredin Leachate Transd	2.02				sensor

GL-40-9 - dry to 5.43m

09BH02 0.305m Field

09BH03 - 4.040m damage pipe separated about 1ft 6 bgs



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Rainy Temperature: _____ Date: sep. 27/23
Sample Location: N Pumphouse MH Tech: A.B.

☐ Other☐ Field Calibration D.O.

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
9:36	14.9	7.80	11345	-	176.0	15.10	yellow colour
10:16	14.7	7.71	8897	-	-	1.40	" "

Turbidity: Clear Very Silty

Sampled @ 10:10

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes: Dir 1

Consumables: Silicon tubing: 1 ft
HDPE V: 10 ft
1 groundwater filter

LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: rainy Temperature: _____ Date: Sep. 27/23
 Sample Location: A2 P2 leachate MH Tech: A.B.

EQUIPMENT LIST

☐ Grab Sampler Multi-meter Model: ☒ YSI Pro Plus Other: _____
☐ Bailer ☐ Field Bump
☐ Peristaltic pH 4 _____ pH 7 _____ pH10 _____ 1413µs/cm _____
☐ Other _____ ☐ Field Calibration D.O.

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
10:41	13.0	7.20	10154	—	129.1	0.96	Black Silty

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear ☐ Very Silty

sampled @ 10:50

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	☒ Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	☒ Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	☒ Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	☒ Glass			2			☐ Yes	☒ No
Sulfide	☒ Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
BOD	☒ Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	☒ Glass	2					☐ Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: rainy
Temperature: _____

Date: Sep. 27/23
Tech: A.B.

Pond: Brendan Pond

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Pond: _____
Location of Elevation: _____

EQUIPMENT LIST

- ☐ Swing Sampler
☐ Hydrolift
☐ Submersible
☒ Peristaltic
Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413µs/cm _____ 5000µs/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
11:28	15.0	9.10	1861	-	1063	5.36	fairly clear
11:35	15.0	9.07	1881	-	92.7	5.25	

Odour: ☐ Yes ☐ No If Yes, describe _____
Sheen: ☐ Yes ☐ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Sampled @ 11:40.

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic ☐ Glass			2		2	☐ Yes	☒ No
Metals-Tot	☒ Plastic ☐ Glass		2				☐ Yes	☒ No
Mercury-Tot	☐ Plastic ☒ Glass	2					☐ Yes	☒ No
Metals-Dis	☒ Plastic ☐ Glass		2				☒ Yes	☐ No
Organic C	☐ Plastic ☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic ☐ Glass			2			☐ Yes	☒ No
COD/Nutrients	☒ Plastic ☐ Glass		2	0			☐ Yes	☒ No
DOC	☐ Plastic ☒ Glass	2					☒ Yes	☐ No

Notes: Dup 1

Consumables: Silicon Tubing: 1 ft
HDPG: 6 ft
1 gw filter

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Rain
Temperature: 12°C

Date: Sep. 27/23
Tech: A.B.

Pond: Tutt Pond

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Pond: _____
Location of Elevation: _____

EQUIPMENT LIST

- ☐ Swing Sampler
☐ Hydrolift
☐ Submersible
☒ Peristaltic
Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413µs/cm _____ 5000µs/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:40	14.6	8.83	3031	-	77.4	7.40	
12:43	14.9	8.81	3034	-	76.1	7.36	pretty clear

Odour: ☐ Yes ☐ No If Yes, describe _____
Sheen: ☐ Yes ☐ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Sampled @ 12:45

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1		1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass		1	1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: rainy
Temperature: 12° C

Date: Sep. 27/23
Tech: A.B.

Pond: Slough

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Pond: _____
Location of Elevation: _____

EQUIPMENT LIST

- ☐ Swing Sampler
☐ Hydrolift
☐ Submersible
☒ Peristaltic
Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413µS/cm _____ 5000µS/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
13:23	13.6	9.74	19618	-	109.2	11.80	Green
13:26	13.8	9.74	19722	-	114.1	12.87	

Odour: ☒ Yes ☐ No If Yes, describe Garbage
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Sampled @ 13:20

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1		1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass		1	1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No

Notes:

Consumables: Silicon tubing 1 ft
HDPE: 15 ft
1 groundwater filter



Pond: North East Pond

Location of Pond: _____
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
 pH 4 _____ pH 7 _____ pH10 _____
 1413µs/cm _____ 5000µs/cm _____ DO _____

Time	Temp (°C)	pH (Units)	Conductivity (μS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
14:23	14.8	9.09	3046	-	74.1	8.63	Silty - some debris
14:26	15.1	9.08	3012	-	69.0	8.80	

Sampled @ 14:30

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			I		1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass		I	0			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No

Consumables: Silicon tubing: 2 inch
HDPE: 7 ft
1 groundwater filter.

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: overcast
Temperature: 12°C

Date: Sep. 27/23
Tech: A.B.

Pond: Slough 2

POND INFORMATION

Time of Measurement: _____

Location of Pond: _____

Pond Elevation: _____

Location of Elevation: _____

EQUIPMENT LIST

☐ Swing Sampler

Multi-meter Model: ☒ YSI Pro ☐ Other _____

☐ Hydrolift

☐ Field Bump ☐ Field Calibration

☐ Submersible

pH 4 _____ pH 7 _____ pH10 _____

☒ Peristaltic

1413µs/cm _____ 5000µs/cm _____ DO _____

Others _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
15:09	16.1	8.81	6657	-	79.7	3.83	fairly clear
15:12	16.1	8.80	6664	-	81.7	3.29	

Odour: ☒ Yes ☐ No If Yes, describe slight odour - pond maybe algae

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear ☐ Very Silty

sampled @ 15:15

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic	☐ Glass			1		1	☐ Yes	☒ No
Metals-Tot	☒ Plastic	☐ Glass		1				☐ Yes	☒ No
Mercury-Tot	☐ Plastic	☒ Glass	1					☐ Yes	☒ No
Metals-Dis	☒ Plastic	☐ Glass		1				☒ Yes	☐ No
Organic C	☐ Plastic	☒ Glass	2					☐ Yes	☒ No
Coliforms	☒ Plastic	☐ Glass			1			☐ Yes	☒ No
COD/Nutrients	☒ Plastic	☐ Glass		1	1			☐ Yes	☒ No
DOC	☐ Plastic	☒ Glass	2					☒ Yes	☐ No

Notes: _____



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy Temperature: 14°C Date: Sep. 28/23
Sample Location: Leechate 2 wet well Tech: AB

☐ Other _____☐ Field Calibration D.O.

Time	Temp (°C)	pH (Units)	Conductivity (uS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
12:51	15.7	7.84	13658	-	-22.8	0.65	Yellow
12:54	15.5	7.82	13720	-	-	0.80	

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I Very Silty

sampled @ 12:55

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1			☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, etc	☐ Plastic	X Glass		1				☐ Yes	☒ No
DOC, etc	☐ Plastic	X Glass		1				☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass			2			☐ Yes	☒ No
Sulfide	X Plastic	☐ Glass		1				☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass	2					☐ Yes	☒ No
BOD	X Plastic	☐ Glass				1		☐ Yes	☐ No
VFA	☐ Plastic	X Glass	2					☐ Yes	☐ No

Notes:

Consumables: Silicon Tubing 1 ft
HDPE: 15 ft
1 groundwater filter



LEACHATE SAMPLING FORM

GLENMORE LANDFILL

Date: Sep. 28/23

Tech:

Consumables: Silicon tubing: 1 ft
HDPE: 20 ft
1 Groundwater filter



Pond: Robert Lake

Location of Pond: _____
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
 pH 4 _____ pH 7 _____ pH10 _____
 1413us/cm _____ 5000us/cm _____ DO _____

Odour: ☒ Yes ☐ No If Yes, describe Pond
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass			1		1	☐ Yes	X No
Metals-Tot	X Plastic	☐ Glass		1				☐ Yes	X No
Mercury-Tot	☐ Plastic	X Glass	1					☐ Yes	X No
Metals-Dis	X Plastic	☐ Glass		1				X Yes	☐ No
Organic C	☐ Plastic	X Glass	2					☐ Yes	X No
Coliforms	X Plastic	☐ Glass			1			☐ Yes	X No
COD/Nutrients	X Plastic	☐ Glass		1	1			☐ Yes	X No
DOC	☐ Plastic	X Glass	2					X Yes	☐ No

Conservation: Silicon Tubing: 1 ft
HDPE: 8 ft
1 groundwater filter



Pond: Brandts Creek

Location of Pond: _____
Location of Elevation: _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
 pH 4 _____ pH 7 _____ pH10 _____
 1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Odour: ☐ Yes ☒ No If Yes, describe _____
 Sheen: ☐ Yes ☒ No If Yes, describe _____
 Turbidity: Clear Very Silty

Sampled @ 10:45

Notes: _____

SURFACE WATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 14°C

Date: Sep. 28/23
Tech: A.B.

Pond: Bubna Slough

POND INFORMATION

Time of Measurement: _____
Pond Elevation: _____

Location of Pond: _____
Location of Elevation: _____

EQUIPMENT LIST

- ☐ Swing Sampler
☐ Hydrolift
☐ Submersible
☒ Peristaltic
Others _____

Multi-meter Model: ☒ YSI Pro ☐ Other _____
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413µs/cm _____ 5000µs/cm _____ DO _____

FIELD MONITORING

Time	Temp (°C)	pH (Units)	Conductivity (µS/cm)	TDS (mg/L)	Redox (mV)	Dissolved O ₂ (mg/L)	Comments
11:24	15.6	8.69	3387	-	110.5	6.44	fairly clear
11:27	15.6	8.69	3384	-	111.0	6.50	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Sampled @ 11:30

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic ☐ Glass			1		1	☐ Yes ☒ No	
Metals-Tot	☒ Plastic ☐ Glass		1				☐ Yes ☒ No	
Mercury-Tot	☐ Plastic ☒ Glass	1					☐ Yes ☒ No	
Metals-Dis	☒ Plastic ☐ Glass		1				☒ Yes ☐ No	
Organic C	☐ Plastic ☒ Glass	2					☐ Yes ☒ No	
Coliforms	☒ Plastic ☐ Glass			1			☐ Yes ☒ No	
COD/Nutrients	☒ Plastic ☐ Glass		1	1			☐ Yes ☒ No	
DOC	☐ Plastic ☒ Glass	2					☒ Yes ☐ No	

Notes:

Consumables: Silicon Tubing: 1-ft
HDPE: 10 ft
1 groundwater filter

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloudy
Temperature: _____

Date: Oct 23/23
Tech: AB + SJ

Well No: GL41-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 9:20
Depth of Water (A): 3.352
Bottom of Well (B): 8.2
Well Condition: Good

One Well Volume: 9.7 Litres
Diameter of Well: 51mm
(B-A)*2 9.7 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 29 Litres
Average Flow Rate: _____ Sample Intake Depth: _____
Start time: 9:34

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
9:37	2	10.7	7.23	1627	243.1	3.45	3.352	
9:40	4	10.6	7.21	1618	240.6	3.18	3.352	
9:43	6	10.6	7.22	1614	238.2	3.18	3.352	
9:46	8	10.5	7.22	1613	236.5	3.11	" "	
9:49	10	10.6	7.23	1613	235.0	3.10	" "	
9:52	12	10.6	7.23	1612	233.6	3.02	" "	
9:55	14	10.6	7.22	1612	232.4	3.05	" "	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 9:57

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + Cloud
Temperature: 10°C

Date: Oct 23, 23
Tech: AB + ST

Well No: GL41-3
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 10:20
Depth of Water (A): 3.325
Bottom of Well (B): 5.1
Well Condition: Good

One Well Volume: 3.5 Litres
Diameter of Well: 51
(B-A)*2 3.5 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 10.5 Litres
Average Flow Rate: _____

Sample Intake Depth: _____
Start time: 10:28

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
10:31	2	12.2	7.60	1105	235.7	2.55	3.467	
10:34	4	12.2	7.52	1085	234.6	1.89	3.465	
10:37	6	12.2	7.47	1111	233.2	1.80	3.464	
10:40	8	12.2	7.45	1125	231.4	1.75	" "	
10:43	10	12.2	7.44	1128	229.4	1.73	" "	
10:46	12	12.2	7.43	1131	227.7	1.75	" "	
10:49	14	12.2	7.42	1134	226.2	1.73	" "	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 10:51



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + cloud
Temperature: _____

Date: 04/23/23
Tech: AB + SI

Well No: GL 41-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 11:05
Depth of Water (A): 3.309
Bottom of Well (B): 11.5 m
Well Condition: good

One Well Volume: 16.4 Litres
Diameter of Well: 51 mm
(B-A)*2 16.4 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 49.2
Average Flow Rate: _____

Sample Intake Depth: _____
Start Time: 11:12 / Stopped @ ~14.8L purg

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:15	2	11.0	7.50	1900	215.8	2.80	4.260	
11:18	4	10.9	7.49	1898	213.4	2.62	4.979	
11:21	6	10.9	7.50	1898	211.0	2.64	5.804	
11:24	8	10.9	7.50	1898	208.7	2.78	6.649	
11:27	10	11.1	7.50	1899	206.6	2.90	7.430	
11:30	12	11.2	7.53	1908	204.0	3.62	8.146	
11:33	13	11.3	7.55	1909	201.0	3.94	8.761	
11:36	14	11.5	7.57	1901	200.0	3.96	9.130	
11:39	14.8	11.7	7.71	16.0	188.3	9.01	9.339	
returned on Oct. 24/23 @ 10:56								dry will return in 3 days

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☐ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☐ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☐ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 8°C

Date: Oct 26 / 23
Tech: AB + SF

Well No: GL 41-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 11:00
Depth of Water (A): 6.936
Bottom of Well (B): 11.5
Well Condition: Good

One Well Volume: 9.1 L
Diameter of Well: 51
(B-A)*2 9.1 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Submersible
- Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 27.4 L
Average Flow Rate: _____

Sample Intake Depth: _____
Start time: 11:08

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:11	1	9.9	7.57	1887	87.0	4.35	7.374	
11:14	2	10.0	7.62	1870	86.3	4.54	7.674	
11:17	3	10.1	7.63	1861	85.8	4.87	7.972	
11:20	4	10.1	7.77	1719	83.0	7.17	8.248	
11:23	5	10.0	7.92	1573	81.9	9.05	8.519	
11:26	6	9.9	7.99	1500	82.9	10.07	8.775	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

- Not completely full due to well running dry

Sampled @ 11:28

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun & cloud
Temperature: _____

Date: Oct. 23/23
Tech: AB + SJ

Well No: GL 24-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 12:15
Depth of Water (A): 3.331
Bottom of Well (B): 6
Well Condition: Good

One Well Volume: 5.3 litres
Diameter of Well: 51
(B-A)*2 5.3 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 16 L Sample Intake Depth: 0.3m from bottom
Average Flow Rate: _____ Start Time: 12:18

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
12:21	2	11.2	7.31	2170	216.5	0.75	3.776	
12:24	4	11.4	7.34	2152	213.4	0.87	3.946	
12:27	6	11.4	7.33	2136	212.2	0.96	4.033	
12:30	8	11.5	7.30	2139	212.2	0.56	4.093	
12:33	10	11.5	7.29	2147	211.0	0.71	4.149	
12:36	12	11.5	7.29	2154	208.8	0.91	4.201	
12:39	14	11.5	7.28	2160	207.5	1.10	4.243	
12:42	16	11.5	7.29	2168	206.3	1.50	4.299	
12:45	18	11.4	7.29	2176	204.6	1.72	4.356	
12:48	19	11.4	7.29	2180	204.0	1.93	4.336	Peri. speed down ↓
12:51	20	11.5	7.29	2184	203.6	2.02	4.280	

Odour: ↓ ☐ Yes ☒ No ↓ If Yes, describe _____

Sheen: ☐ Yes ☒ No ↓ If Yes, describe _____

Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic ☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic X Glass						☐ Yes	☐ No
Sulfide	X Plastic ☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic X Glass						☐ Yes	☐ No

12:54 | 11.6 | 7.29 | 2187 | 203.4 | 1.73 | 4.246 |

Sampled @ 12:57

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + Cloud
Temperature: _____

Date: Oct 23, 23
Tech: AB + SJ

Well No: GL1-1
Field Dup: Dupa

MONITORING WELL INFORMATION

Time of Measurement: 13:10
Depth of Water (A): 2.665
Bottom of Well (B): 12.6
Well Condition: Good

One Well Volume: 20 litres
Diameter of Well: 51
(B-A)*2 20 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra ☐ Hydrolift ☐ Bailer ☒ Peristaltic ☐ Submersible
Pump Details: _____
Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 60 L
Average Flow Rate: _____
Sample Intake Depth: 0.3 from bottom
Start time: 13:20

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:23	2	9.9	7.62	1816	189.7	2.89	2.927	
13:26	4	9.8	7.58	1820	188.9	2.15	2.957	
13:29	6	9.8	7.48	1820	184.0	1.31	2.961	
13:32	8	9.8	7.43	1798	179.2	1.17	" "	
13:35	10	9.8	7.41	1776	174.7	1.30	2.954	
13:38	12	9.8	7.39	1767	169.4	1.48	" "	
13:41	14	9.8	7.39	1762	165.4	1.61	2.935	
13:44	16	9.7	7.39	1761	162.7	1.62	" "	
13:47	18	9.7	7.38	1759	160.4	1.47	" "	
13:50	20	9.7	7.38	1758	158.0	1.45	" "	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					<u>2</u>	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		<u>2</u>				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	<u>2</u>					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		<u>2</u>				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	<u>4</u>					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Dupa

Sampled @ 13:52

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + Cloud
Temperature: _____

Date: Oct. 23/23
Tech: AB + SI

Well No: 6L1-2
Field Dup: Dup B

MONITORING WELL INFORMATION

Time of Measurement: 14:05
Depth of Water (A): 2.701
Bottom of Well (B): 6.7
Well Condition: Good

One Well Volume: 8 litres
Diameter of Well: 51 mm
(B-A)*2 8.0 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 24 L
Average Flow Rate: _____

Sample Intake Depth: 0.3 m from bottom
Start time: 14:16

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
14:19	2	10.7	7.38	1777	226.4	0.95	2.749	
14:22	4	10.7	7.37	1778	224.9	0.72	" "	
14:25	6	10.8	7.36	1777	223.2	0.62	" "	
14:28	8	10.8	7.36	1777	221.5	0.55	" "	
14:31	10	10.8	7.32	1778	219.7	0.50	" "	
14:34	12	10.8	7.37	1777	218.4	0.46	" "	
14:37	14	10.8	7.36	1777	217.3	0.45		

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					<u>2</u>	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		<u>2</u>				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	<u>2</u>					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		<u>2</u>				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	<u>2</u>					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Dup B Sampled @ 14:39

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + Cloud
Temperature: _____

Date: Oct. 23/23
Tech: AB+ST

Well No: GL 23-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 14:55
Depth of Water (A): 2.462
Bottom of Well (B): 10.3
Well Condition: GOOD

One Well Volume: 7.8 Litres
Diameter of Well: 51 mm
(B-A)*2 7.83 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 23.5 L Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start time: 15:04

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
15:07	2	10.8	7.03	2379	229.2	0.87	3.110	
15:10	4	10.9	7.02	2378	228.3	0.46	3.572	
15:13	6	10.8	7.02	2377	226.4	0.37	3.959	
15:16	8	10.9	7.01	2375	225.1	0.27	4.298	
15:17	9	11.0	7.01	2374	223.7	0.27	4.492	reduced peri speed
15:22	9.5	11.0	7.02	2370	223.0	0.26	4.597	
15:25	10.5	11.0	7.01	2370	221.9	0.23	4.659	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 15:26

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Overcast
Temperature: 2°C

Date: Oct. 24/23
Tech: SI

Well No: GL 39-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 9:41
Depth of Water (A): 3.495 m
Bottom of Well (B): 10.9 m
Well Condition: Good

One Well Volume: 14.8 Litres
Diameter of Well: 51 mm
(B-A)*2 14.8 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 44.4 L Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start time: 9:52

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (μ S/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
9:55	2	11.0	7.06	4561	298.0	3.74	3.623	
9:58	4	11.0	7.04	4561	295.0	2.08	3.639	
10:01	6	10.9	7.04	4557	289.0	1.54	3.643	
10:04	8	10.9	7.04	4556	283.9	1.42	3.650	
10:07	10	10.9	7.04	4552	280.1	0.73	" "	
10:10	12	10.8	7.05	4551	277.6	0.47	3.655	
10:13	14	10.8	7.05	4546	275.4	0.38	" "	
10:16	16	10.8	7.04	4543	272.4	0.30	3.660	
10:19	18	10.8	7.04	4549	270.1	0.30	" "	
10:22	20	10.8	7.05	4544	267.7	0.26	" "	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 10:25

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Overcast
Temperature: 5°C

Date: Oct. 24/23
Tech: SI

Well No: GL 39-2
Field Dup: Dup C

MONITORING WELL INFORMATION

Time of Measurement: 10:55 One Well Volume: 7 Litres
Depth of Water (A): 3.501m Diameter of Well: 51
Bottom of Well (B): 7.0m (B-A)*2 7 Litres for 51mm ϕ well
Well Condition: Good (B-A)*8 Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra Multi-meter Model: YSI Pro
☐ Hydrolift ☐ Field Bump ☐ Field Calibration
☐ Bailer pH 4 pH 7 pH10
☒ Peristaltic 1413 μ S/cm 5000 μ S/cm DO
☐ Submersible
Pump Details:

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 21 L Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: Start Time: 10:58

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
11:01	2	11.8	7.60	2061	66.5	1.02	3.618	
11:04	4	12.3	7.58	1956	88.5	0.65	3.622	
11:07	6	12.4	7.56	1971	105.9	0.42	3.624	
11:10	8	12.4	7.56	1990	112.1	0.29	3.629	
11:13	10	12.3	7.56	1968	115.7	0.25	3.630	
11:16	12	12.4	7.56	1975	119.2	0.20	" "	
11:19	14	12.3	7.55	1983	121.3	0.17	" "	
11:22	16	12.4	7.55	1981	123.0	0.18	" "	
11:25	18	12.4	7.55	1988	123.9	0.16	" "	

Odour: ☐ Yes ☒ No If Yes, describe
Sheen: ☐ Yes ☒ No If Yes, describe
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					<u>2</u>	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		<u>2</u>				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	<u>2</u>					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		<u>2</u>				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	<u>2</u>					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Dup C

Sampled @ 11:27

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy
Temperature: 5°C

Date: Oct 24, 23
Tech: ADT SI

Well No: GL27-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 12:37
Depth of Water (A): 1.457 m
Bottom of Well (B): 26.2m
Well Condition: Good

One Well Volume: 49.5
Diameter of Well: 51 mm
(B-A)*2 49.5 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra ☐ Multi-meter Model: YSI Pro
☐ Hydrolift ☐ Field Bump ☐ Field Calibration
☐ Bailer pH 4 _____ pH 7 _____ pH10 _____
☒ Peristaltic 1413 μ S/cm _____ 5000 μ S/cm _____ DO _____
☐ Submersible
Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 148.5 Litres Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start time: 13:04

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:07	1.5L	11.2	7.57	2527	-165.9	0.43	1.79	blacksilty, Sheen visible
13:10	3.5L	11.1	7.57	2497	-177.8	0.26	2.155	clearing up, sheen visible
13:14	5L	11.0	7.56	2494	-183.8	0.19	2.459	peri down ↓
13:17	6L	10.9	7.57	2494	-186.2	0.24	2.645	peri down ↓
13:20	6.5L	10.9	7.57	2493	-187.1	0.31	2.799	peri down ↓
13:23	7.5L	10.8	7.56	2495	-187.4	0.34	2.906	
13:26	8.5L	10.8	7.56	2497	-188.2	0.29	3.109	
13:29	9L	10.8	7.56	2498	-188.7	0.30	" "	

Odour: ☒ Yes ☐ No If Yes, describe Landfill
Sheen: ☒ Yes ☐ No If Yes, describe metallic?
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	☒ Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	☒ Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic ☒ Glass	1					☒ Yes ☐ No	
COD, nutrient	☒ Plastic ☒ Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic ☒ Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic ☒ Glass						☐ Yes ☐ No	
Sulfide	☒ Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic ☒ Glass						☐ Yes ☐ No	

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: cloudy
Temperature: _____

Date: Oct 24, 23
Tech: ABFS

Well No: GL20-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 13:54
Depth of Water (A): 3.039
Bottom of Well (B): _____
Well Condition: Good

One Well Volume: _____
Diameter of Well: 51
(B-A)*2 _____ Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____
Average Flow Rate: _____

Sample Intake Depth: 0.3m from bottom
Start time: 13:55

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:58	2	13.9	7.09	7811	-161.9	0.66	3.255	yellow/green colour, clear
14:01	4	14.9	7.02	6682	-174.5	0.41	3.716	Slight sheen visible
14:04	6	15.2	7.01	6446	-183.0	0.27	3.866	
14:07	8	15.2	7.01	6466	-187.7	0.21	4.002	peri down ↓
14:10	9.5	15.0	7.02	6605	-193.5	0.18	4.086	
14:13	11	14.7	7.04	6823	-198.7	0.14	4.176	peri down ↓
14:16	12	14.4	7.04	6931	-198.8	0.13	4.169	
14:19	13	14.2	7.05	6936	-200.3	0.13	" "	Sheen visible
14:22	14	14.2	7.05	6822	-202.5	0.12	" "	
14:25	15	14.3	7.05	6665	-204.2	0.09	" "	

Odour: ☒ Yes ☐ No If Yes, describe landfill
Sheen: ☒ Yes ☐ No If Yes, describe landfill
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 14:28

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy
Temperature: 4°C

Date: Oct. 24 / 23
Tech: AB + SI

Well No: GL 2-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 15:06
Depth of Water (A): 0.213
Bottom of Well (B): 9.90
Well Condition: old / J-plug not attached

One Well Volume: 19.4 L
Diameter of Well: 51 mm
(B-A)*2 19.4 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 58.2 Litres Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start Time: 15:06

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
15:09	1	10.4	7.84	1918	-127.5	1.22	0.564	slightly cloudy / per. down
15:12	2	10.6	7.72	1874	-126.0	0.71	0.759	
15:15	3	10.6	7.66	1850	-124.0	0.46	0.932	
15:18	3.75	10.6	7.65	1842	-121.9	0.40	1.030	
15:21	4.75	10.6	7.63	1836	-117.7	0.35	1.112	
15:24	5.75	10.6	7.62	1835	-117.5	0.31	1.193	
15:27	6.75	10.5	7.62	1838	-117.9	0.35	1.240	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 15:29

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy
Temperature: 2°C

Date: Oct. 25/23
Tech: AB + SL

Well No: GL 2-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 8:53
Depth of Water (A): 0.485
Bottom of Well (B): 6.1
Well Condition: Good

One Well Volume: 11.2 Litres
Diameter of Well: 51mm
(B-A)*2 11.2 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 33.6 Litres
Average Flow Rate: _____

Sample Intake Depth: 0.3m from bottom
Start Time: 8:53

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
8:56	1	9.7	7.43	1552	113.0	2.59	0.893	run per @ slow speed
8:59	1.75	9.8	7.50	1553	-4.3	0.86	1.216	pen speed reduced
9:02	2.1	9.3	7.52	1547	-39.3	0.55	1.532	" " "
9:05	2.5	9.3	7.53	1547	-48.8	0.48	1.703	" " "
9:08	2.8	9.2	7.52	1541	-56.0	0.42	1.896	
9:11	3.1	9.1	7.51	1532	-55.5	0.40	2.089	pen speed reduced
9:14	3.6	8.8	7.49	1527	-48.5	0.43	2.215	" " " (slightly)
9:17	4L	8.4	7.50	1529	-48.4	0.38	2.272	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 9:19

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sun + Cloud
Temperature: 1°C

Date: Oct. 25 / 23
Tech: AB + SE

Well No: GL 4-1
Field Dup: DUP E

MONITORING WELL INFORMATION

Time of Measurement: 9:49
Depth of Water (A): 1.676
Bottom of Well (B): 9.0
Well Condition: Good

One Well Volume: 14.6 Litres
Diameter of Well: 51
(B-A)*2 14.6 Litres for 51mm ϕ well
(B-A)*8 Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 pH 7 pH10

1413 μ S/cm 5000 μ S/cm DO

Pump Details:

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 44 Litres
Average Flow Rate:

Sample Intake Depth: 0.3 m from bottom
Start time: 9:51

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
9:54	2	10.6	7.65	1860	-101.5	1.10	1.997	
9:57	4	10.7	7.64	1809	-110.9	0.64	2.087	per slightly reduced.
10:00	5.75	10.7	7.64	1795	-116.7	0.53	2.118	
10:03	7.5	10.7	7.65	1791	-124.2	0.43	2.123	
10:06	9	10.6	7.64	1785	-129.4	0.36	2.129	
10:09	10.25	10.6	7.64	1783	-133.0	0.34	" "	
10:12	11.75	10.6	7.64	1782	-136.6	0.29	2.134	
10:15	13	10.6	7.65	1782	-137.7	0.26	" "	

Odour: ☐ Yes ☒ No If Yes, describe

Sheen: ☐ Yes ☒ No If Yes, describe

Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					<u>2</u>	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		<u>2</u>				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	<u>2</u>					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		<u>2</u>				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	<u>2</u>					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Dupe E

Sampled @ 10:17

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy & Windy
Temperature: 1° C

Date: Oct. 25/23
Tech: ST

Well No: GL 4-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 10:45
Depth of Water (A): 2.275 m
Bottom of Well (B): 5.5 m
Well Condition: Good

One Well Volume: 6.4 litres
Diameter of Well: 51
(B-A)*2 6.4 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 19.3 litres
Average Flow Rate: _____

Sample Intake Depth: 0.3 from bottom
Start time: 10:47

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
10:50	1	9.9	7.48	2010	-74.5	0.97	2.614	Start per. slow
10:53	1.75	9.8	7.44	2008	-80.2	0.62	2.822	per. speed reduced
10:56	2.5	9.8	7.50	2005	-82.0	0.44	3.023	" " "
10:59	3.25	9.8	7.46	2006	-82.3	0.39	3.125	
11:02	3.75	9.7	7.45	2004	-81.8	0.41	3.209	
11:05	4.25	9.5	7.45	1996	-80.1	0.35	3.277	
11:08	4.75	9.4	7.45	1996	-78.9	0.38	3.369	
11:11	5.25	9.4	7.47	1994	-76.9	0.39	3.405	

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear ☒ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 11:13

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Partial Cloud
Temperature: 8°C

Date: Oct. 25 / 23
Tech: SI

Well No: GL 15-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 13:30
Depth of Water (A): 5.816
Bottom of Well (B): _____
Well Condition: GOOD

One Well Volume: _____
Diameter of Well: 15
(B-A)*2 1 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____
Average Flow Rate: _____

Sample Intake Depth: 0.3 m from bottom
Start time: 13:33

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
13:36	1	9.6	7.68	1372	-44.8	1.93	6.191	peri speed reduced
13:39	1.75	9.6	7.65	1426	-74.2	0.94	6.414	peri speed reduced
13:42	2.25	9.5	7.63	1432	-78.9	0.75	6.559	
13:45	2.75	9.3	7.62	1422	-77.6	0.59	6.730	peri speed reduced
13:48	3.25	9.3	7.61	1417	-78.0	0.54	6.848	
13:51	3.5	9.3	7.61	1412	-79.3	0.43	7.002	
13:54	3.75	9.3	7.61	1410	-81.2	0.43	7.134	
13:57	4	9.3	7.62	1407	-82.8	0.39	7.242	
14:00	4.3	9.3	7.61	1404	-84.9	0.41	7.387	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☐ I ☐ II ☐ III ☐ IV ☐ V ☐ VI ☐ VII ☐ VIII ☐ IX ☐ X ☐ XI ☐ XII ☐ XIII ☐ XIV ☐ XV ☐ XVI ☐ XVII ☐ XVIII ☐ XIX ☐ XX ☐ XXI ☐ XXII ☐ XXIII ☐ XXIV ☐ XXV ☐ XXVI ☐ XXVII ☐ XXVIII ☐ XXIX ☐ XXX Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 14:02

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Cloudy
Temperature: 9°C

Date: Oct 25/23
Tech: SI

Well No: GL 15-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 14:29
Depth of Water (A): 5.076
Bottom of Well (B): 6.4
Well Condition: GOOD - installed HDPE

One Well Volume: 2.6 litres
Diameter of Well: 15
(B-A)*2 2.6 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 7.9 litres
Average Flow Rate: _____

Sample Intake Depth: 0.3 m from bottom
Start time: 14:30

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (μ S/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
14:33	1	11.0	7.01	6461	77.7	5.88	5.198	
14:36	2.75	11.3	7.02	6572	84.7	5.78	5.276	
14:39	4	11.4	7.02	6646	92.1	5.65	5.361	perm speed reduced
14:41	4.75	11.4	7.00	6671	95.0	5.69	5.399	
14:44	5.5	11.3	7.00	6699	98.6	5.72	5.464	
14:48	7.00	11.2	6.99	6720	102.2	5.67	5.497	
14:51	7.75	11.1	6.99	6734	104.4	5.69	5.515	
14:54	8.5	11.2	6.99	6752	106.1	5.66	5.527	
14:57	9.27	11.2	7.00	6780	107.9	5.65	5.548	
15:00	10	11.2	6.99	6799	109.4	5.65	5.572	

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear ☒ I ☐ II ☐ III ☐ IV ☐ V ☐ VI ☐ VII ☐ VIII ☐ IX ☐ X ☐ XI ☐ XII ☐ XIII ☐ XIV ☐ XV ☐ XVI ☐ XVII ☐ XVIII ☐ XIX ☐ XX ☐ XXI ☐ XXII ☐ XXIII ☐ XXIV ☐ XXV ☐ XXVI ☐ XXVII ☐ XXVIII ☐ XXIX ☐ XXX Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☒ No	
Metals	X Plastic ☐ Glass		1				☒ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☒ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☒ No	
Organic C	☐ Plastic X Glass	2					☒ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

Sampled @ 15:02



City of
Kelowna

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Partial Cloud
Temperature: 6° C

Date: Oct 26 / 23
Tech: AB + JI

Well No: GL 29-1
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 9:02
Depth of Water (A): 4.393
Bottom of Well (B): 45.7
Well Condition: Good

One Well Volume: 82.6 Litres
Diameter of Well: 51 mm
(B-A)*2 82.6 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 248 Litres
Average Flow Rate: _____

Sample Intake Depth: 0.3 m from bottom
Start time: 9:05

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
9:08	0.75	13.2	7.35	1704	-51.9	2.46	4.746	yellow tint
9:11	1.75	13.3	7.28	1686	-54.6	0.94	5.154	peri speed reduced
9:14	2.8	13.3	7.26	1673	-38.9	0.65	5.332	
9:17	3.3	13.3	7.25	1670	-18.5	0.55	5.505	peri speed reduced
9:20	3.8	12.9	7.25	1664	3.4	0.61	5.622	
9:23	4.2	12.8	7.25	1664	18.9	0.59	5.714	
9:26	4.8	13.0	7.25	1664	31.6	0.48	5.792	
9:29	5.3	13.1	7.25	1668	40.5	0.46	5.826	
9:32	5.7	13.1	7.25	1664	46.2	0.44	5.854	
9:35	6.1	13.1	7.25	1661	51.0	0.45	5.871	
9:38	6.5	13.0	7.25	1662	54.7	0.45	5.884	

Odour: ☒ Yes ☐ No If Yes, describe landfill

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear IIIIIIIIIIIIIIIIIIIIII Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic ☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic X Glass						☐ Yes	☐ No
Sulfide	X Plastic ☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic X Glass						☐ Yes	☐ No

sampled @ 9:40

GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 0°C

Date: Oct 26/23
Tech: AB+SL

Well No: 29-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 9.43
Depth of Water (A): 3.981
Bottom of Well (B): 11.9m
Well Condition: Good - installed HDPE

One Well Volume: 16 Litres
Diameter of Well: 51
(B-A)*2 176 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

☐ Waterra
☐ Hydrolift
☐ Bailer
☒ Peristaltic
☐ Submersible
Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
pH 4 _____ pH 7 _____ pH10 _____
1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 24 Litres
Average Flow Rate: _____
Sample Intake Depth: 12.3m from bottom
Start time: 9:57

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
10:00	1	13.2	7.31	6731	-51.4	0.61	4.349	cloudy water
10:03	1.8	13.5	7.27	6666	-38.7	0.37	4.636	pen speed reduced
10:06	2.3	13.6	7.26	6714	-39.7	0.32	4.864	
10:09	2.8	13.6	7.25	6684	-72.8	0.32	5.099	pen speed reduced
10:12	3.2	12.9	7.25	6603	-82.9	0.35	5.262	
10:15	3.7	13.0	7.23	6616	-88.5	0.36	5.393	
10:18	4	12.7	7.24	6581	-90.7	0.38	5.535	
10:21	4.3	12.6	7.23	6569	-87.4	0.37	5.664	
10:24	4.7	12.5	7.21	6560	-82.4	0.36	5.793	
10:27	5	12.5	7.22	6558	-76.6	0.34	5.915	

Odour: ☒ Yes ☐ No If Yes, describe Landfill
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear IIIIIIIIIIIIIIIIIIIIII Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic ☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic X Glass						☐ Yes	☐ No
Sulfide	X Plastic ☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic X Glass						☐ Yes	☐ No

Sampled @ 10:30



Weather: Sunny
Temperature: 9°C

Date: Oct. 26/23
Tech: AR + SE

Well No: 6228-3
Field Dup:

Time of Measurement: 12:07
 Depth of Water (A): 4.952
 Bottom of Well (B): 7.5m
 Well Condition: Good

One Well Volume: 5.1 Litres
Diameter of Well: 51
(B-A)*2 5.1 Litres for 51mm ϕ well
(B-A)*8 Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Submersible

Pump Details:

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 pH 7 pH10

1413 μ S/cm 5000 μ S/cm DO

Purge Volume: Well Vol. X 3 = 15.3 Litres Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start time: 12:12

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe

Sheen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

sampled @ 12:36



Weather: cloudy
Temperature: 18°C

Date: Oct 26, 73
Tech: AB + 52

Well No: GL 28-2
Field Dup:

Time of Measurement: 12:50
Depth of Water (A): 5.006
Bottom of Well (B): 9.5m
Well Condition: Good - no plug

One Well Volume: 9 Litres
Diameter of Well: 51
(B-A)*2 9 Litres for 51mm ϕ well
(B-A)*8 Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Submersible

Pump Details:

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
 pH 4 pH 7 pH10
 1413us/cm 5000us/cm DO

Purge Volume: Well Vol. X 3 = 27 Lines Sample Intake Depth: 0.5m from bottom
Average Flow Rate: _____ Start time: 12:52

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____
Sheen: ☐ Yes ☒ No If Yes, describe _____
Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 13:21



Weather: Sunny
Temperature: 20°C

Date: Oct 26, 83
Tech: A.D. + 52

Well No: GL 28-1
Field Dup: _____

Time of Measurement: 13:37
Depth of Water (A): 5.392
Bottom of Well (B): 19
Well Condition: Good

One Well Volume: 27.2 Litres
Diameter of Well: 51mm
(B-A)*2 27.2 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☒ Peristaltic
- ☐ Submersible

Pump Details: _____

Multi-meter Model: YSI Pro
☐ Field Bump ☐ Field Calibration
 pH 4 pH 7 pH10
 1413µs/cm 5000µs/cm DO

Purge Volume: Well Vol. X 3 = 81.6 Litres Sample Intake Depth: 0.3 m from bottom
Average Flow Rate: _____ Start time: 13:38

[illegible]

Odour: ☐ Yes ☒ No If Yes, describe _____

Sheen: ☐ Yes ☒ No If Yes, describe

Turbidity: Clear ☒ Yes ☐ No ☐ Yes, excessive ☐ Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 14:04



Weather: Sunny
Temperature: _____

Date: OCT. 30 / 23
Tech: AR + SE

Well No: GL 42-1
Field Dup:

Time of Measurement: 14:30
 Depth of Water (A): 11.000
 Bottom of Well (B): 20.7
 Well Condition: GOOD

One Well Volume: 19.4 L
Diameter of Well: 15
(B-A)*2 19.4 Litres for 51mm ϕ well
(B-A)*8 Litres for 102mm ϕ well

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☐ Submersible

Pump Details: SS Bladder

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 pH 7 pH10

1413 μ s/cm 5000 μ s/cm DO

Purge Volume: Well Vol. X 3 = 58.2 litres Sample Intake Depth: _____
Average Flow Rate: _____ Start time: 14:40

[illegible]

Odour: ☒ Yes ☐ No If Yes, describe land fill

parameters stabilized @

Sheen: ☐ Yes ☒ No If Yes, describe

Turbidity: Clear I I I I I I I I I I I I I I I I I I I I I I I Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

Sampled @ 15:15

Drive 5 s. Vent 15 s Pressure 50 psi.



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
 Temperature: _____

Date: OCT. 30/23
 Tech: AR + SI

Well No: GL 42-2
 Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 15:52
 Depth of Water (A): 11.162
 Bottom of Well (B): 12.4
 Well Condition: Good

One Well Volume: 2.4 L
 Diameter of Well: 51
 (B-A)*2 2.4 Litres for 51mm ϕ well
 (B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☐ Submersible

Multi-meter Model: YSI Pro

☐ Field Bump ☐ Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413 μ S/cm _____ 5000 μ S/cm _____ DO _____

Pump Details: SS Bladder

WELL DEVELOPMENT

Purge Volume: Well Vol. X 3 = 7.4
 Average Flow Rate: _____

Sample Intake Depth: _____

Time	Vol. Removed (L)	Temp (°C)	pH (Units)	Conductivity (uS/cm)	Redox (mV)	Dissolved O ₂ (mg/L)	Water Level (m)	Comments
15:54	0							Cloudy 600 mL/min
15:57	1.8	11.4	7.27	7814	68.2	1.68	11.520	" "
16:00	3.6	11.3	7.20	7843	71.9	0.96		→ top of pump
16:03	5.4	11.2	7.17	7853	72.5	0.79		
			PURGED - WILL RETURN TMRW TO SAMPLE					
			↳ RETURNED @ 13:45 OCT. 31/23 TO SAMPLE (NEXT PAGE)					

Odour: ☐ Yes ☐ No If Yes, describe _____

Sheen: ☐ Yes ☐ No If Yes, describe _____

Turbidity: Clear ☐ Very Silty

Analysis	Type	Container Size					Filtered	
		40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic ☐ Glass					1	☐ Yes ☐ No	
Metals	X Plastic ☐ Glass		1				☐ Yes ☐ No	
Mercury	☐ Plastic X Glass	1					☐ Yes ☐ No	
COD, nutrient	X Plastic X Glass		1				☐ Yes ☐ No	
Organic C	☐ Plastic X Glass	2					☐ Yes ☐ No	
LEPH/HEPH	☐ Plastic X Glass						☐ Yes ☐ No	
Sulfide	X Plastic ☐ Glass						☐ Yes ☐ No	
VOC/BTEX	☐ Plastic X Glass						☐ Yes ☐ No	

no samples collected

Drive: 5s Vent: 7s Pressure: 50 psi



GROUNDWATER SAMPLING FORM

GLENMORE LANDFILL

Weather: Sunny
Temperature: 10°C

Date: Oct. 31 / 2023
Tech: AB + SI

Well No: GL 42-2
Field Dup: _____

MONITORING WELL INFORMATION

Time of Measurement: 13:42
Depth of Water (A): 11.127
Bottom of Well (B): 12.4
Well Condition: good

One Well Volume: 2.54 L
Diameter of Well: 51
(B-A)*2 2.54 Litres for 51mm ϕ well
(B-A)*8 _____ Litres for 102mm ϕ well

EQUIPMENT LIST

- ☐ Waterra
- ☐ Hydrolift
- ☐ Bailer
- ☐ Peristaltic
- ☐ Submersible

Pump Details: SS Bladder

Multi-meter Model: YSI Pro

- ☐
- Field Bump
- ☐
- Field Calibration

pH 4 _____ pH 7 _____ pH10 _____

1413 μ s/cm 5000 μ s/cm DO

WELL DEVELOPMENT

Purge Volume: Well Vol. X _____ = _____ Sample Intake Depth: _____

Average Flow Rate: _____

[illegible]

Odour: ☒ Yes ☐ No If Yes, describe landfill

Seen: ☐ Yes ☒ No If Yes, describe _____

Turbidity: Clear  Very Silty

Analysis	Type		Container Size					Filtered	
			40 mL	125 mL	250 mL	500 mL	1 L		
General	X Plastic	☐ Glass					1	☐ Yes	☒ No
Metals	X Plastic	☐ Glass		1				☒ Yes	☐ No
Mercury	☐ Plastic	X Glass	1					☒ Yes	☐ No
COD, nutrient	X Plastic	X Glass		1				☐ Yes	☒ No
Organic C	☐ Plastic	X Glass	2					☒ Yes	☐ No
LEPH/HEPH	☐ Plastic	X Glass						☐ Yes	☐ No
Sulfide	X Plastic	☐ Glass						☐ Yes	☐ No
VOC/BTEX	☐ Plastic	X Glass						☐ Yes	☐ No

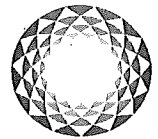
Drive : 45

vent: 10 s

Pressure: 50 psi

Sampled @ 13:52

Glenmore Landfill - Surface Water Level Monitor



Tech:

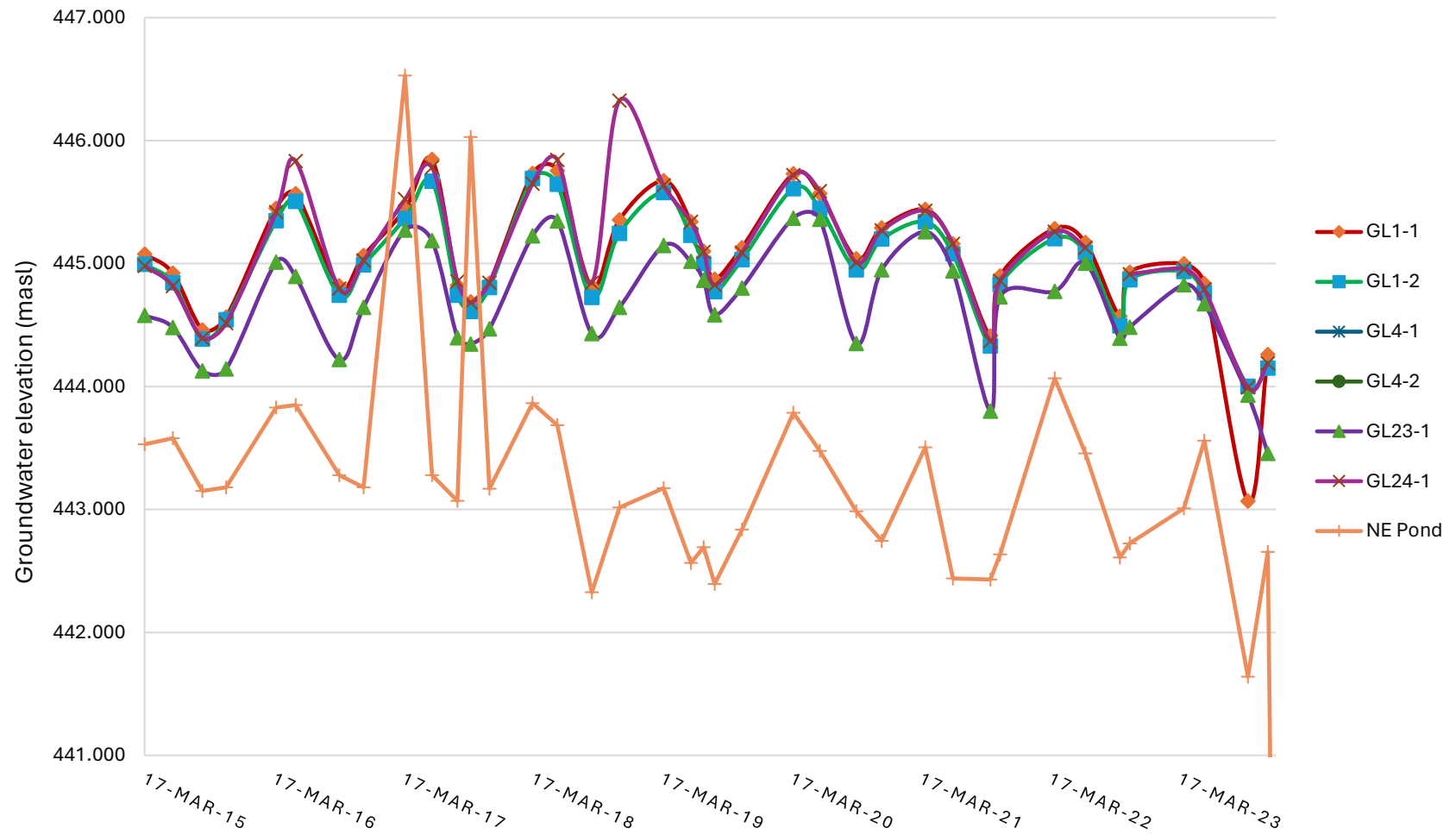
KAROLINA

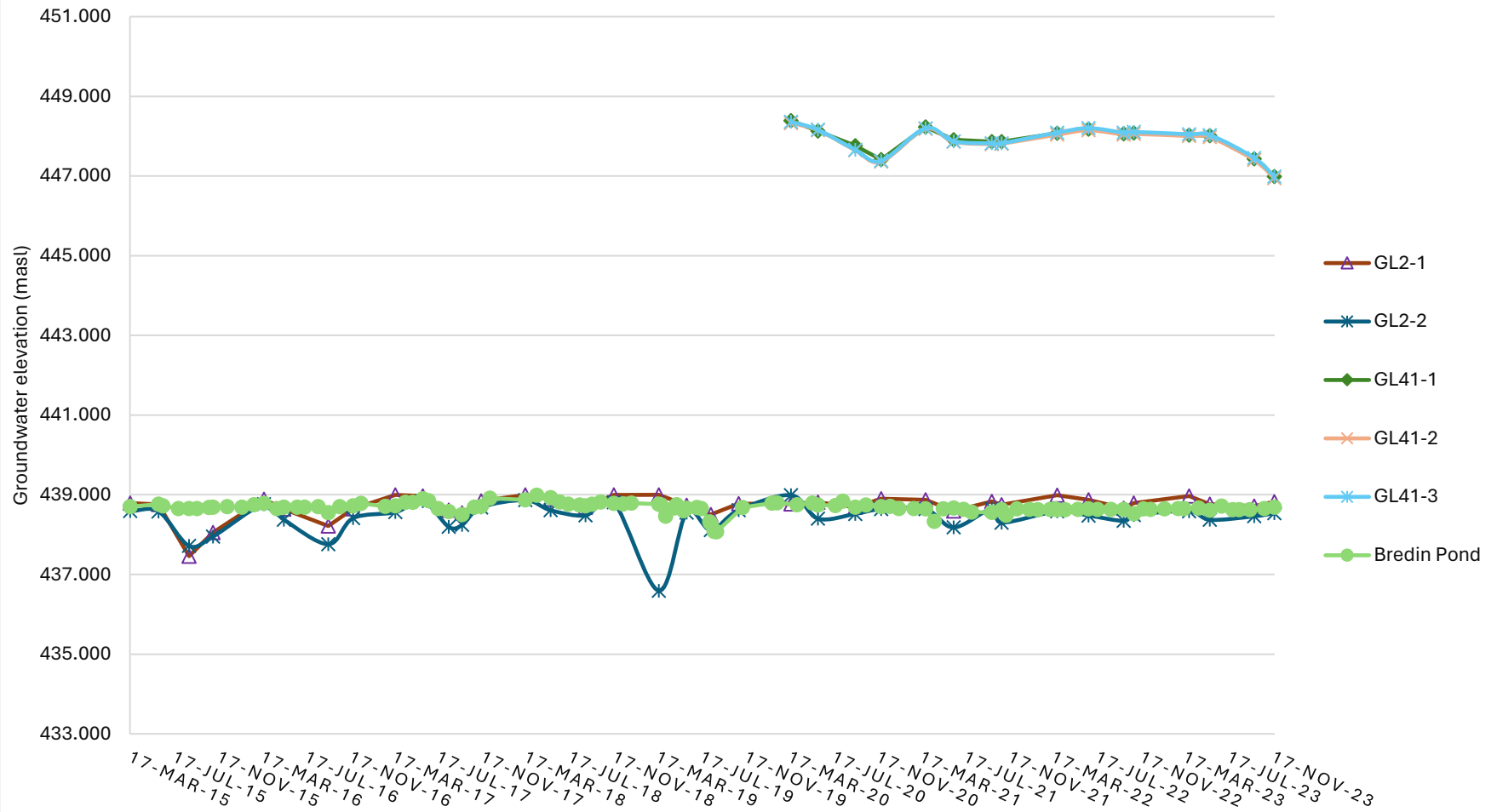
Date:

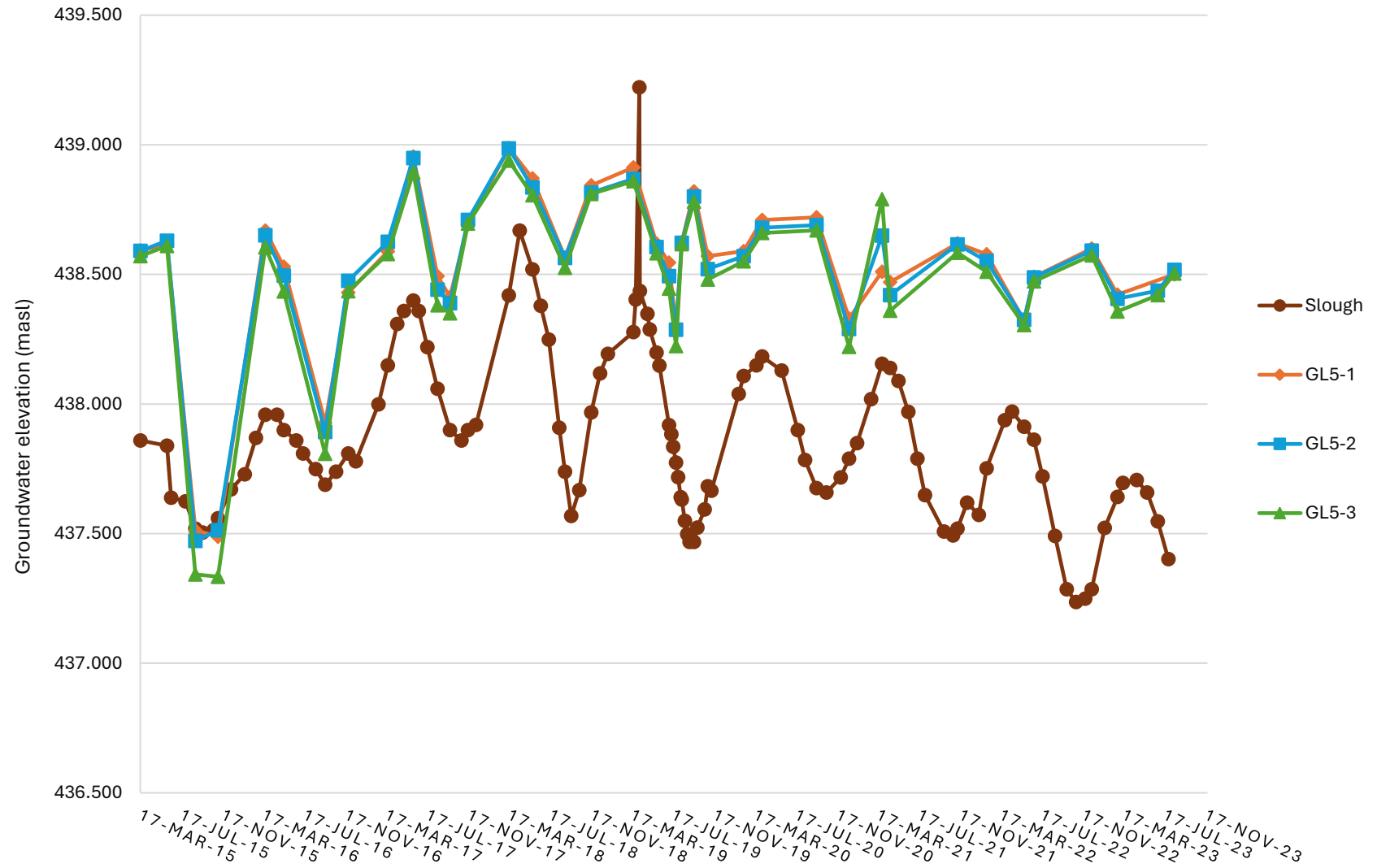
DEC. 13, 2023

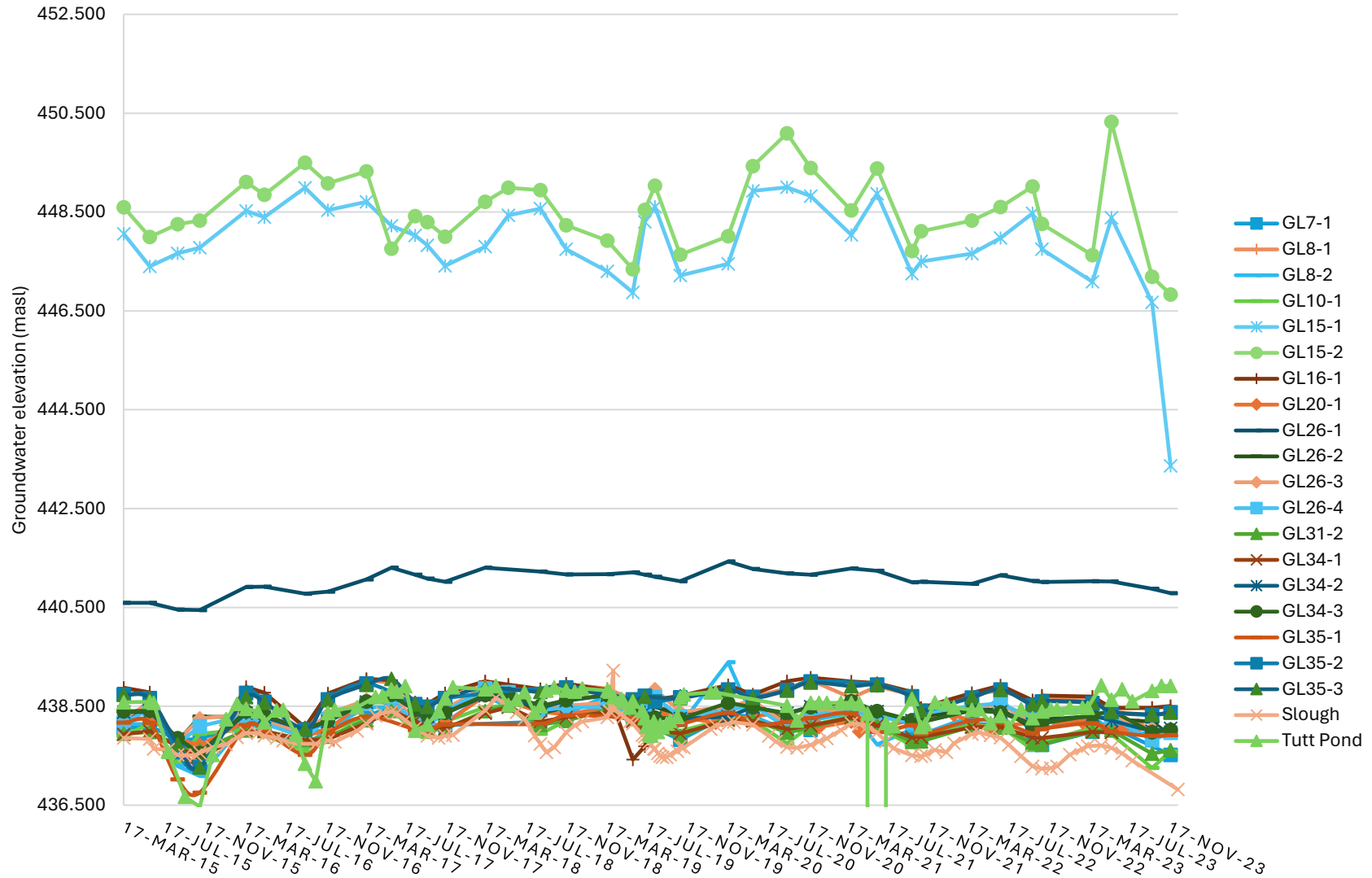
Water Body	Location	Reading (m at MH, cm at Staff)	Notes: surveys completed Apr 9/Nov 13, 2019 & April 2018*
Bredin Pond	Dock	0.49 GROUND 2.09	Transducer reading. Dock Elevation 439.171*.
NE Pond	MH	1.416	MH Elevation 444.165
NE Pond - 1st Bench	MH	1.226	MH Elevation 444.165
Tutt Pond	MH	/	MH Elevation 440.694
Tutt Pond	Staff Gauge	77	Installed near discharge to Slough for quick water reference
Slough	Hydrometer MH	2.374	MH Elevation 439.229
Slough	Staff Gauge	BC	Installed on GL35 well for quick water reference
Leachate Trench	Greywater MH	3.972 ~~2.274~~	MH Elevation 440.607
Robert Lake	Staff Gauge	ZERO JUST ABOVE	Install on fence post at Robert Lake for quick water reference

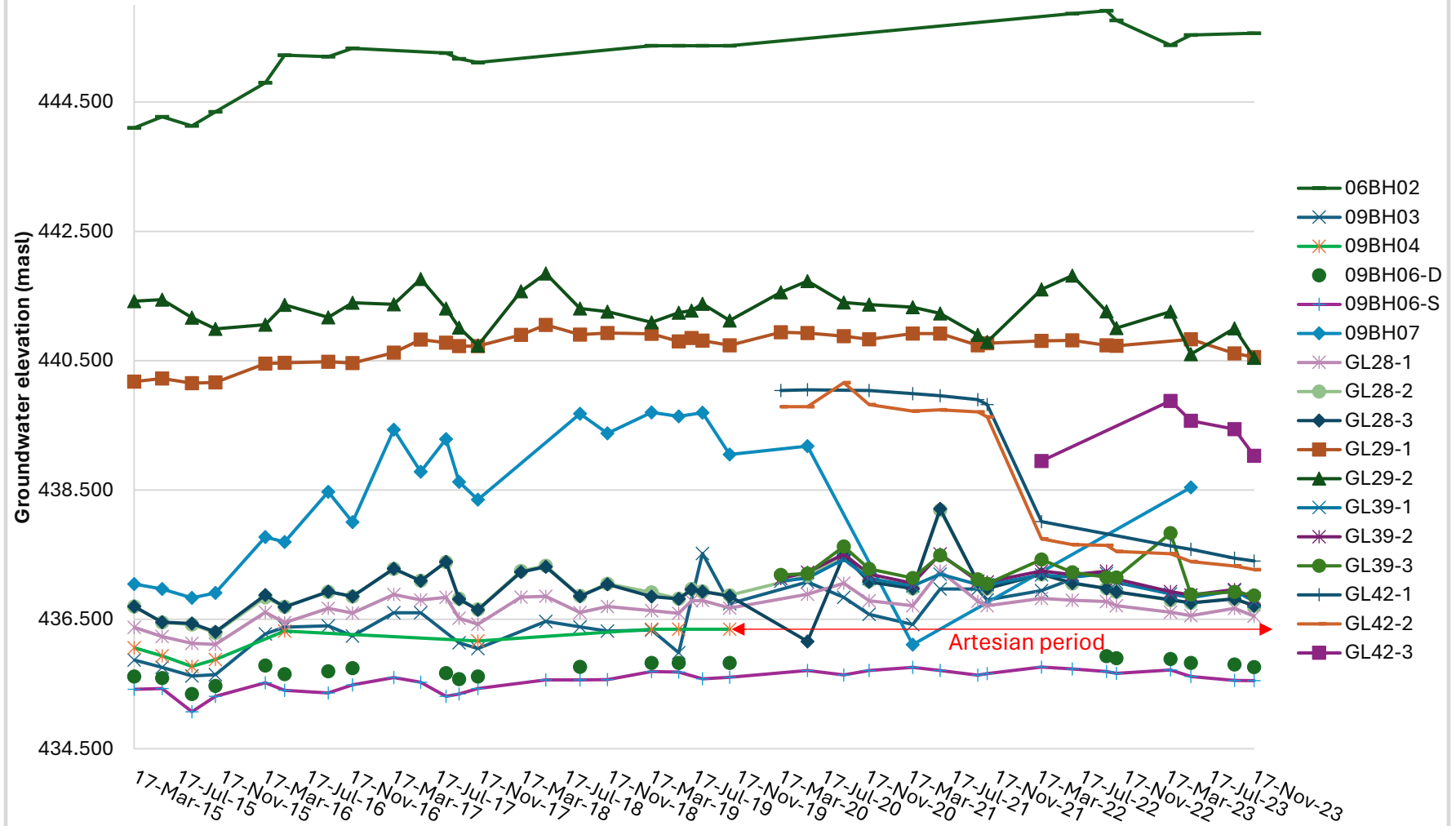
APPENDIX E
GRAPHS 1-13 AND PLOTS 1-16

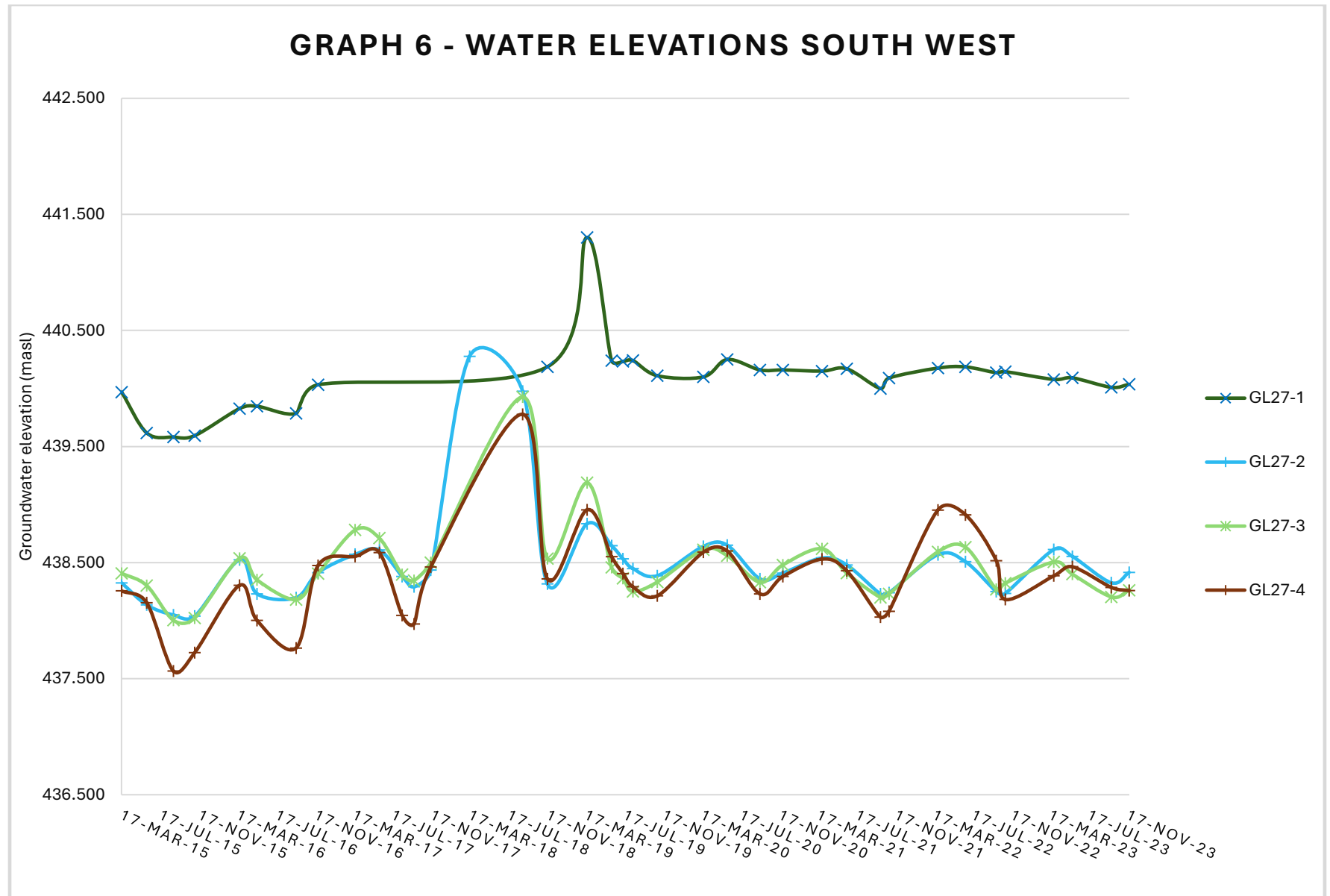
GRAPH 1 - WATER ELEVATIONS NORTHEAST

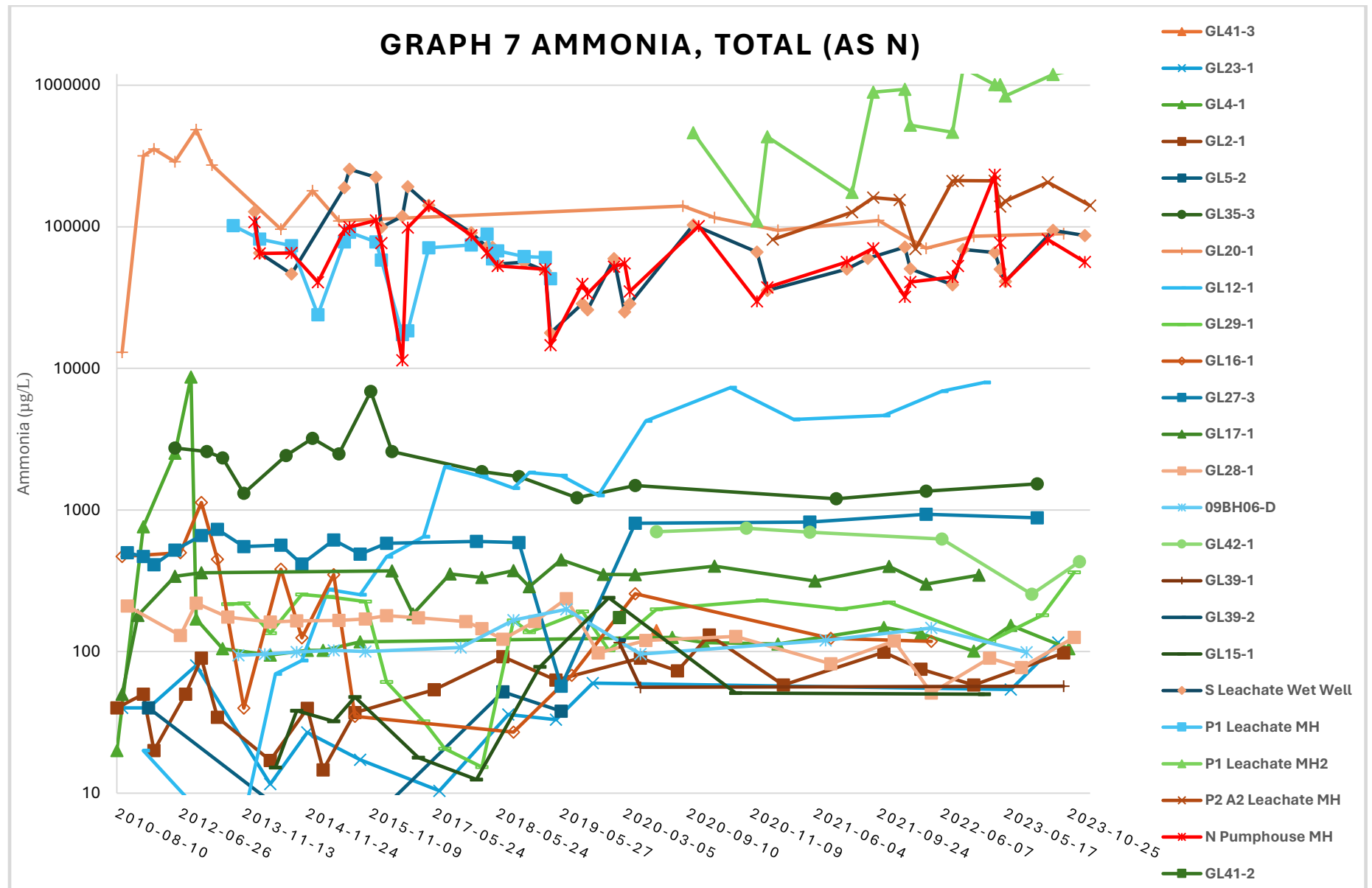
GRAPH 2 - WATER ELEVATIONS NORTHWEST

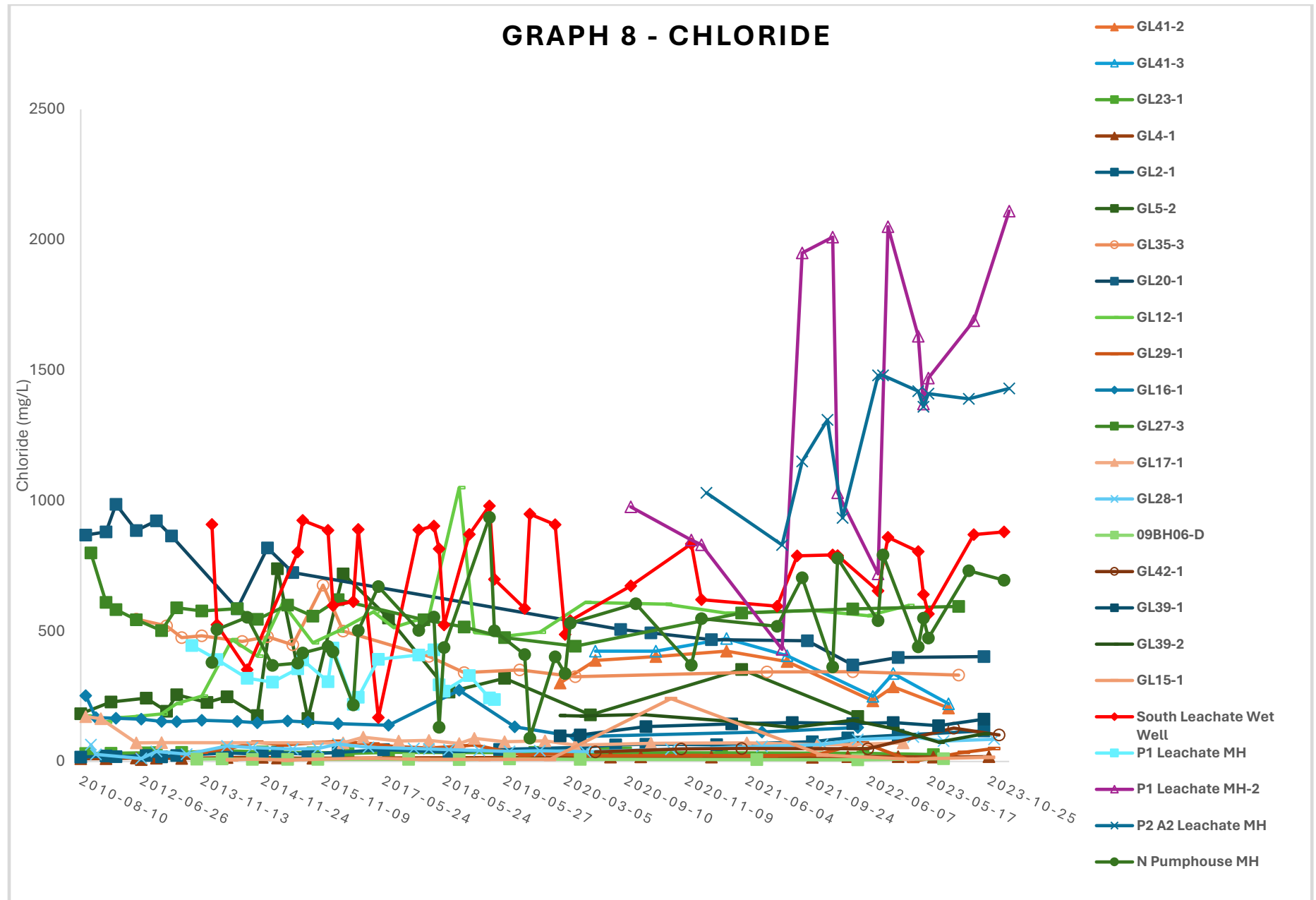
GRAPH 3 - WATER ELEVATIONS CENTRE A

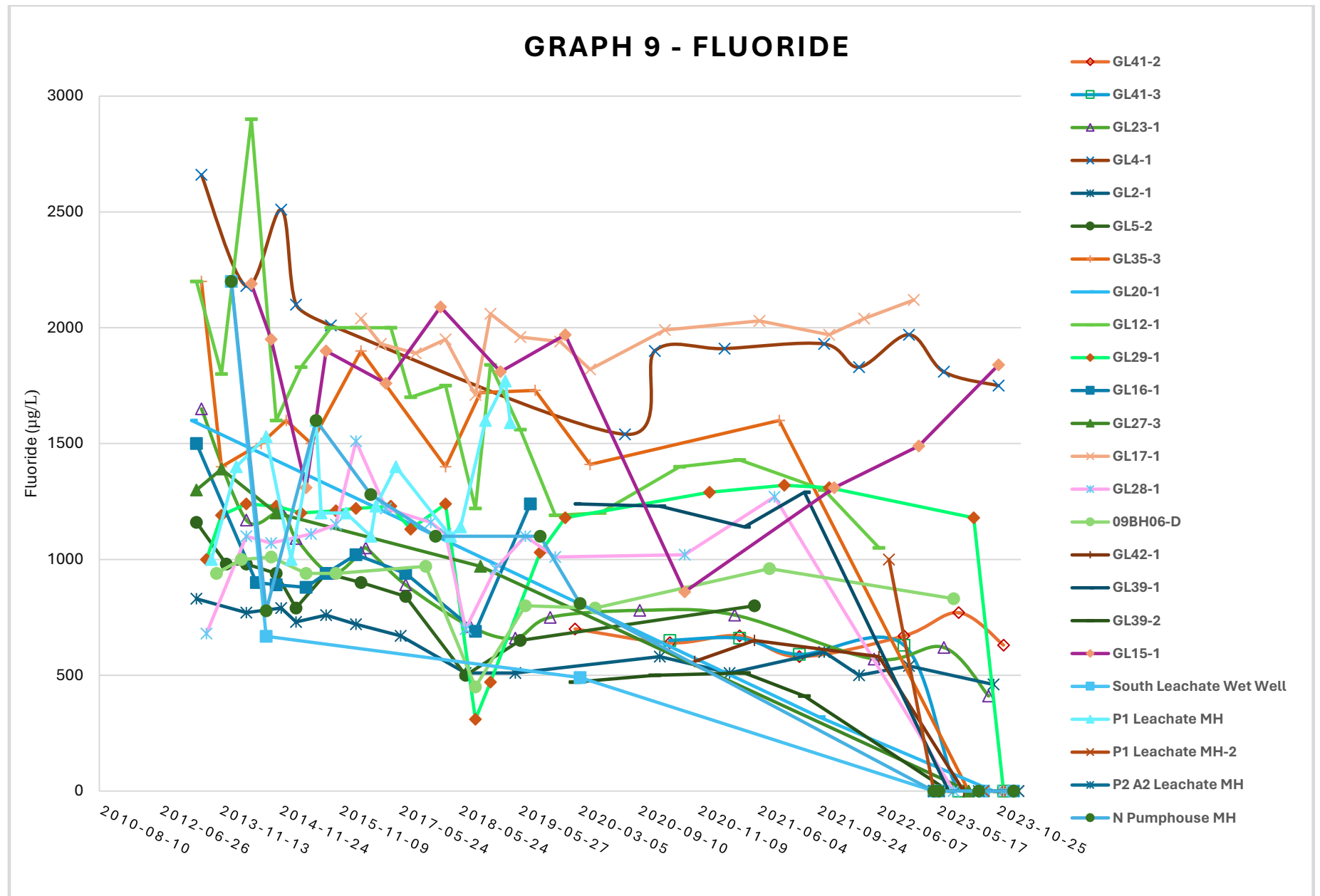
GRAPH 4 - WATER ELEVATIONS CENTRE B

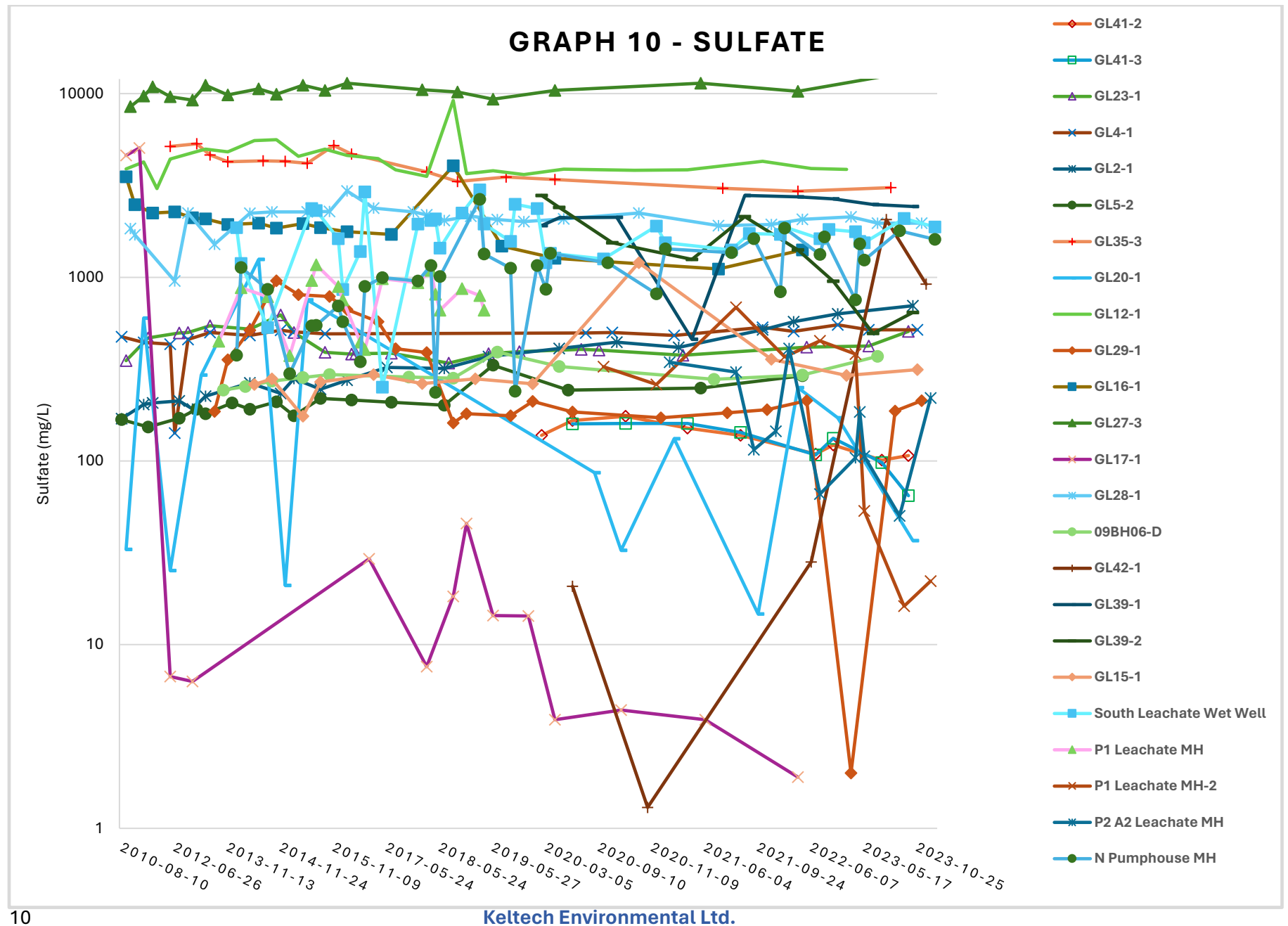
GRAPH 5 - WATER ELEVATIONS SOUTH EAST

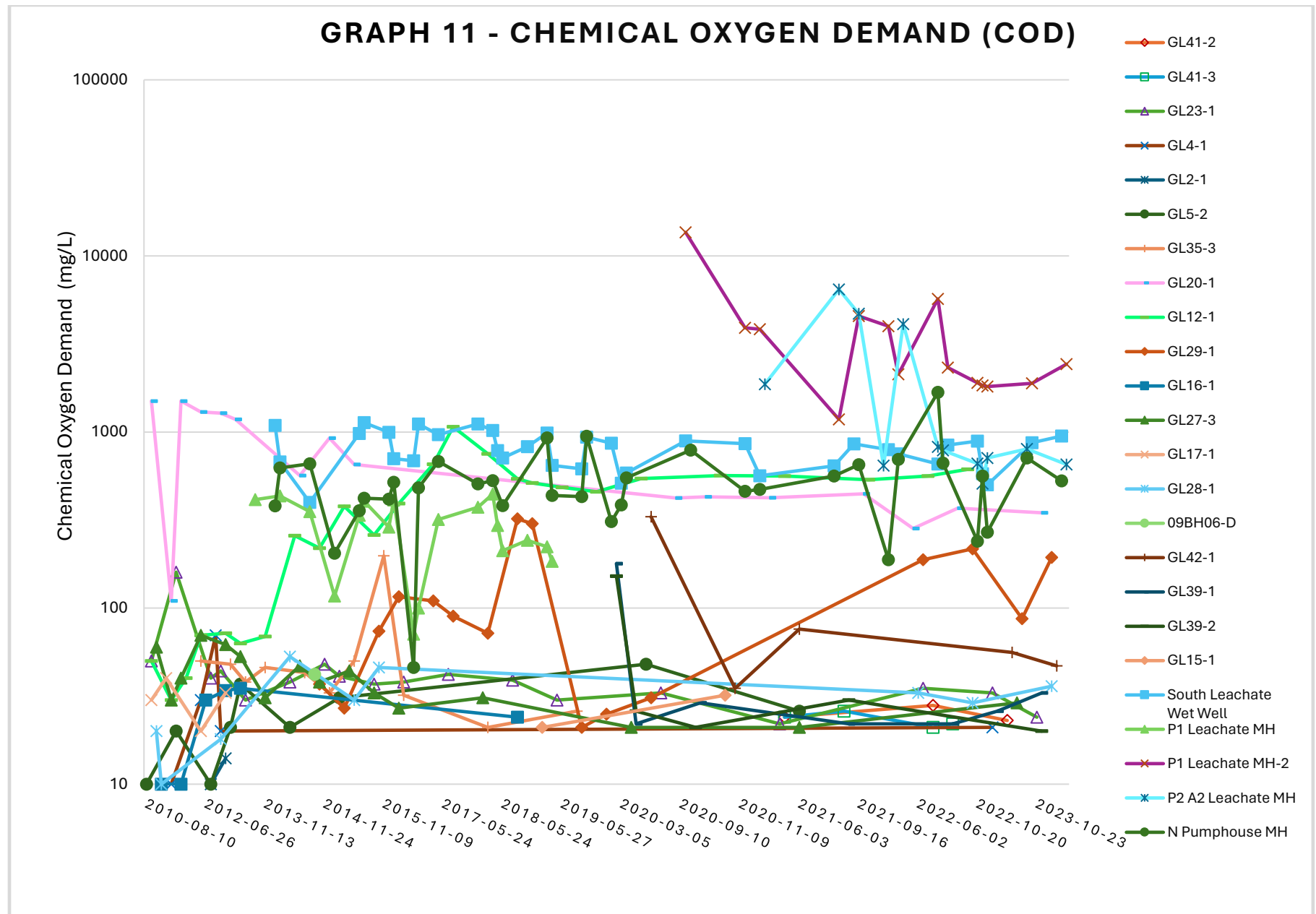


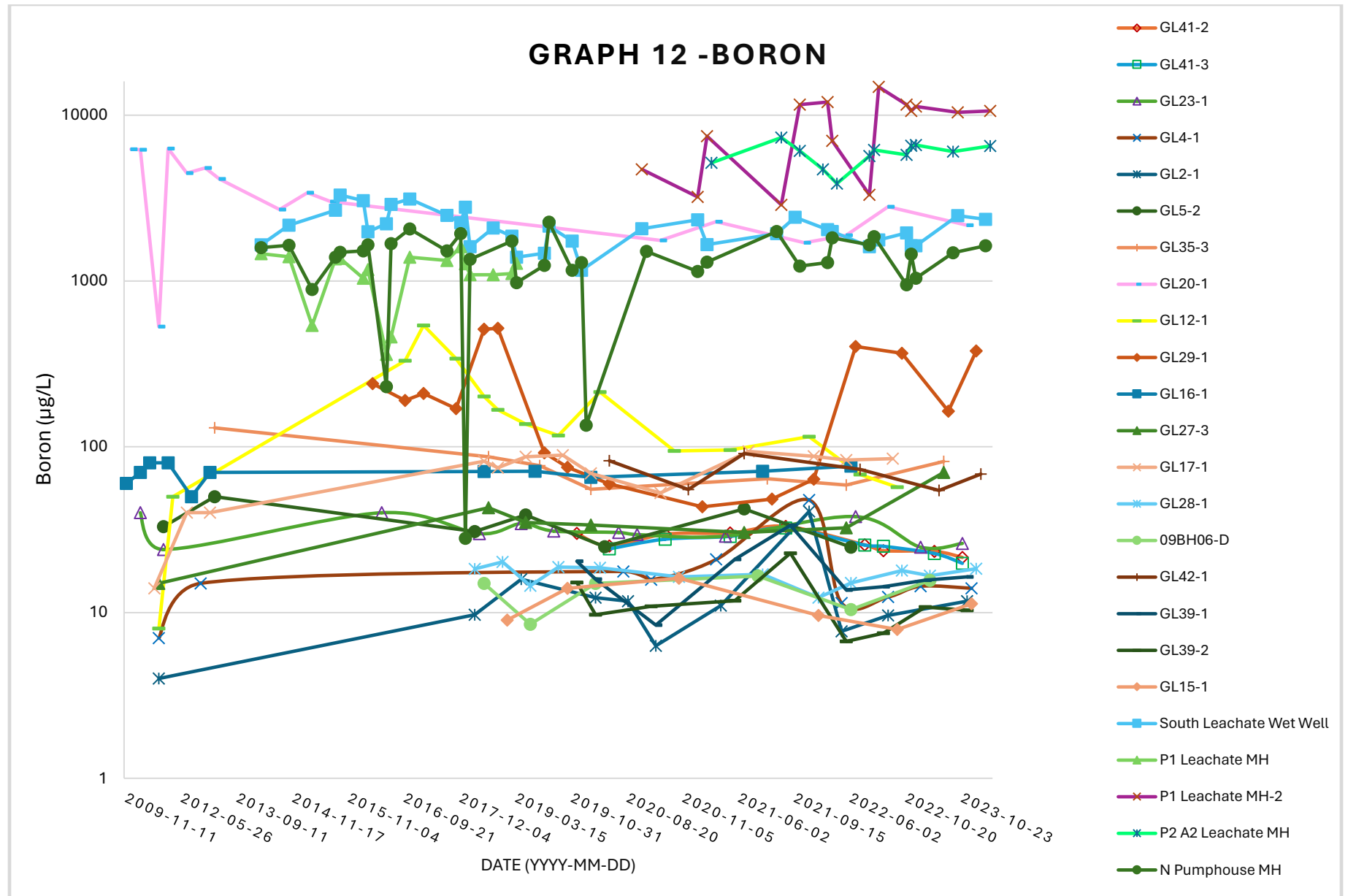


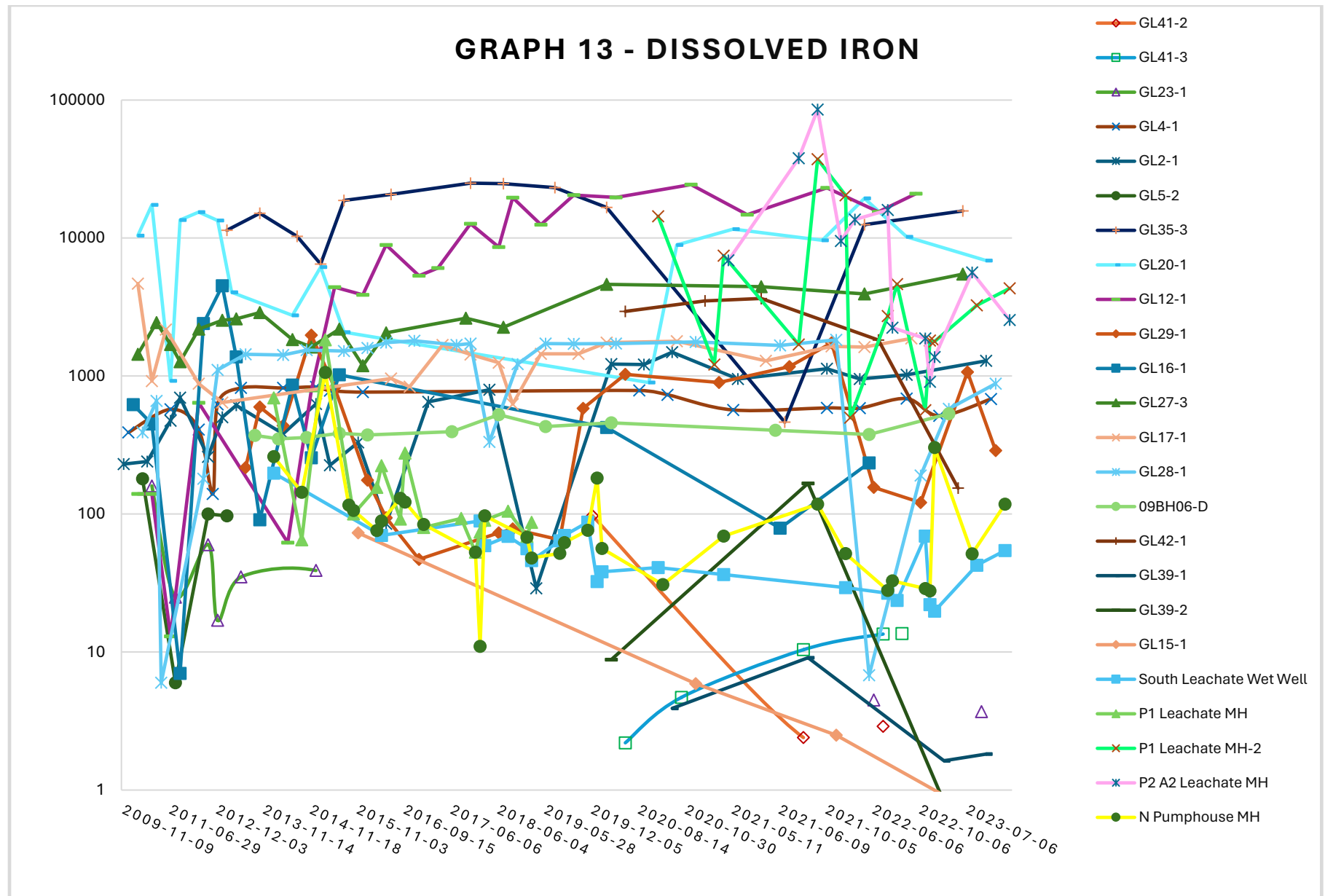


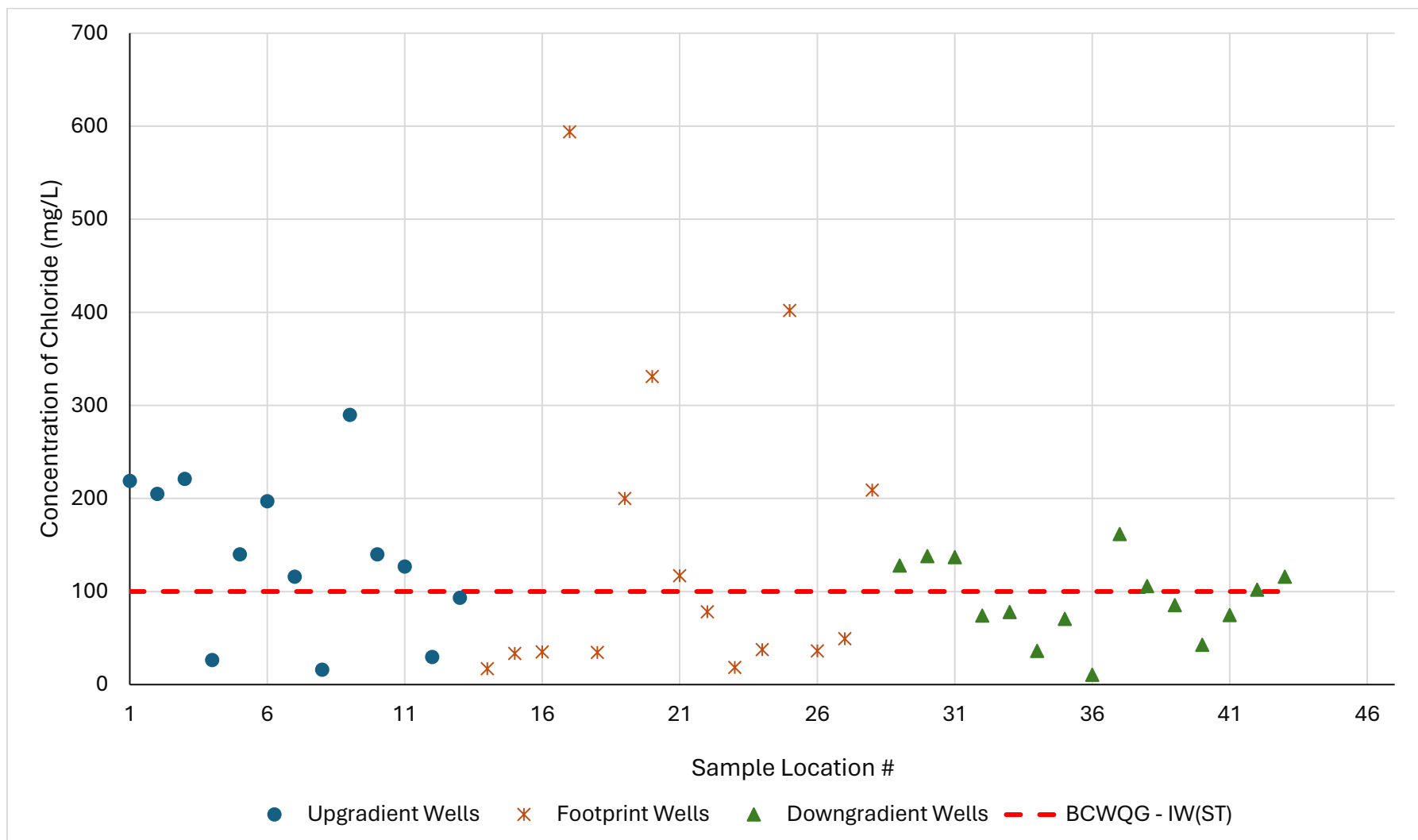


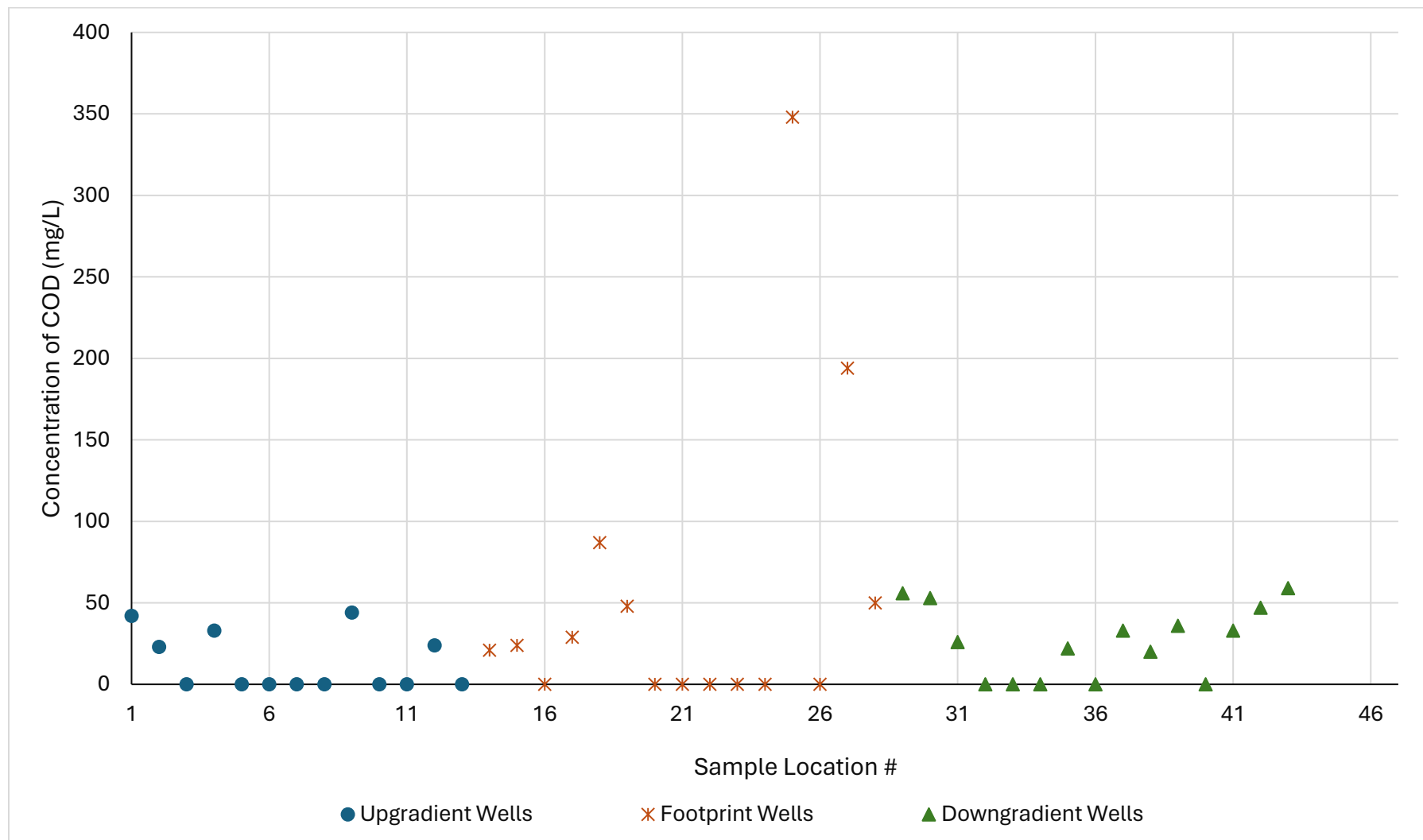


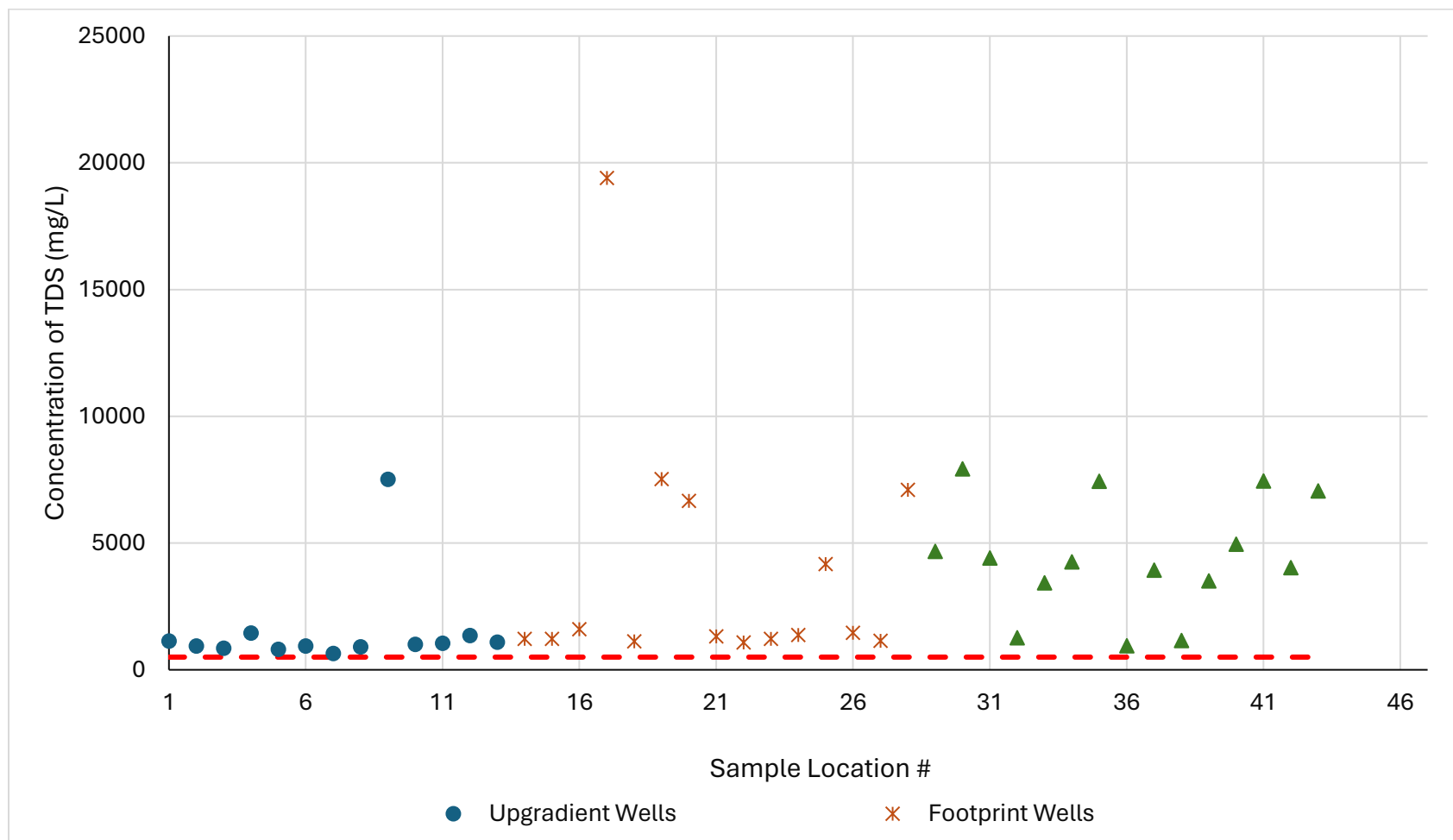


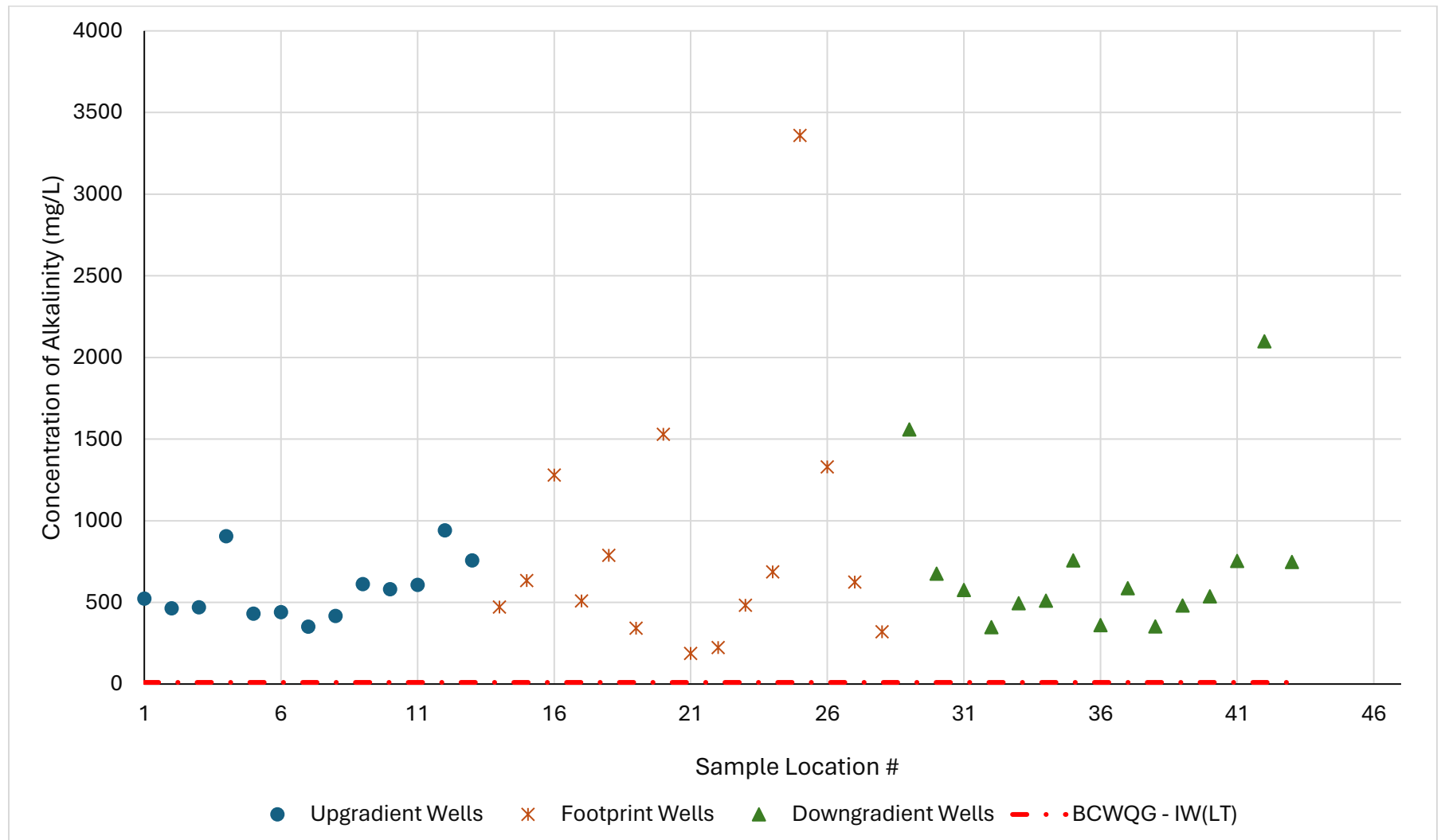


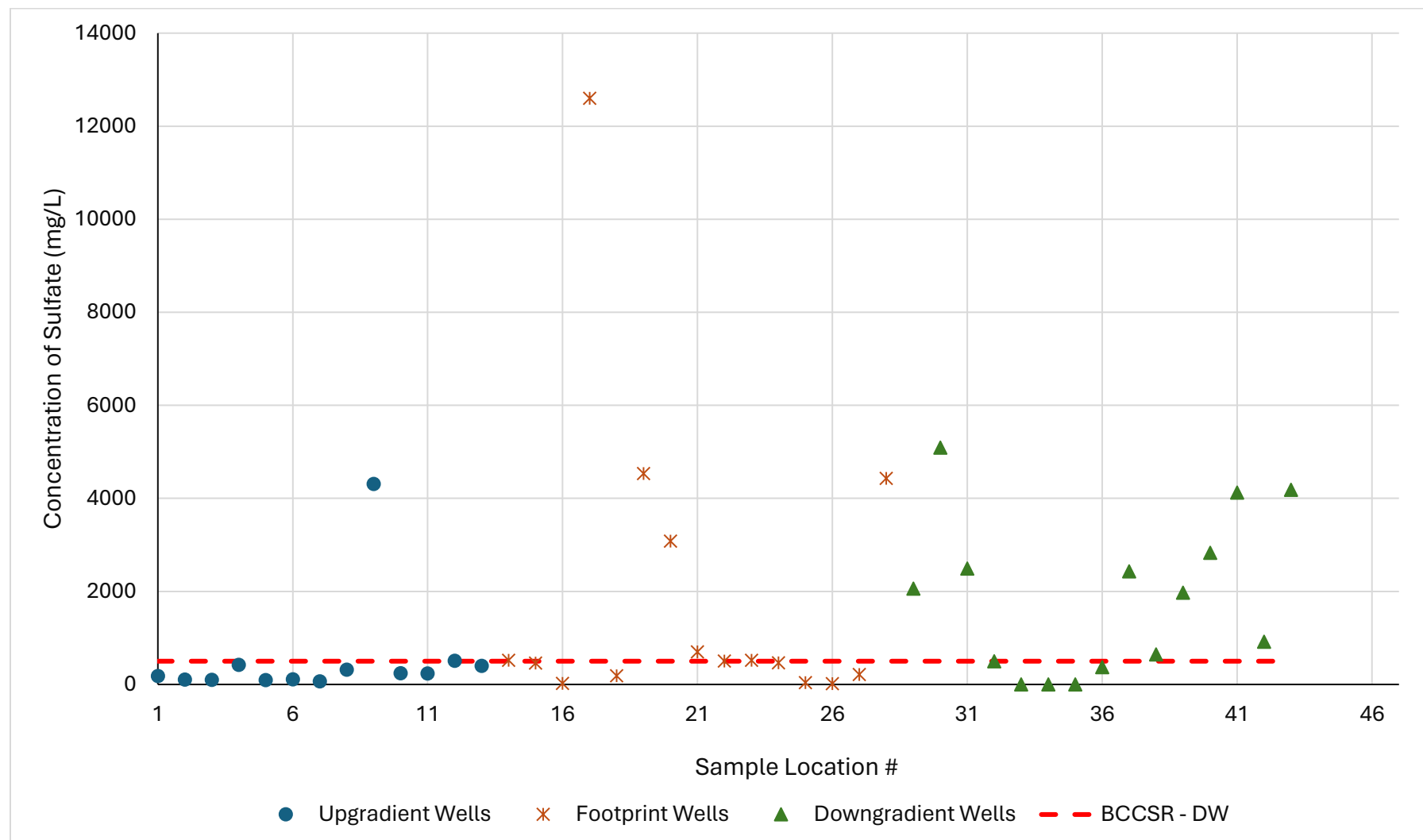


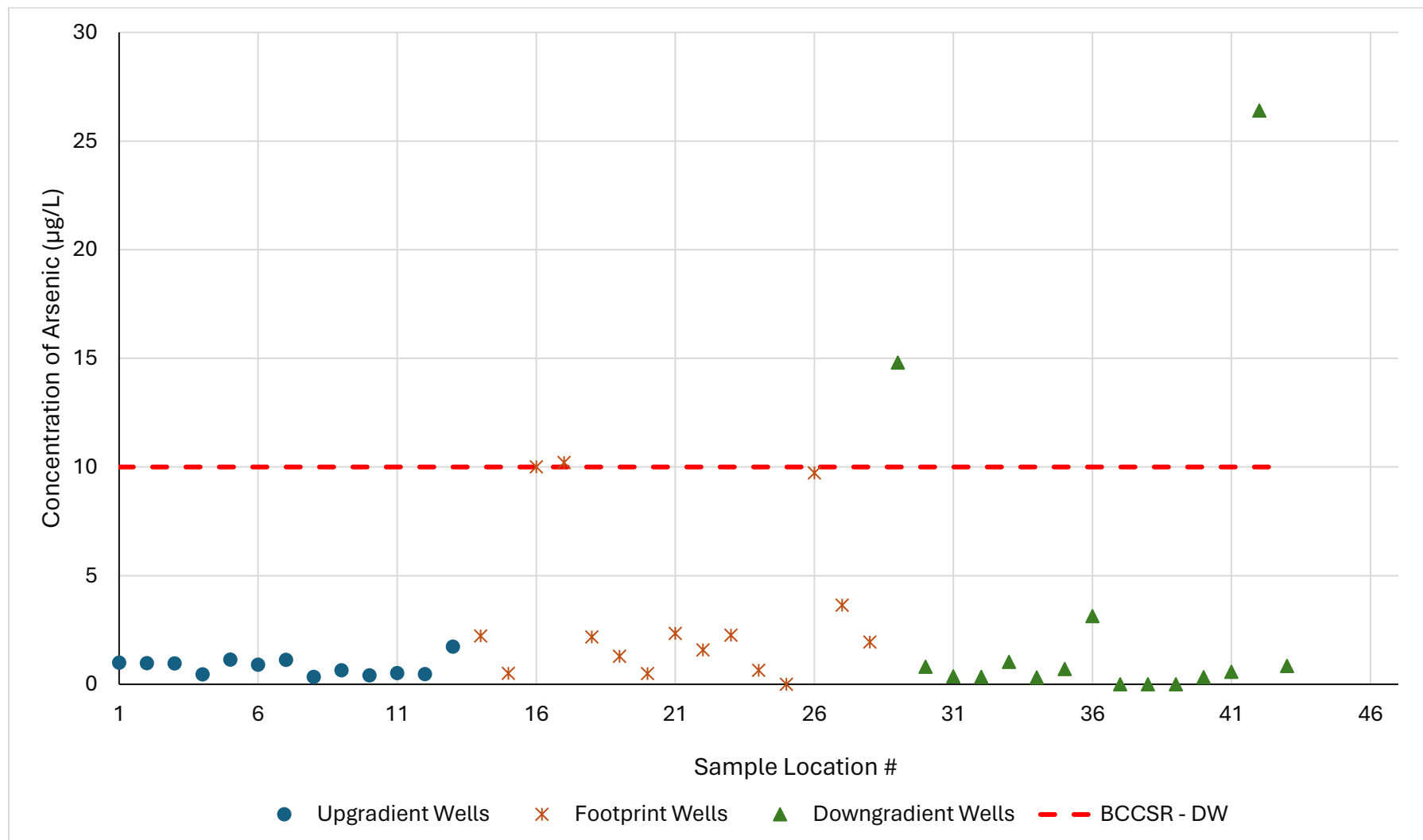
PLOT 1. CONCENTRATIONS OF CHLORIDE IN WELLS ACROSS THE SITE

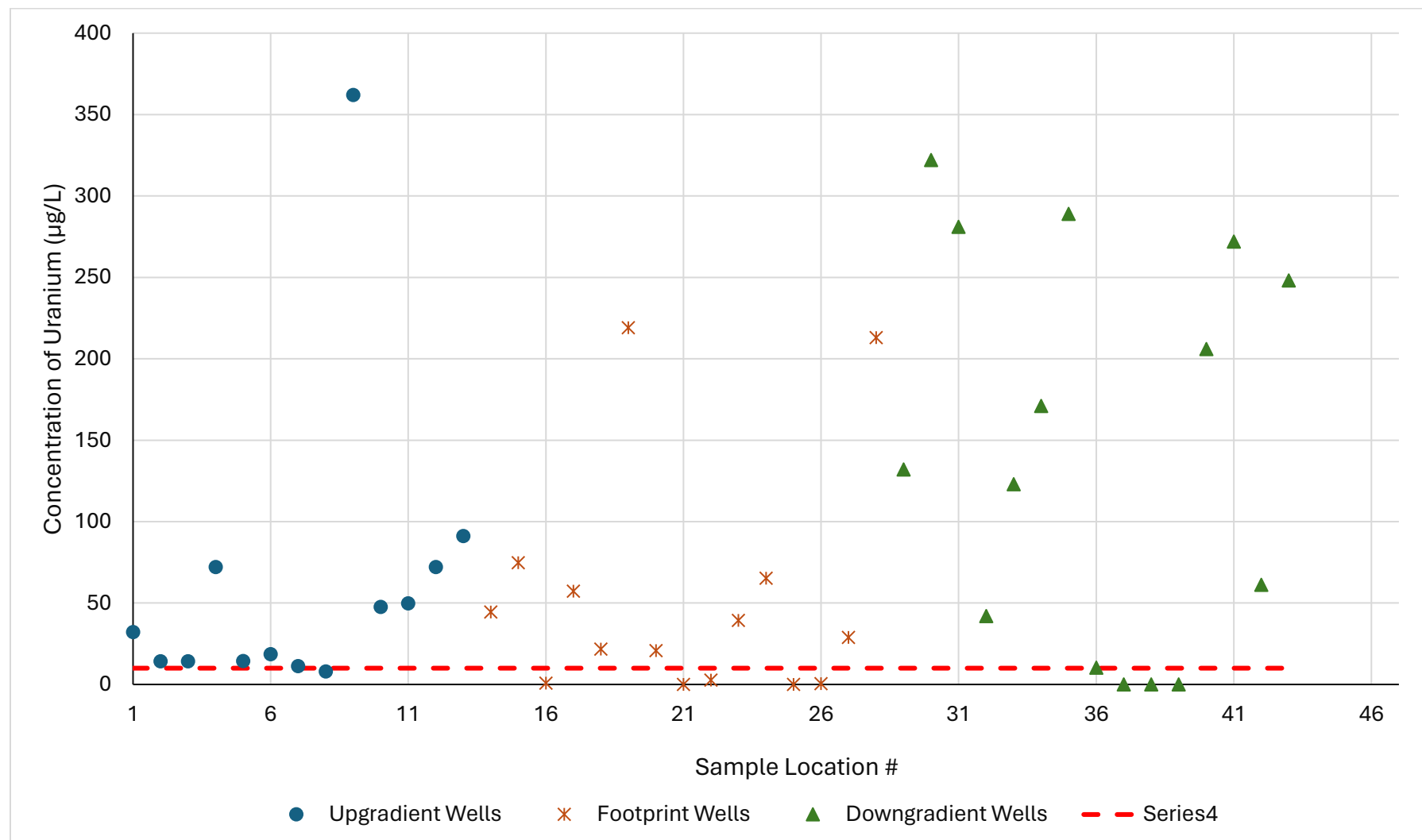
PLOT 2. CONCENTRATIONS OF COD IN WELLS ACROSS THE SITE

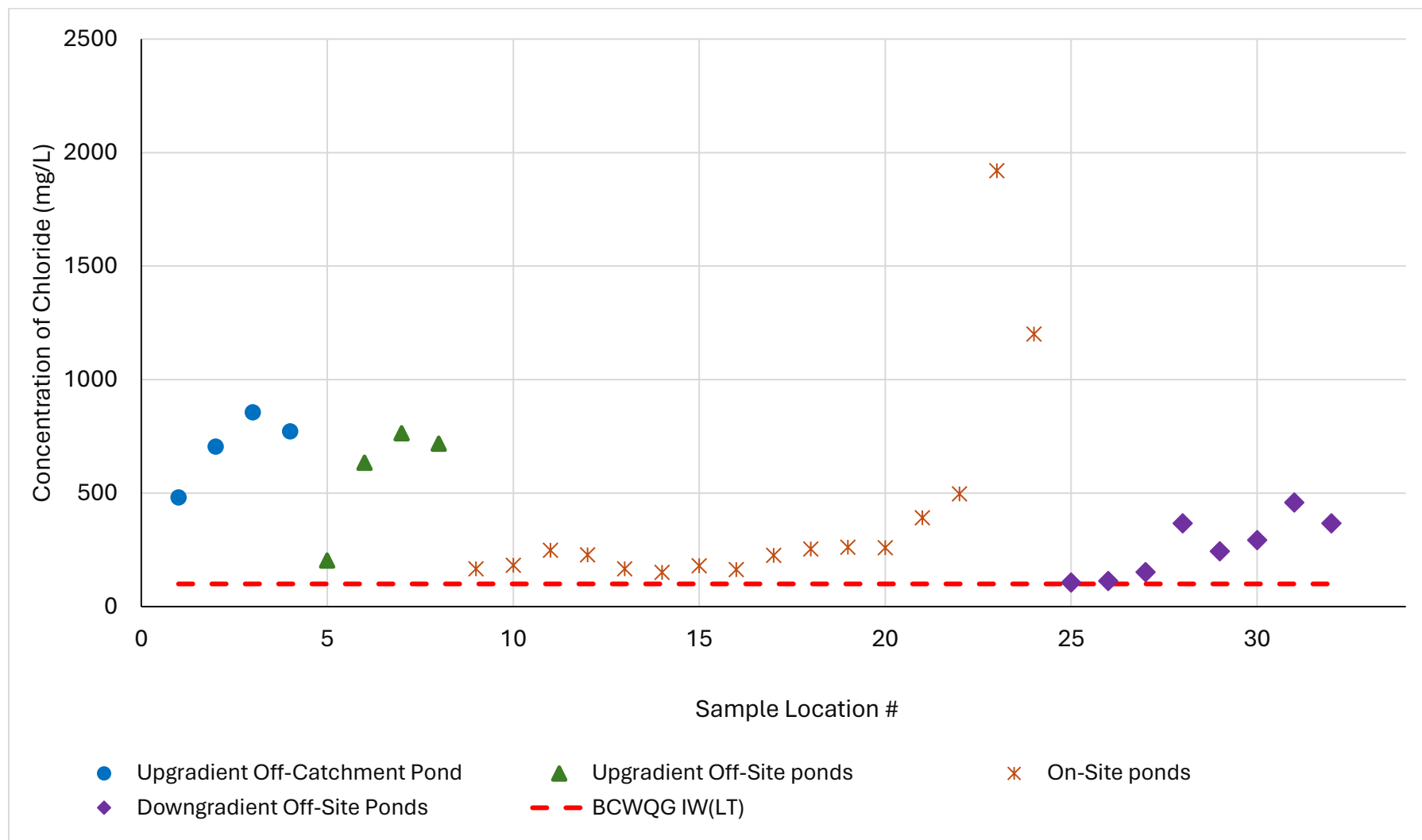
PLOT 3. CONCENTRATIONS OF TDS IN WELLS ACROSS THE SITE

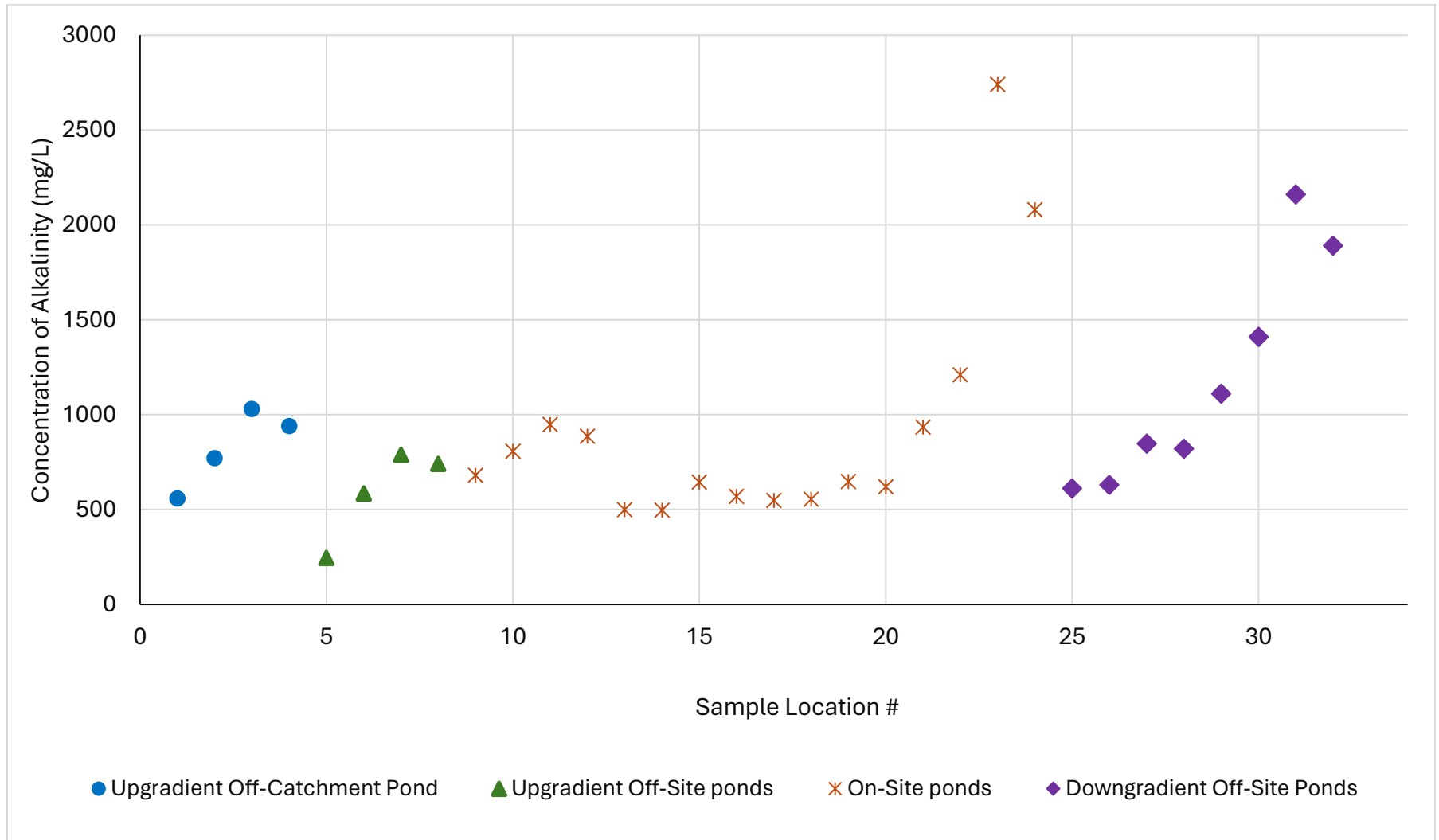
PLOT 4. CONCENTRATIONS OF ALKALINITY IN WELLS ACROSS THE SITE

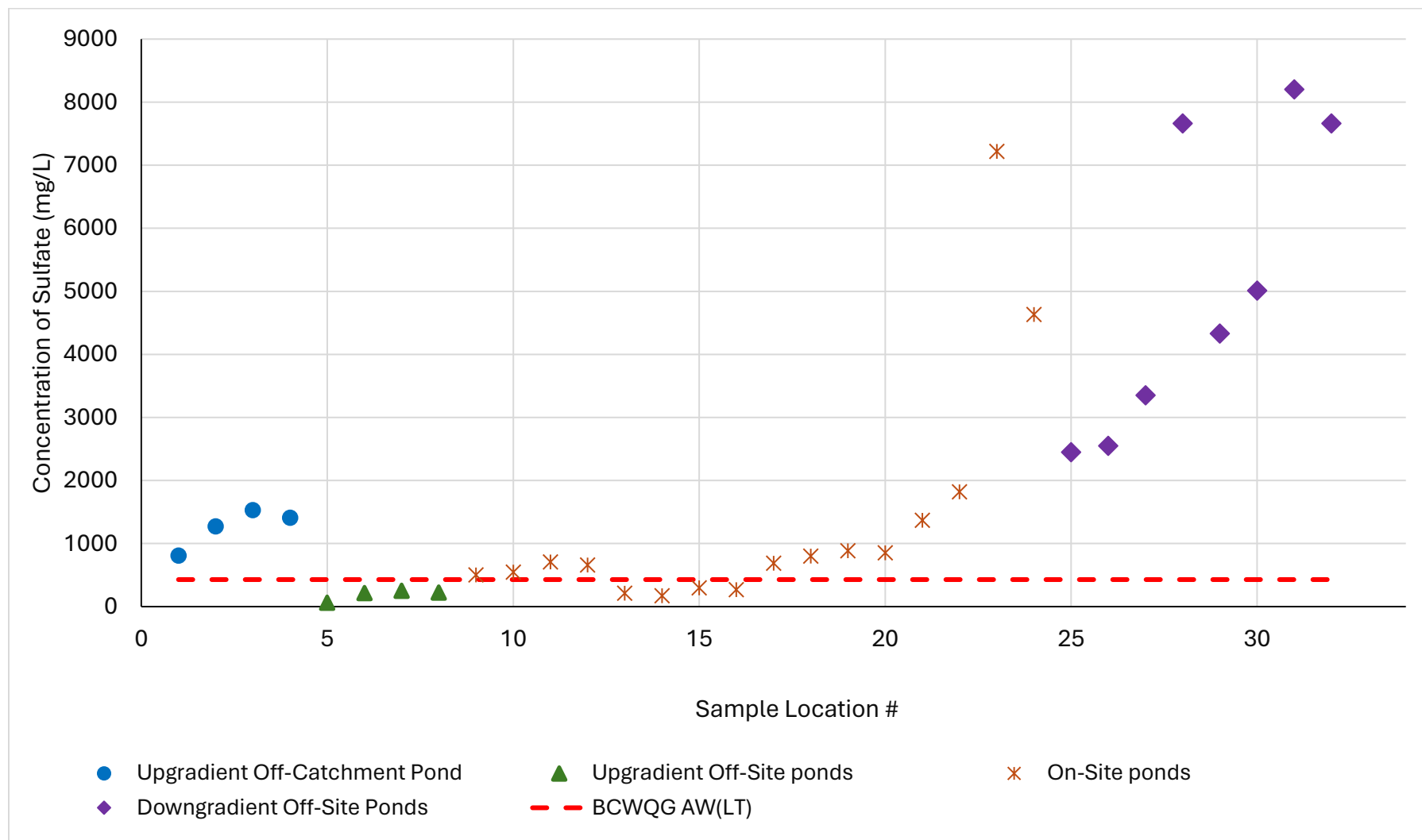
PLOT 5. CONCENTRATIONS OF SULFATE IN WELLS ACROSS THE SITE

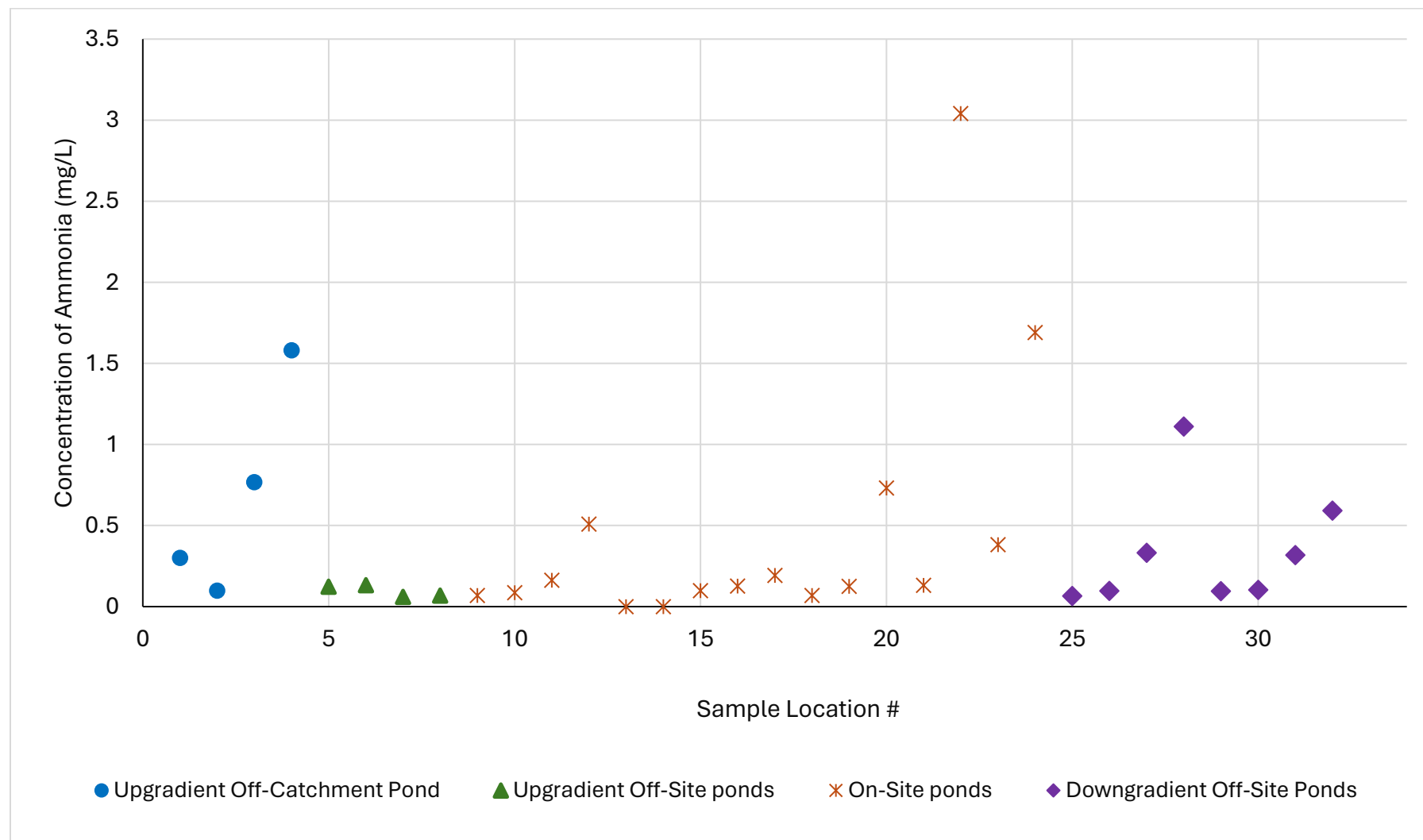
PLOT 6. CONCENTRATIONS OF ARSENIC IN WELLS ACROSS THE SITE

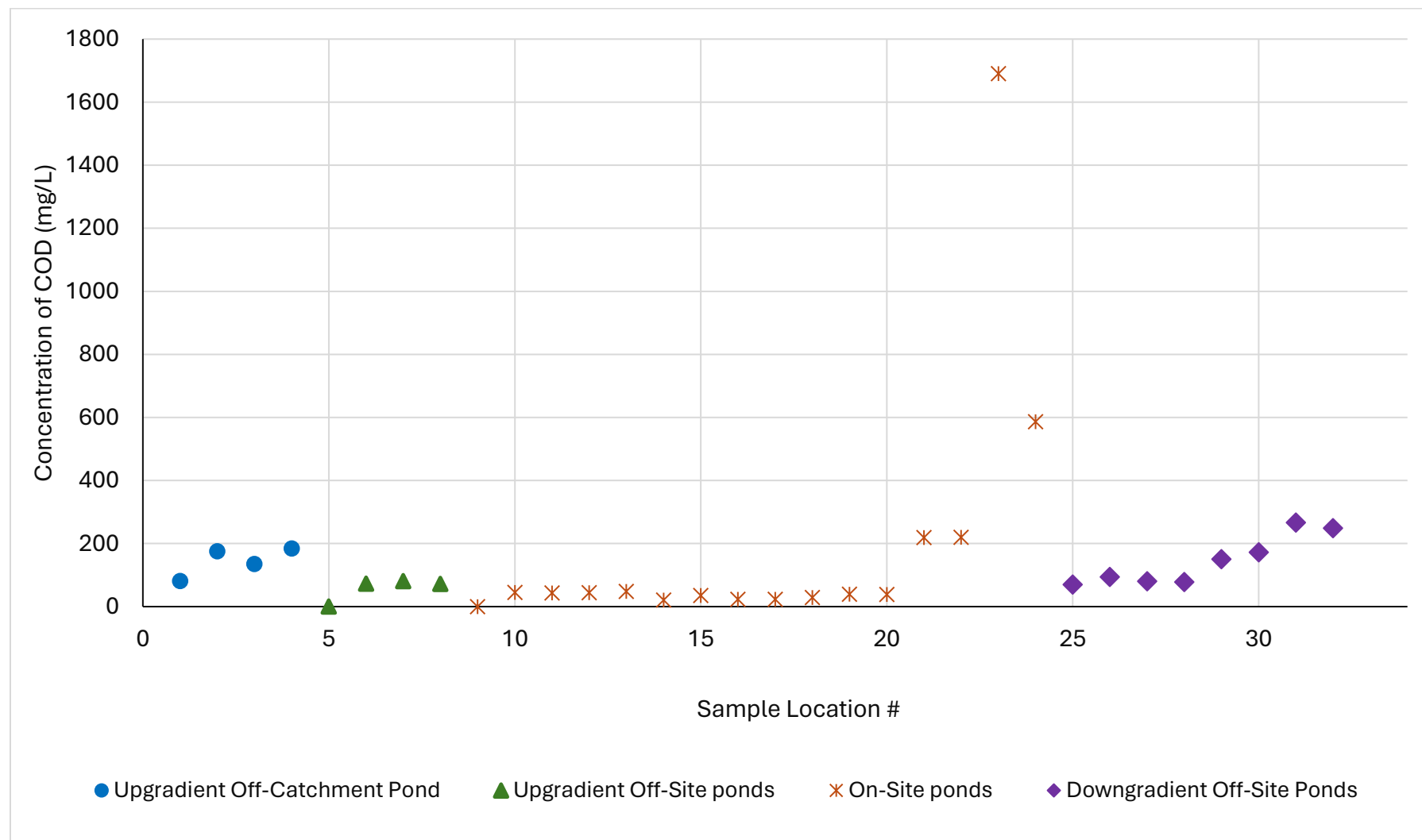
PLOT 7. CONCENTRATIONS OF URANIUM IN WELLS ACROSS THE SITE

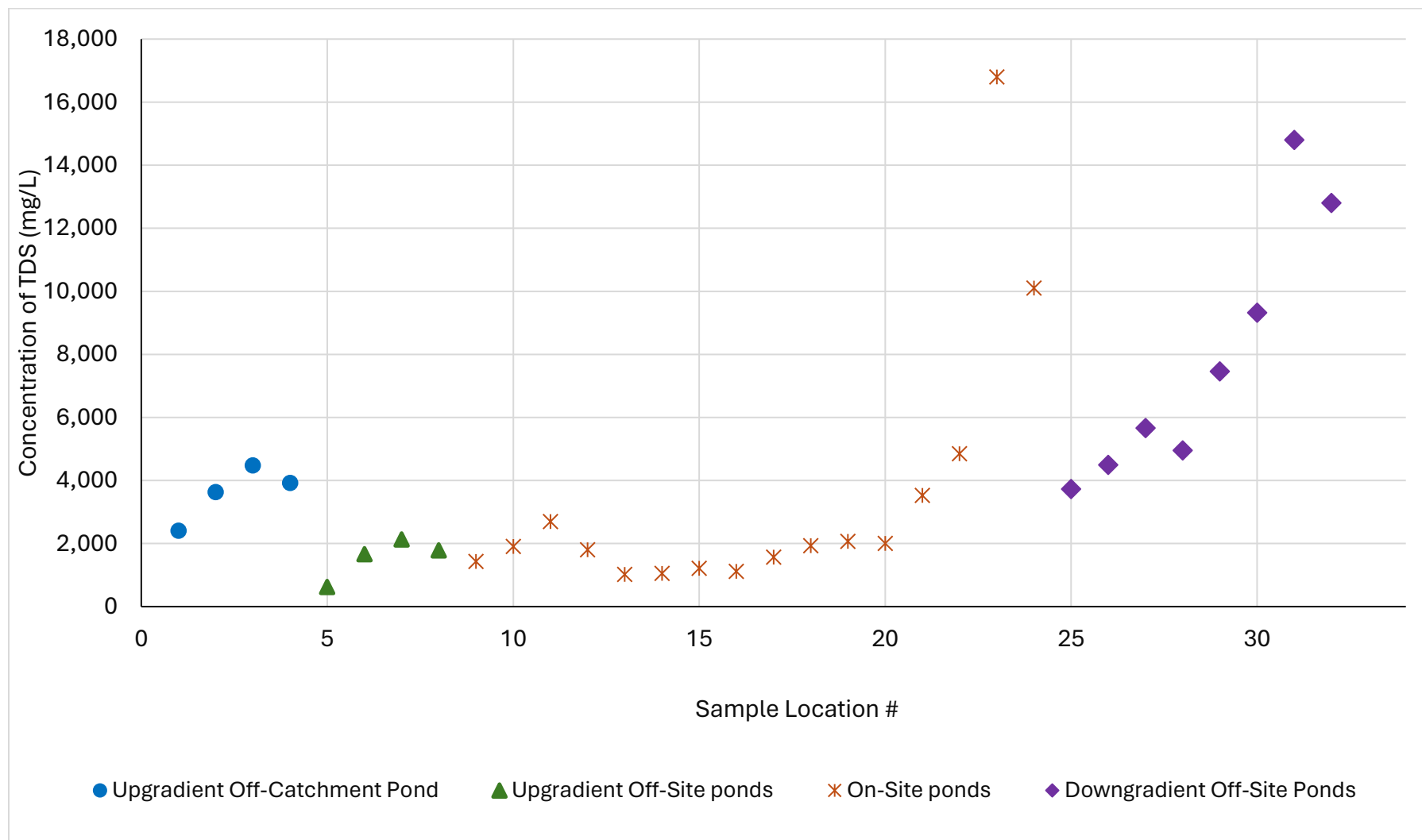
PLOT 8. CONCENTRATIONS OF CHLORIDE IN SURFACE WATER BODIES ACROSS THE SITE

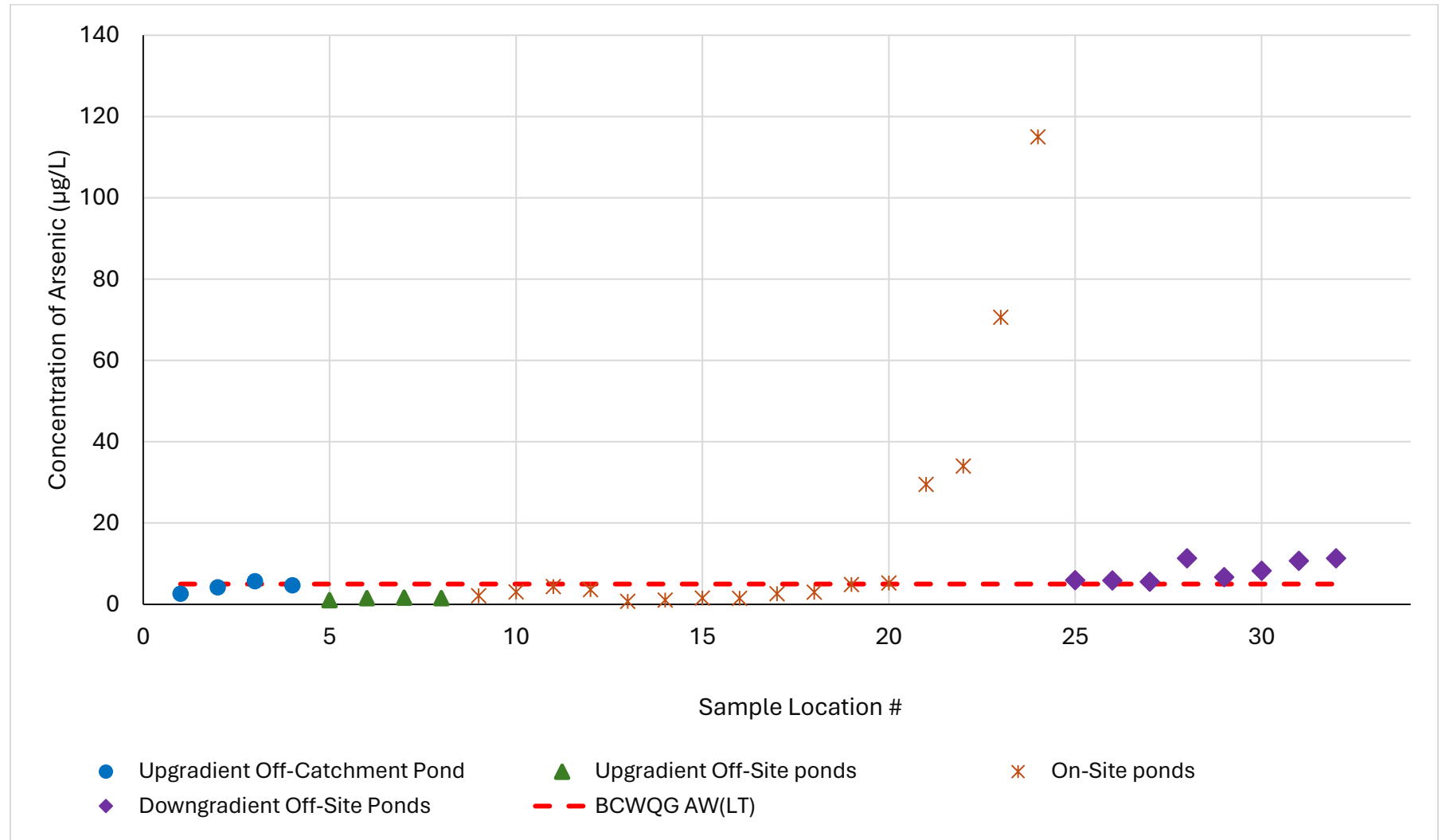
PLOT 9. CONCENTRATIONS OF ALKALINITY IN SURFACE WATER BODIES ACROSS THE SITE

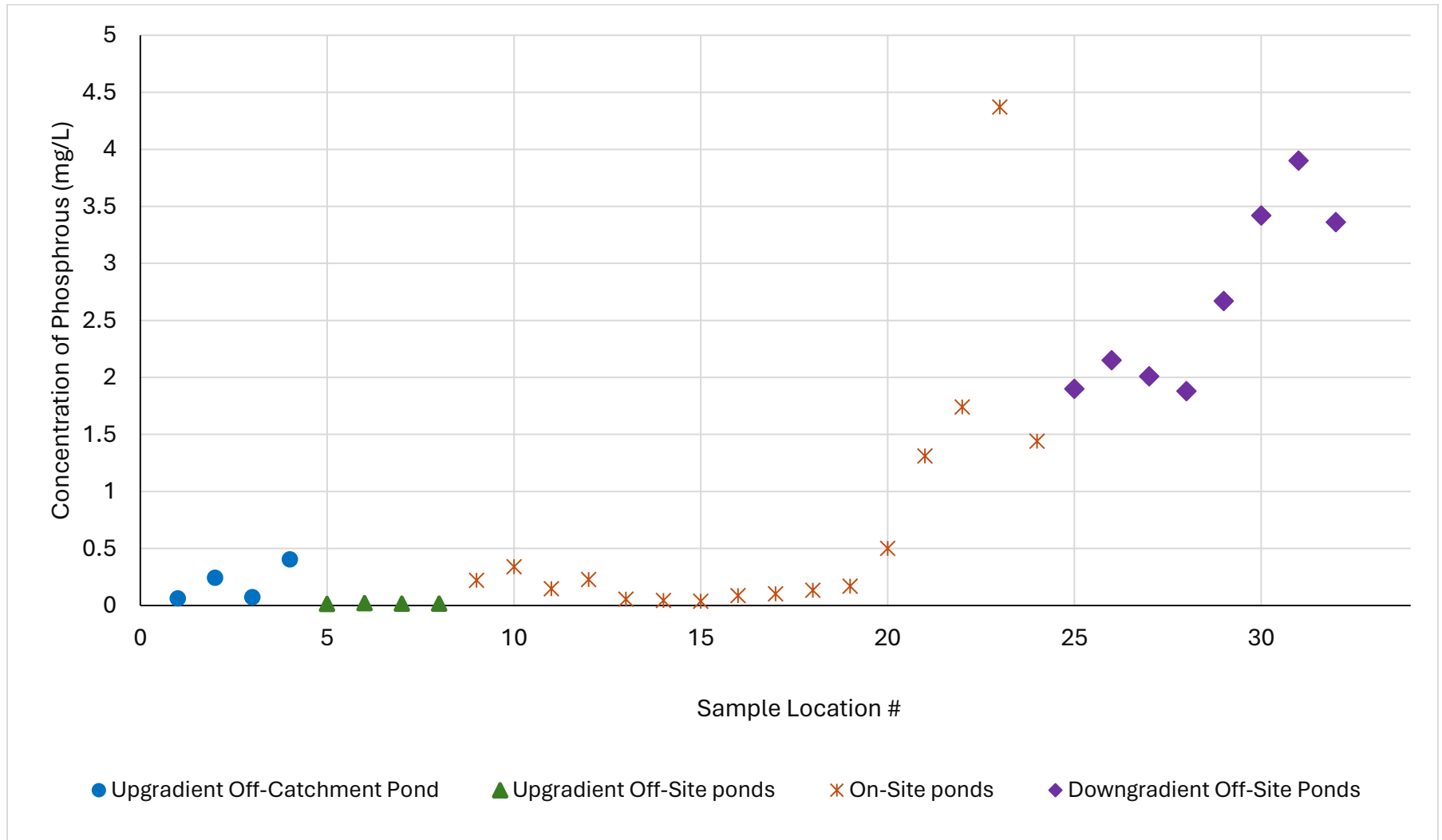
PLOT 10. CONCENTRATIONS OF SULFATE IN SURFACE WATER BODIES ACROSS THE SITE

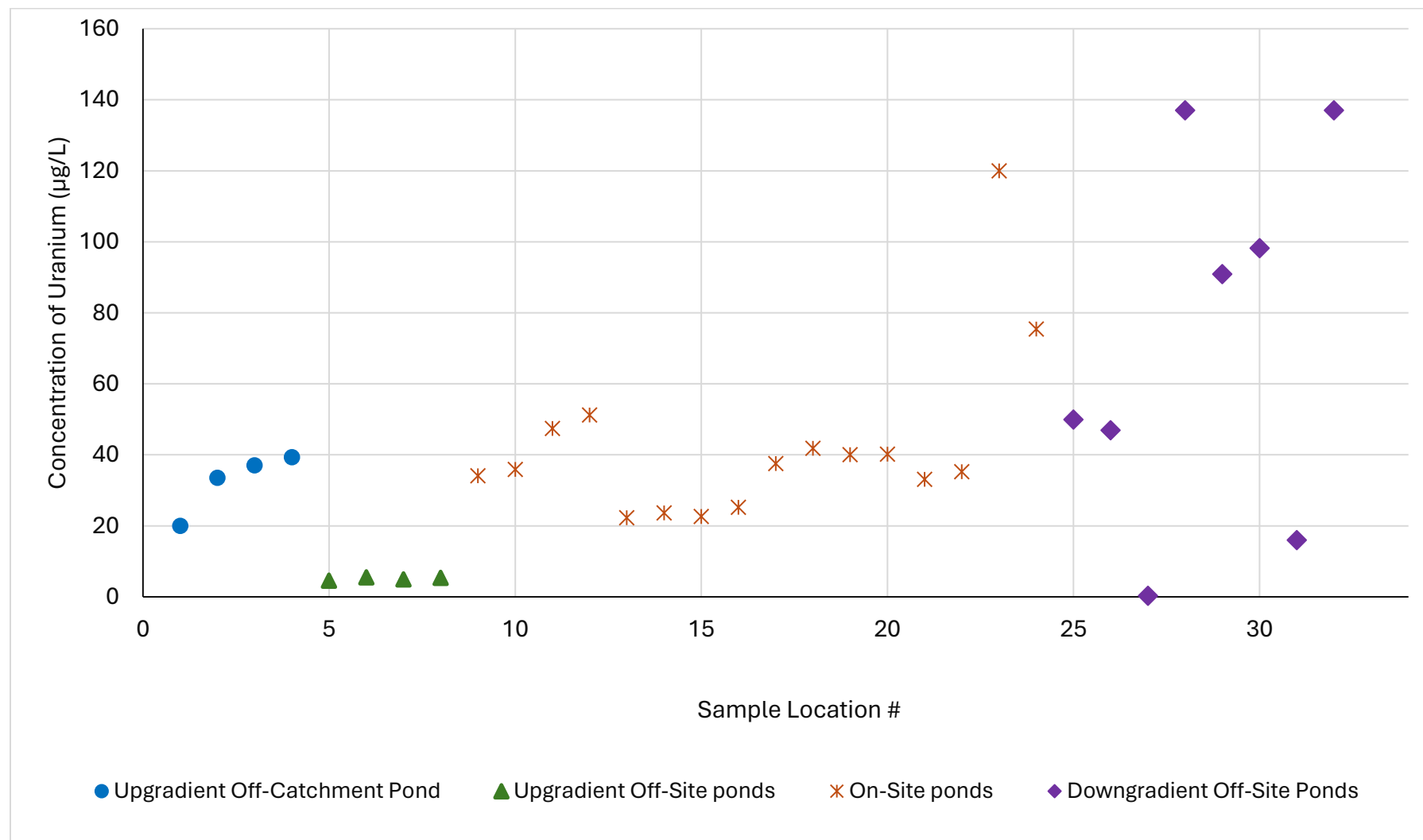
PLOT 11. CONCENTRATIONS OF AMMONIA IN SURFACE WATER BODIES ACROSS THE SITE

PLOT 12. CONCENTRATIONS OF COD IN SURFACE WATER BODIES ACROSS THE SITE

PLOT 13. CONCENTRATIONS OF TDS IN SURFACE WATER BODIES ACROSS THE SITE

PLOT 14. CONCENTRATIONS OF ARSENIC IN SURFACE WATER BODIES ACROSS THE SITE

PLOT 15. CONCENTRATIONS OF PHOSPHOROUS IN SURFACE WATER BODIES ACROSS THE SITE

PLOT 16. CONCENTRATIONS OF URANIUM IN SURFACE WATER BODIES ACROSS THE SITE

APPENDIX F

**TABLES H1-H5 – HISTORICAL SUMMARY OF ANALYTICAL
RESULTS FOR GROUNDWATER, SURFACE WATER AND
LEACHATE**

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters													Dissolved Inorganics											
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate
09BH03	09BH03-20151105	2015 11 05	7.65	661	-	-	-	2,040	-	-	< 5.0	1,330	-	20	1,580	990	736	736	<1.0	<1.0	-	<1.0	-	-	<20	-	0.0079
	09BH03-20170601	2017 06 01	8.13	940	-	-	-	2,270	-	-	39.8	690	-	15	1,030	1,240	698	-	-	-	-	<1.0	-	-	<20	-	0.0087
	09BH03-180604	2018 06 04	7.53	1,130	6.87	-	3,665	2,800	7.39	0.0075	<20	<10	<10	26.2	790	1,500	788	788	<1.0	<1.0	<1.0	<0.10	-	-	30	0.0075	-
	09BH03-190530	2019 05 30	7.8	929	6.81	-	3120	2,460	5.85	0.009	274	1,880	<10	27.9	1,510	1,090	780	780	<1.0	<1.0	<1.0	<0.10	-	-	26	0.009	-
	09BH03-200609	2020 06 09	7.8	1,270	7.04	-	3,178	3,020	7.88	-	< 50	1,750		25.3	950	1,540	776	776	<1.0	<1.0	<1.0	<0.10	-	-	22	-	<0.0050
	09BH03-210609	2021 06 09	7.94	812	7.08	-	2,869	1,800	7.73	-	120	1,010	<100	11.1	< 1,000	939	713	713	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500
	09BH03-220606	2022-06-06	7.83	896	-	-	2933	2200	6.18	<0.05	<50	931	<100	9.43	<1,000	1070	644	644	<1.0	<1.0	<1.0	<1.00			<20	-	-
09BH04	09BH04-20151105	2015 11 05	7.19	1,120	-	-	-	2,730	-	-	346	< 100	-	31	1,350	1,130	1,400	1,400	<1.0	<1.0	-	<1.00	-	-	22	-	0.0012
09BH06-S	09BH06-S-20131112	2013 11 12	-	353	-	-	-	700	-	-	87	<50	-	8.3	940	230	392	-	-	-	-	-	-	-	<20	-	-
	09BH06-S-20140602	2014 06 02	-	358	-	-	-	700	-	-	91	<50	-	10.9	1,010	244	379	-	-	-	-	<0.50	-	-	<20	-	0.0199
	09BH06-S-20141117	2014 11 17	-	354	-	-	-	713	-	-	94	<50	-	8	1,010	256	399	-	-	-	-	<0.50	-	-	<20	-	0.0177
	09BH06-S-20150610	2015 06 10	8.22	351	-	-	-	716	-	-	95.1	<25	-	7.1	960	252	394	-	-	-	-	<0.25	-	-	<20	-	0.0205
	09BH06-S-20151105	2015 11 05	7.91	349	-	-	-	724	-	-	101	<25	-	7.6	980	282	362	362	<1.0	<1.0	-	<0.25	-	-	<20	-	0.0157
09BH06-D	09BH06-D-20131112	2013 11 12	-	372	-	-	-	706	-	-	94	<50	-	9.1	940	243	397	-	-	-	-	-	-	-	<20	-	-
	DUP4-20131112	Duplicate	-	369	-	-	-	715	-	-	92	<50	-	9	950	244	383	-	-	-	-	-	-	-	<20	-	-
	QA/QC RPD%		-	1	-	-	-	1	-	-	2	*	-	1	1	0	4	-	-	-	-	-	-	-	*	-	-
	09BH06-D-20140602	2014 06 02	-	366	-	-	-	720	-	-	96	<50	-	9.5	1,000	254	376	-	-	-	-	<0.50	-	-	<20	-	0.0125
	09BH06-D-20141117	2014 11 17	-	372	-	-	-	743	-	-	99.5	<50	-	8.3	1,010	272	407	-	-	-	-	<0.50	-	-	42	-	0.009
	09BH06-D-20150610	2015 06 10	8.21	385	-	-	-	770	-	-	102	<25	-	7.9	940	285	398	-	-	-	-	<0.25	-	-	<20	-	0.0107
	09BH06-D-20151105	2015 11 05	7.93	369	-	-	-	760	-	-	100	<25	-	7.7	940	295	365	365	<1.0	<1.0	-	<0.25	-	-	<20	-	0.008
	09BH06-D-20170606	2017 06 06	8.42	364	-	-	-	699	-	-	107	<25	-	8.2	970	286	343	-	-	-	-	<0.25	-	-	<20	-	0.0092
	09BH06-D-180604	2018 06 04	7.76	387	6.99	-	1,289	800	2.98	0.0055	167	<10	<10	7.16	450	282	355	355	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0055	-
	09BH06-D-190528	2019 05 28	8.04	435	7.08	-	1,229	968	2.88	0.0073	199	<10	<10	9.45	800	392	377	377	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0073	-
	09BH06-D-200609	2020 06 09	7.95	422	7.3	-	1,038	849	2.26	-	96	<10	<10	8.22	790	327	373	373	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050
	09BH06-D-210608	2021 06 08	8.08	333	7.4	-	1,142	742	2.54	-	120	<100	<10	6.95	960	278	357	357	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050
	09BH06-D-220602	2022 06 02	8.11	307	-	-	1156	730	2.87	-	147	<100	<100	6.5	<1000	294	308	308	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	-
	GL0-1-20130625	2013 06 25	-	427	-	-	-	771	-	-	91.9	<50	-	7.9	1,170	373	205	-	-	-	-	<0.50	-	-	<20	-	-
	GL0-1-20140603	2014 06 03	-	416	-	-	-	711	-	-	52.9	99	-	9.1	1,010	348	205	-	-	-	-	<0.50	-	-	<20	-	0.0596
	GL0-1-20141124	2014 11 24	-	436	-	-	-	711	-	-	58.4	<50	-	9.3	970	355	209	-	-	-	-	<0.50	-	-	<20	-	0.0519
	DUP1-20141124	Duplicate	-	430	-	-	-	680	-	-	62.1	<50	-	7.9	1,140	355	205	-	-	-	-	<0.50	-	-	<20	-	0.0518
	QA/QC RPD%		-	1	-	-	-	4	-	-	6	*	-	16	16	0	2	-	-	-	-	*	-	-	*	-	0
GL0-1	GL0-1-20150608	2015 06 08	7.59	423	-	-	-	665	-	-	48.9	116	-	7.3	884	345	209	-	-	-	-	<0.10	-	-	<20	-	0.0637
	GL0-1-20151103	2015 11 03	7.65	423	-	-	-	682	-	-	77.4	<25	-	7.1	990	354	206	-	-	-	-	<0.25	-	-	<20	-	0.0617
	GL0-1-20160524	2016 05 24	8.19	423	-	-	-	673	-	-	38.4	65	-	7.1	980	346	198	198	<1.0	<1.0	-	<0.25	-	-	<20	-	0.0555
	GL0-1-20170524	2017 05 24	8.32	418	-	-	-	671	-	-	9.7	131	-	7.2	1,000	350	196	-	-	-	-	<0.25	-	-	<20	-	0.0614
	GL0-1-180529	2018 05 29	7.81	415	7.65	-	934	690	0.87	0.0516	43	82	<10	6.47	640	281	187	187	<1.0	<1.0	<1.0	<1.00	-	-	<20	0.0516	-
	GL0-1-190523	2019 05 23	8.09	384	7.65	-	859	691	1.69	0.0174	<20	109	<10	6.33	730	326	191	191	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0174	-
	GL0-1-200310	2020 03 10	7.94	405	-	-	-	705	1.01	-	284	49	<10	6.82	860	316	189	189	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	0.0175

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters													Dissolved Inorganics												
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate	
GL0-2	GL0-2-20130627	2013 06 27	-	506	-	-	-	956	-	-	183	6,410	-	49.4	1,410	395	294	-	-	-	-	< 0.50	-	-	< 20	-	-	
	GL0-2-20140603	2014 06 03	-	465	-	-	-	744	-	-	101	181	-	20.9	1,240	326	255	-	-	-	-	< 0.50	-	-	< 20	-	0.0591	
	GL0-2-20141124	2014 11 24	-	496	-	-	-	814	-	-	92.6	1,820	-	26.3	1,220	341	268	-	-	-	-	< 0.50	-	-	< 20	-	0.0553	
	GL0-2-20150608	2015 06 08	7.8	479	-	-	-	675	-	-	213	< 10	-	9.6	1,090	317	273	-	-	-	-	< 0.10	-	-	< 20	-	0.0399	
	GL0-2-20151103	2015 11 03	7.94	500	-	-	-	726	-	-	171	< 25	-	12.1	1,190	317	268	-	-	-	-	< 0.25	-	-	< 20	-	0.0446	
	DUP1-20151103	Duplicate	7.94	510	-	-	-	774	-	-	167	49	-	13.1	1,220	326	255	-	-	-	-	< 0.25	-	-	< 20	-	0.0446	
	QA/QC RPD%		0	2	-	-	-	6	-	-	2	*	-	8	2	3	5	-	-	-	-	*	-	-	*	-	0	
	GL0-2-20160524	2016 05 24	8.22	468	-	-	-	700	-	-	208	< 25	-	6.8	1,240	310	266	266	< 1.0	< 1.0	-	< 0.25	-	-	< 20	-	0.0423	
	GL0-2-20170524	2017 05 24	8.4	482	-	-	-	696	-	-	173	< 25	-	7.1	1,320	325	258	-	-	-	-	< 0.25	-	-	< 20	-	0.0463	
	GL0-2-180529	2018 05 29	7.82	473	7.43	-	931	726	1.12	0.0173	211	< 10	< 10	9.63	1,050	296	258	258	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	0.0173	-	
	DUP2-180529	Duplicate	7.85	469	7.43	-	931	698	1.17	0.0093	214	< 10	< 10	9.45	1,100	294	260	260	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	0.0093	-	
	QA/QC RPD%		0	1	*	-	-	4	*	*	1	*	*	2	5	1	1	1	*	*	*	*	-	-	*	*	-	
	GL0-3	GL0-2-190529	2019 05 29	8.01	546	7.5	-	1406	1,050	3.7	< 0.0050	173	16,800	47	71.6	1,050	349	340	340	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	< 0.0050	-
		GL0-2-200310	2020 03 10	7.95	456	-	-	-	721	1.18	-	317	< 10	< 10	7.88	1,150	303	255	255	< 1.0	< 1.0	< 1.0	< 0.10	-	-	< 20	-	0.0134
GL0-3-20130627		2013 06 27	-	762	-	-	-	1,500	-	-	< 5.0	49,500	-	123	1,580	400	436	-	-	-	-	< 1.0	-	-	27	-	-	
GL0-3-20140603		2014 06 03	-	747	-	-	-	1,440	-	-	< 5.0	48,600	-	124	1,190	385	445	-	-	-	-	< 1.0	-	-	20	-	0.0096	
GL0-3-20141124		2014 11 24	-	797	-	-	-	1,440	-	-	11.8	49,300	-	127	1,160	390	457	-	-	-	-	< 1.0	-	-	< 20	-	0.0059	
GL0-3-20150608		2015 06 08	7.65	772	-	-	-	1,390	-	-	13	47,700	-	121	1,120	391	456	-	-	-	-	< 0.50	-	-	48	-	0.0069	
GL0-3-20151103		2015 11 03	7.53	751	-	-	-	1,460	-	-	7.5	47,600	-	121	1,130	382	422	-	-	-	-	< 0.50	-	-	< 20	-	0.0068	
GL0-3-20160524		2016 05 24	8.1	754	-	-	-	1,450	-	-	9.6	49,100	-	127	1,220	401	442	442	< 1.0	< 1.0	-	< 1.0	-	-	< 20	-	0.0054	
GL0-3-20170524		2017 05 24	8.05	769	-	-	-	1,420	-	-	13.3	48,700	-	131	1,110	368	396	-	-	-	-	< 1.0	-	-	< 20	-	0.0063	
GL0-3-180529		2018 05 29	7.81	799	7.28	-	1826	1,480	5.47	0.0084	38	44,700	< 10	121	990	293	481	481	< 1.0	< 1.0	< 1.0	< 1.00	-	-	22	0.0084	-	
GL0-3-190529		2019 05 29	7.77	1,110	7.12	-	2776	2,060	6.89	< 0.0050	82	67,000	12	154	920	613	525	525	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	< 0.0050	-	
GL0-3-200310		2020 03 10	7.82	1,000	-	-	-	1,970	6.19	-	56	55,800	< 10	139	930	505	491	491	< 1.0	< 1.0	< 1.0	< 1.00	-	-	31	-	< 0.0050	
GL1-1		GL 1-1-20091109	2009 11 09	-	866	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		GL1-1-20100810	2010 08 10	-	790	-	-	-	1,250	-	-	30	-	-	169	-	222	656	-	-	-	-	-	-	-	40	-	0.007
	GL30-1-20100810	Duplicate	-	780	-	-	-	1,300	-	-	40	-	-	168	-	219	660	-	-	-	-	-	-	-	10	-	0.008	
	QA/QC RPD%		-	1	-	-	-	4	-	-	29	-	-	1	-	1	1	-	-	-	-	-	-	-	*	-	13	
	GL1-1-20160531	2016 05 31	7.43	-	-	-	-	1,290	-	-	< 20	633	-	237	1,520	244	664	-	-	-	-	-	-	-	-	-	< 0.01	
	GL1-1-20180927	2018 09 27	-	730	-	-	-	-	-	-	45	12	-	157	1,420	253	-	-	-	-	-	< 0.10	-	-	-	-	< 0.0050	
	GL1-1-180612	2018 06 12	7.75	743	-	-	-	1,160	-	0.0115	62	58	< 10	173	1,250	242	627	627	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	0.0115	-	
	GL1-1-190917	2019 09 17	7.94	763	-	-	-	1,200	4.15	-	76	< 10	< 10	153	1,520	269	628	628	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	-	< 0.0050	
GL1-1-200910	2020 09 10	8.12	746	-	-	-	1,200	3.45	-	52	< 10	< 10	131	1,570	284	646	646	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	-	< 0.0050		

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL1-2	GL 1-2-20091109	2009 11 09	-	909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL1-2-20100810	2010 08 10	-	840	-	-	-	1,140	-	-	< 10	-	-	191	-	201	675	-	-	-	-	-	-	-	60	-	0.006			
	GL1-2-20160531	2016 05 31	7.66	-	-	-	-	1,190	-	-	< 20	29	-	232	1,420	209	660	-	-	-	-	-	-	-	-	-	< 0.01			
	GL1-2-180612	2018 06 12	7.84	790	-	-	-	1,230	-	0.0102	71	< 10	< 10	216	1,270	238	640	640	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	0.0102	-			
	GL1-2-20180927	2018 09 27	-	759	-	-	-	-	-	-	< 20	44	-	181	1,100	228	-	-	-	-	-	< 0.10	-	-	-	-	< 0.0050			
	GL1-2-190917	2019 09 17	7.98	762	-	-	-	1,240	4.46	-	32	< 10	< 10	166	1,330	256	662	662	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	-	< 0.0050			
GL2-1	GL1-2-200910	2020 09 10	8.14	814	-	-	-	1,300	4.98	-	< 50	< 10	< 10	117	1,430	283	676	676	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	-	< 0.0050			
	GL 2-1-20091109	2009 11 09	-	348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL 2-1-20120627	2012 06 27	-	380	-	-	-	670	-	-	50	-	-	22.5	-	212	306	-	-	-	-	-	-	-	10	-	0.004			
	GL2-1-20100810	2010 08 10	-	360	-	-	-	604	-	-	40	-	-	16.8	-	170	317	-	-	-	-	-	-	< 10	-	0.004				
	GL30-2-20100810	Duplicate	-	350	-	-	-	650	-	-	30	-	-	15.9	-	173	320	-	-	-	-	-	-	< 10	-	0.006				
	QA/QC RPD%		-	3	-	-	-	7	-	-	29	-	-	6	-	2	1	-	-	-	-	-	-	-	*	-	*			
	GL2-1-20110629	2011 06 29	-	359	-	-	-	638	-	-	50	-	-	21.3	-	203	302	-	-	-	-	-	-	-	< 10	-	0.09			
	GL2-1-20111217	2011 12 17	-	372	-	-	-	640	-	-	20	< 10	-	18.1	-	207	332	-	-	-	-	-	-	-	< 10	-	< 0.01			
	GL2-1-20121204	2012 12 04	-	348	-	-	-	642	-	-	90	< 100	-	18	-	192	326	-	-	-	-	-	-	-	14	-	< 0.002			
	GL2-1-20130626	2013 06 26	-	418	-	-	-	660	-	-	34.3	< 50	-	23.2	830	225	291	-	-	-	-	< 0.50	-	-	< 20	-	-			
	GL2-1-20140603	2014 06 03	-	418	-	-	-	707	-	-	17	54	-	32	770	266	292	-	-	-	-	< 0.50	-	-	< 20	-	0.0034			
	DUP3-20140603	Duplicate	-	412	-	-	-	710	-	-	17.2	82	-	33	750	260	293	-	-	-	-	< 0.50	-	-	< 20	-	0.0031			
	QA/QC RPD%		-	1	-	-	-	0	-	-	*	41	-	3	3	2	0	-	-	-	-	*	-	-	*	-	*			
	GL2-1-20141124	2014 11 24	-	429	-	-	-	688	-	-	39.8	372	-	27.8	790	233	275	-	-	-	-	< 0.50	-	-	< 20	-	0.0044			
	GL2-1-20150608	2015 06 08	7.89	444	-	-	-	713	-	-	14.6	36	-	34.5	730	281	306	-	-	-	-	0.31	-	-	< 20	-	0.0027			
	GL2-1-20151103	2015 11 03	8.05	424	-	-	-	688	-	-	37.1	< 25	-	28.2	760	246	358	-	-	-	-	0.27	-	-	< 20	-	0.0028			
	GL2-1-20160524	2016 05 24	8.21	445	-	-	-	730	-	-	< 5.0	97	-	34.9	720	275	289	289	< 1.0	< 1.0	-	0.31	-	-	< 20	-	0.0033			
	DUP2-20160524	Duplicate	8.2	439	-	-	-	718	-	-	< 5.0	68	-	35.9	740	283	289	289	< 1.0	< 1.0	-	0.35	-	-	< 20	-	0.0027			
	QA/QC RPD%		0	1	-	-	-	2	-	-	*	35	-	3	3	3	0	0	*	*	-	*	-	-	*	-	*			
	GL2-1-20170524	2017 05 24	8.25	466	-	-	-	815	-	-	53.7	< 25	-	45.3	670	323	259	-	-	-	-	0.39	-	-	< 20	-	0.0016			
	GL2-1-180528	2018 05 28	7.9	457	-	-	-	845	1.46	< 0.0050	92	< 250	< 250a	35.6	510	319	257	257	< 1.0	< 1.0	< 1.0	< 2.50	-	-	< 20	< 0.0050	-			
	GL2-1-190523	2019 05 23	8.11	505	7.57	-	1119	903	1.77	< 0.0050	63	16	< 10	46.4	510	370	260	260	< 1.0	< 1.0	< 1.0	0.32	-	-	< 20	< 0.0050	-			
	GL2-1-200609	2020 06 09	7.9	556	7.36	-	1,202	970	1.54	-	90	< 1,000	< 1,000a	54	< 10,000a	410	254	254	< 1.0	< 1.0	< 1.0	< 10.0	-	-	< 20	-	< 0.500			
	GL2-1-200820	2020 08 20	8.1	473	7.46	-	1,435	1,000	1.72	-	73	-	-	63.4	-	-	237	237	< 1.0	< 1.0	< 1.0	0.44	-	-	< 20	-	< 0.0050			
	DUPA-200820	Duplicate	8.1	476	7.46	-	1,435	992	2.18	-	69	-	-	63.2	-	-	240	240	< 1.0	< 1.0	< 1.0	0.44	-	-	< 20	-	< 0.0050			
	QA/QC RPD%		0	1	*	-	*	1	*	-	*	-	-	0	-	-	1	1	*	*	*	*	-	-	*	-	*			
GL2-2	GL2-1-201019	2020 10 19	8.1	513	7.6	-	1,508	1,030	2.1	-	131	< 10	< 10	66.4	580	443	216	216	< 1.0	< 1.0	< 1.0	0.5	-	-	< 20	-	< 0.0050			
	GL2-1-210512	2021 05 12	8.06	515	7.55	-	1,440	1,020	1.71	-	58	< 10	< 10	64.5	510	415	240	240	< 1.0	< 1.0	< 1.0	0.53	-	-	< 20	-	< 0.0050			
	GL2-1-211005	2021 10 05	7.85	583	7.55	-	1,440	1,100	1.98	-	99	< 10	< 10	75.5	600	517	232	232	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0050			
	GL2-1-220530	2022 05 30	7.54	573	-	-	1496	1120	2.97	<0.05	75	<100	< 10	90.5	500	573	201	201	< 1.0	< 1.0	< 1.0	<0.10	-	-	< 20	-	-			
	GL2-1-220927	2022 09 27	7.89	632	-	-	1689	1220	1.93	<0.0050	58	<10	< 10	101	540	632	227	227	< 1.0	< 1.0	< 1.0	0.65	-	-	< 20	-	-			
	GL 2-2-20091109	2009 11 09	-	359	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
GL3-2	GL2-2-20100810	2010 08 10	-	350	-	-	-	598	-	-	< 10	-	-	16.1	-	129	352	-	-	-	-	-	20	-	-	-	0.016			
	GL2-2-200826	2020 08 26	8.06	405	7.36	-	1,142	751	1.29	-	< 50	< 100	< 100	37.4	< 1,000	273	305	305	< 1.0	< 1.0	< 1.0	< 1.00	< 20	-	-	< 0.0500				
	GL2-2-201020	2020 10 20	7.91	464	7.55	-	1,234	810	1.25	-	< 50	< 10	< 10	46.7	660	309	283	283	< 1.0	< 1.0	< 1.0	0.29	< 20	-	-	< 0.0050				
	GL2-2-210513	2021 05 13	7.91	485	7.49	-	1,280	891	2.74	-	< 50	< 10	< 10	50.7	660	352	280	280	< 1.0	< 1.0	< 1.0	0.39	36	-	-	< 0.0050				
	GL2-2-211005	2021 10 05	7.92	511	7.45	-	1,199	894	1.72	-	61	< 10	< 10	48.1	620	370	285	285	< 1.0	< 1.0	< 1.0	< 1.00	< 20	-	-	< 0.0050				
	GL2-2-220530	2022 05 30	7.83	502	-	-	1,241	1030	2.93	-	85	<100	< 10	68.1	550	465	233	233	< 1.0	< 1.0	< 1.0	<0.10	-	-	<20	-	-			
	GL2-2-220927	2022 09 27	7.99	275	-	-	1,468	998	1.52	-	<50	<10	< 10	70.6	610	473	275	275	< 1.0	< 1.0	< 1.0	0.48	-	-	<20	-	-			
GL3-2	GL3-2-20091116	2009 11 16	-	337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL3-2-20100810	2010 08 10	-	320	-	-	-	750	-	-	140	-	-	9.52	-	278	379	-	-	-	-	-	10	-	-	0.024				

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL3-5	GL3-5-20130627	2013 06 27	-	1,260	-	-	-	1,950	-	-	48,000	< 100	-	90	960	< 10	2,100	-	-	-	-	< 1.0	-	-	152	-	-			
	GL3-5 (2012)-20140609	2014 06 09	-	1,230	-	-	-	1,920	-	-	53,800	100	-	94	680	< 10	2,020	-	-	-	-	< 1.0	-	-	152	-	0.0016			
	GL3-5 (2012)-20141125	2014 11 25	-	1,330	-	-	-	2,030	-	-	48,600	< 100	-	98	730	< 6.0	1,990	-	-	-	-	< 1.0	-	-	148	-	0.0018			
	GL3-5 (2012)-20150609	2015 06 09	7.43	1,240	-	-	-	1,850	-	-	52,700	< 50	-	93.7	640	< 3.0	2,110	-	-	-	-	0.74	-	-	139	-	0.0015			
	DUP1-20150609	Duplicate	7.41	1,230	-	-	-	1,860	-	-	48,100	< 25	-	92.6	600	< 1.5	2,140	-	-	-	-	0.8	-	-	138	-	0.0017			
	QA/QC RPD%		0	1	-	-	-	1	-	-	9	*	-	1	6	*	1	-	-	-	-	8	-	-	1	-	*			
GL4-1	GL3-5 (2012)-20151109	2015 11 09	6.8	1,280	-	-	-	1,990	-	-	49,900	< 100	-	93	940	< 6.0	1,960	-	-	-	-	< 1.0	-	-	139	-	< 0.0010			
	GL 4-1-20091110	2009 11 10	-	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL 4-1-20120626	2012 06 26	-	-	-	-	-	1,170	-	-	-	-	-	7.4	-	142	792	-	-	-	-	-	-	-	-	-				
	GL 4-1-20120704	2012 07 04	-	580	-	-	-	-	-	-	8,700	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	1.4			
	GL4-1-20100810	2010 08 10	-	600	-	-	-	1,210	-	-	20	-	-	10.4	-	474	542	-	-	-	-	-	-	-	< 10	-	0.012			
	GL4-1-20110629	2011 06 29	-	613	-	-	-	1,190	-	-	760	-	-	10.6	-	442	571	-	-	-	-	-	-	-	10	-	0.148			
	GL4-1-20120625	2012 06 25	-	610	-	-	-	1,230	-	-	2,520	-	-	13.7	-	432	577	-	-	-	-	-	-	-	30	-	0.16			
	GL4-1-20121203	2012 12 03	-	548	-	-	-	1,210	-	-	170	< 100	-	12.1	-	458	542	-	-	-	-	-	-	-	20	-	0.008			
	GL4-1-20130627	2013 06 27	-	622	-	-	-	1,140	-	-	105	< 100	-	12	2,660	501	583	-	-	-	-	< 1.0	-	-	< 20	-	-			
	DUP4-20130627	Duplicate	-	638	-	-	-	1,130	-	-	102	< 100	-	13	2,520	501	560	-	-	-	-	< 1.0	-	-	< 20	-	-			
	QA/QC RPD%		-	3	-	-	-	1	-	-	3	*	-	8	5	0	4	-	-	-	-	*	-	-	*	-	-			
	GL4-1-20140603	2014 06 03	-	597	-	-	-	1,140	-	-	94.6	< 100	-	15	2,180	482	527	-	-	-	-	< 1.0	-	-	< 20	-	0.006			
	GL4-1-20141124	2014 11 24	-	646	-	-	-	1,160	-	-	102	< 100	-	16	2,510	514	524	-	-	-	-	< 1.0	-	-	< 20	-	0.0057			
	GL4-1-20150608	2015 06 08	8	625	-	-	-	1,110	-	-	102	< 50	-	12.9	2,100	505	536	-	-	-	-	< 0.50	-	-	< 20	-	0.0068			
	GL4-1-20151104	2015 11 04	8.09	591	-	-	-	1,130	-	-	117	< 50	-	12.2	2,010	492	522	-	-	-	-	< 0.50	-	-	< 20	-	0.0052			
	GL4-1-200814	2020 08 14	8.18	642	7.95	-	1,846	1,280	2.82	-	126	< 100	< 100	16.7	1,540	498	563	563	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0500			
	GL4-1-201016	2020 10 16	8.11	616	7.69	-	1,582	1,260	3.18	-	116	< 10	< 10	17.7	1,900	501	536	536	< 1.0	< 1.0	< 1.0	< 0.10	-	-	< 20	-	< 0.0050			
	GL4-1-210511	2021 05 11	8.17	618	7.62	-	1,831	1,300	5.18	-	113	11	< 10	16.6	1,910	482	562	562	< 1.0	< 1.0	< 1.0	< 0.10	-	-	< 20	-	< 0.0050			
	GL4-1-211005	2021 10 05	8	632	7.55	-	1,747	1,320	3.04	-	148	< 10	< 10	15.5	1,930	534	555	555	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0050			
	GL4-1-220530	2022 05 30	7.99	604	-	-	1517	1280	3.62	<0.0050	134	<100	< 10	18.8	1,830	507	520	520	< 1.0	< 1.0	< 1.0	<0.10	-	-	< 20	-	-			
	GL4-1-220927	2022 09 27	8.1	618	-	-	1830	1300	2.23	<0.0050	101	< 10	< 10	18.2	1,970	551	575	575	< 1.0	< 1.0	< 1.0	<0.10	-	-	< 20	-	-			
GL4-2	GL4-2-20091116	2009 11 16	-	1,040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL4-2-20100810	2010 08 10	-	1,000	-	-	-	1,760	-	-	< 10	-	-	51.2	-	395	956	-	-	-	-	-	-	-	20	-	0.011			
	GL4-2-20110629	2011 06 29	-	1,010	-	-	-	1,540	-	-	240	-	-	57	-	390	934	-	-	-	-	-	-	10	-	0.211				
	GL4-2-20120626	2012 06 26	-	1,000	-	-	-	1,550	-	-	140	-	-	51.1	-	386	1,000	-	-	-	-	-	-	20	-	0.021				
	GL4-2-20121203	2012 12 03	-	973	-	-	-	1,700	-	-	< 10	< 100	-	40.5	-	292	926	-	-	-	-	-	-	30	-	0.022				
	GL4-2-200814	2020 08 14	8.04	846	7.71	-	2,259	1,610	5.89	-	< 50	< 100	< 100	61.7	2,040	480	845	845	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0500			
	GL4-2-201030	2020 10 30	8.01	765	7.46	-	2,207	1,460	4.41	-	< 50	< 10	< 10	49.4	2,520	473	812	812	< 1.0	< 1.0	< 1.0	0.27	-	-	< 20	-	< 0.0050			
	GL4-2-210511	2021 05 11	8.13	818	7.43	-	2,200	1,500	6.52	-	< 50	< 10	< 10	55.6	2,510	456	807	807	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0050			
	GL4-2-211005	2021 10 05	7.95	829	7.4	-	2,023	1,760	4.25	-	59	< 10	< 10	46	2,670	475	843	843	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0050			
	GL4-2-220530	2022 05 30	8	767	-	-	1757	1410	5.3	<0.0050	<50	<100	< 10	36.4	2,600	440	719	719	< 1.0	< 1.0	< 1.0	<0.10	-	-	< 20	-	-			
	GL4-2-220927	2022 09 27	7.99	749	-	-	2123	1410	3.62	<0.0050	<50	<10	< 10	41.6	2,820	488	823	823	< 1.0	< 1.0	< 1.0	<0.10	-	-	< 20	-	-			
GL5-1	GL5-1-20091116	2009 11 16	-	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL5-1-20100810	2010 08 10	-	110	-	-	-	1,690	-	-	250	-	-	42.2	-	283	1,210	-	-	-	-	-	-	-	< 10	-	0.002			
	GL5-2-20180528	2018 05 28	7.83	671	-	-	-	1,370	-	-	52	6,270	-	266	500	201	472	472	< 1.0	< 1.0	-	< 5.00	-	-	< 20	-	< 0.0050			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL5-2	GL5-2-20091116	2009 11 16	-	602	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL30-1-20091116	Duplicate	-	597	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	QA/QC RPD%		-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL5-2-20100810	2010 08 10	-	640	-	-	-	1,050	-	-	< 10	-	-	183	-	168	527	-	-	-	-	-	-	-	10	-	0.006			
	GL30-3-20100810	Duplicate	-	640	-	-	-	1,120	-	-	< 10	-	-	181	-	167	526	-	-	-	-	-	-	-	10	-	0.007			
	QA/QC RPD%		-	0	-	-	-	6	-	-	*	-	-	1	-	1	0	-	-	-	-	-	-	-	*	-	15			
	GL5-2-20110704	2011 07 04	-	778	-	-	-	1,080	-	-	40	-	-	228	-	153	560	-	-	-	-	-	-	-	20	-	0.005			
	GL 5-2-20120627	2012 06 27	-	710	-	-	-	1,160	-	-	< 10	-	-	243	-	171	522	-	-	-	-	-	-	-	10	-	0.005			
	DUP C-20120627	Duplicate	-	730	-	-	-	1,130	-	-	30	-	-	246	-	171	520	-	-	-	-	-	-	-	40	-	0.005			
	QA/QC RPD%		-	3	-	-	-	3	-	-	*	-	-	1	-	0	0	-	-	-	-	-	-	-	*	-	0			
	GL5-2-20121205	2012 12 05	-	659	-	-	-	1,060	-	-	< 10	< 1,000	-	193	-	191	551	-	-	-	-	-	-	-	21	-	0.005			
	GL5-2-20130626	2013 06 26	-	726	-	-	-	1,150	-	-	< 5.0	< 100	-	256	1,160	181	580	-	-	-	-	< 1.0	-	-	37	-	-			
	GL5-2-20131114	2013 11 14	-	687	-	-	-	1,110	-	-	< 5.0	< 100	-	226	980	207	803	-	-	-	-	< 1.0	-	-	< 20	-	-			
	GL5-2-20140603	2014 06 03	-	655	-	-	-	1,130	-	-	< 5.0	< 100	-	248	980	191	600	-	-	-	-	< 1.0	-	-	21	-	0.0046			
	GL5-2-20141118	2014 11 18	-	636	-	-	-	1,000	-	-	5.9	< 100	-	176	940	210	691	-	-	-	-	< 1.0	-	-	< 20	-	0.0046			
	DUP2-20141118	Duplicate	-	635	-	-	-	1,070	-	-	< 5.0	< 100	-	177	950	211	683	-	-	-	-	< 1.0	-	-	24	-	0.0047			
	QA/QC RPD%		-	0	-	-	-	7	-	-	*	*	-	1	1	0	1	-	-	-	-	*	-	-	*	-	*			
	GL5-2-20150608	2015 06 08	7.65	956	-	-	-	1,890	-	-	< 5.0	2,060	-	739	790	176	630	-	-	-	-	< 1.0	-	-	31	-	0.0036			
	GL5-2-20151103	2015 11 03	7.94	623	-	-	-	1,060	-	-	5	< 50	-	165	940	219	539	-	-	-	-	< 0.50	-	-	< 20	-	0.0049			
	GL5-2-20160526	2016 05 26	7.97	879	-	-	-	1,960	-	-	< 5.0	5,370	-	719	900	215	475	-	-	-	-	< 1.0	-	-	< 20	-	0.0031			
	GL5-2-20170525	2017 05 25	8.22	782	-	-	-	1,690	-	-	< 5.0	5,720	-	550	840	209	510	-	-	-	-	< 1.0	-	-	< 20	-	0.0037			
	DUP1-20170525	Duplicate	8.28	787	-	-	-	1,670	-	-	< 5.0	5,670	-	543	850	207	437	-	-	-	-	< 1.0	-	-	< 20	-	0.0038			
	QA/QC RPD%		1	1	-	-	-	1	-	-	*	1	-	1	1	1	15	-	-	-	-	*	-	-	*	-	*			
	GL5-3	GL5-2-180528	2018 05 28	7.83	671	7.08	-	2,100	1,370	4.6	< 0.0050	52	6,270	< 10	266	500	201	472	472	< 1.0	< 1.0	< 1.0	< 5.00	-	-	< 20	< 0.0050	-		
		GL5-2-190527	2019 05 27	7.96	638	7.43	-	2396	1,300	4.4	0.0051	38	9,010	< 10	319	650	332	488	488	< 1.0	< 1.0	< 1.0	0.24	-	-	< 20	0.0051	-		
		GL5-2-200611	2020 06 11	7.83	501	7.21	-	1,529	1,120	2.31	-	< 50	310	< 100	179	< 1,000	243	522	522	< 1.0	< 1.0	< 1.0	< 1.00	-	-	48	-	< 0.0500		
		GL5-2-210603	2021 06 03	8.05	709	7.2	-	2,417	1,390	3.35	-	< 50	1,840	< 10	353	800	249	490	490	< 1.0	< 1.0	< 1.0	0.52	-	-	26	-	< 0.0050		
		GL5-2-2206023	2022 06 02	8.02	515	-	-	1800	1070	2.57	<0.0500	<50	<100	< 10	173	<1000	291	425	425	< 1.0	< 1.0	< 1.0	<1.0	-	-	<20	-	-		
GL5-3-20091116		2009 11 16	-	596	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
GL5-3-20100810		2010 08 10	-	600	-	-	-	974	-	-	< 10	-	-	180	-	155	474	-	-	-	-	-	-	-	20	-	0.022			
GL 6-1-20091110		2009 11 10	-	3,530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
GL6-1 (2011)	GL6-1-20110704	2011 07 04	-	1,220	-	-	-	9,120	-	-	230,000	-	-	840	-	930	6,900	-	-	-	-	-	-	-	1,120	-	5.6			
	GL 6-1 (2011)-20120626	2012 06 26	-	1,510	-	-	-	10,100	-	-	275,000	-	-	809	-	1,800	6,150	-	-	-	-	-	-	-	1,300	-	-			
	GL 6-1 (2011)-20120704	2012 07 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6				
	GL6-1 (2011)-20130627	2013 06 27	-	1,200	-	-	-	9,310	-	-	251,000	< 250	-	951	1,100	779	6,020	-	-	-	-	10.4	-	-	1,220	-	-			
	GL6-1-20131114	2013 11 14	-	1,650	-	-	-	12,400	-	-	235,000	< 500	-	965	438	3,740	7,020	-	-	-	-	10	-	-	1,120	-	-			
	GL6-1 (2011)-20140609	2014 06 09	-	1,300	-	-	-	9,450	-	-	252,000	550	-	872	< 1,000	2,030	5,810	-	-	-	-	8.7	-	-	987	-	4.94			
	GL6-1 (2011)-20141127	2014 11 27	-	1,580	-	-	-	13,800	-	-	234,000	840	-	943	449	3,480	7,150	7,150	< 100	< 100	-	9.4	-	-	1,030	-	6.39			
	GL6-1 (2011)-20150615	2015 06 15	7.83	1,030	-	-	-	9,280	-	-	254,000	< 500	-	936	< 2,000a	1,710	5,920	-	-	-	-	9.4	-	-	1,110	-	4.24			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL6-1 (2011) (cont'd)	GL6-1 (2011)-20170530	2017 05 30	7.4	1,260	-	-	-	7,540	-	-	119	< 250	-	941	< 1,000	1,210	4,370	-	-	-	-	8.4	-	-	-	< 20	-	2.69		
	GL6-1(2011)-20121205	2012 12 05	-	1,980	-	-	-	9,940	-	-	245,000	< 10,000a	-	828	-	2,080	614	-	-	-	-	-	-	-	1,280	-	4			
	GL6-1-180604	2018 06 04	7.45	1,900	6.987.0	15,700	14,230	10,800	339	0.224	334,000	< 5,000a	276	1,570	< 50,000a	12,000	3,960	3,960	< 1.0	< 1.0	< 1.0	< 50.0	0.49	1.08	881	0.224	-			
	GL6-1 (2011)-190603	2019 06 03	7.8	1,270	7.42	11,200	11903	6,100	175	1.15	227,000	< 1,000	< 1,000a	527	< 10,000a	2,380	3,600	3,600	< 1.0	< 1.0	< 1.0	< 10.0	0.82	8.44	705	1.15	-			
	DUP3-190603	Duplicate	7.72	1,240	7.42	-	11903	8,100	180	0.56	236,000	< 1,000	< 1,000a	559	< 10,000a	2,350	3,510	3,510	< 1.0	< 1.0	< 1.0	< 10.0	-	-	705	0.56	-			
	QA/QC RPD%		1	2	*	-	*	28	3	69	4	*	*	6	*	1	3	3	*	*	*	*	-	-	0	69	-			
	GL6-1-200611	2020 06 11	7.82	962	7.1	8,440	6,871	5,220	241	-	194,000	< 100	< 100	652	< 1,000	282	3,980	3,980	< 1.0	< 1.0	< 1.0	4.43	10.7	25.5	621	-	0.576			
GL6-1-210610	2021 06 10	7.07.72	1,230	6.99	8,020	7,919	4,570	211	-	210,000	< 100	< 100	659	< 1,000	25	3,990	3,990	< 1.0	< 1.0	< 1.0	5.22	0.29	6	842	-	0.413				
GL7-1	GL7-1-20110704	2011 07 04	-	1,190	-	-	-	2,560	-	-	400	-	-	69.3	-	735	1,410	-	-	-	-	-	-	-	30	-	0.006			
	GL7-1-20120625	2012 06 25	-	1,150	-	-	-	2,590	-	-	360	-	-	69.2	-	709	1,540	-	-	-	-	-	-	-	30	-	< 0.002			
	GL7-1-20121205	2012 12 05	-	1,120	-	-	-	2,500	-	-	450	< 1,000	-	72	-	758	1,520	-	-	-	-	-	-	-	32	-	0.002			
	GL7-1-20130626	2013 06 26	-	1,110	-	-	-	2,500	-	-	442	< 100	-	69	2,490	771	1,440	-	-	-	-	< 1.0	-	-	34	-	-			
	GL7-1-20131114	2013 11 14	-	1,140	-	-	-	2,530	-	-	446	< 100	-	75	2,390	757	1,540	-	-	-	-	< 1.0	-	-	27	-	-			
	DUP1-20131114	Duplicate	-	1,130	-	-	-	2,500	-	-	444	< 100	-	73	2,500	776	1,610	-	-	-	-	< 1.0	-	-	20	-	-			
	QA/QC RPD%		-	1	-	-	-	1	-	-	0	*	-	3	4	2	4	-	-	-	-	*	-	-	*	-	-			
	GL7-1-20140604	2014 06 04	-	1,190	-	-	-	2,560	-	-	435	< 100	-	57	2,420	671	1,780	-	-	-	-	< 1.0	-	-	24	-	< 0.0010			
	GL7-1-20141125	2014 11 25	-	1,110	-	-	-	2,480	-	-	411	< 100	-	71	2,300	759	1,230	-	-	-	-	< 1.0	-	-	30	-	< 0.0010			
	GL7-1-20150609	2015 06 09	7.32	1,090	-	-	-	2,430	-	-	408	< 25	-	58.4	1,770	669	1,800	-	-	-	-	0.54	-	-	28	-	0.0014			
GL7-1-20151109	2015 11 09	6.61	1,080	-	-	-	2,470	-	-	412	< 100	-	61	2,180	704	1,430	-	-	-	-	< 1.0	-	-	29	-	< 0.0010				
GL8-1	GL 8-1-20091110	2009 11 10	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL8-1-20100810	2010 08 10	-	630	-	-	-	2,710	-	-	430	-	-	55.9	-	1,230	550	-	-	-	-	-	-	-	< 10	-	0.037			
GL8-2	GL 8-2-20091110	2009 11 10	-	1,190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL8-2-20100810	2010 08 10	-	928	-	-	-	8,530	-	-	20	-	-	528	-	2,830	2,800	-	-	-	-	-	-	-	120	-	0.298			
	GL8-2-20110627	2011 06 27	-	1,040	-	-	-	7,520	-	-	220	-	-	512	-	2,760	2,520	-	-	-	-	-	-	-	100	-	0.158			
	GL8-2-20111217	2011 12 17	-	652	-	-	-	7,360	-	-	60	< 100	-	511	-	2,940	2,470	-	-	-	-	-	-	-	120	-	0.35			
	GL 8-2-20120626	2012 06 26	-	800	-	-	-	5,610	-	-	130	-	-	390	-	1,970	2,080	-	-	-	-	-	-	-	120	-	-			
	DUP B-20120626	Duplicate	-	800	-	-	-	7,250	-	-	140	-	-	467	-	2,550	2,510	-	-	-	-	-	-	-	90	-	-			
	QA/QC RPD%		-	0	-	-	-	26	-	-	7	-	-	18	-	26	19	-	-	-	-	-	-	-	29	-	-			
	GL 8-2-20120704	2012 07 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05			
	GL8-2-20121204	2012 12 04	-	581	-	-	-	7,350	-	-	90	220	-	478	-	2,830	2,600	-	-	-	-	-	-	-	113	-	0.324			
	GL8-2-20130626	2013 06 26	-	1,180	-	-	-	7,140	-	-	64.4	350	-	459	3,200	3,260	1,930	-	-	-	-	3.6	-	-	487	-	-			
	GL8-2-20131113	2013 11 13	-	800	-	-	-	7,050	-	-	25.8	< 250	-	460	3,600	2,870	2,210	-	-	-	-	-	-	-	76	-	-			
	DUP2-20131113	Duplicate	-	808	-	-	-	7,070	-	-	22.6	< 250	-	459	3,600	2,870	2,130	-	-	-	-	-	-	-	80	-	-			
	QA/QC RPD%		-	1	-	-	-	0	-	-	*	*	-	0	0	0	4	-	-	-	-	-	-	-	5	-	-			
GL8-2-20140605	2014 06 05	-	768	-	-	-	6,600	-	-	14	6,340	-	390	3,000	3,000	1,850	-	-	-	-	3.4	-	-	68	-	0.0704				
GL8-2-20141118	2014 11 18	-	626	-	-	-	5,580	-	-	15.6	2,770	-	389	3,700	2,840	2,040	-	-	-	-	2.5	-	-	78	-	0.166				

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL8-2 (cont'd)	GL8-2-20150610	2015 06 10	8.29	837	-	-	-	6,800	-	-	18.1	15,700	-	390	2,700	3,320	1,630	-	-	-	-	2.6	-	-	64	-	0.0773			
	DUP 2-20150610	Duplicate	8.3	833	-	-	-	6,900	-	-	20.5	15,400	-	383	2,700	3,280	1,650	-	-	-	-	2.7	-	-	70	-	0.0795			
	QA/QC RPD%		0	0	-	-	-	1	-	-	*	2	-	2	0	1	1	-	-	-	-	4	-	-	9	-	3			
GL9-1	GL8-2-20151103	2015 11 03	8.03	683	-	-	-	6,730	-	-	12.4	11,200	-	392	3,700	3,290	1,580	-	-	-	-	2.7	-	-	59	-	0.141			
	GL 9-1-20091111	2009 11 11	-	510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL9-1-20100810	2010 08 10	-	610	-	-	-	1,470	-	-	230	-	-	126	-	300	923	-	-	-	-	-	-	-	< 10	-	0.003			
	GL9-1-20110628	2011 06 28	-	375	-	-	-	1,220	-	-	120	-	-	132	-	270	677	-	-	-	-	-	-	-	< 10	-	0.026			
	GL 9-1-20120627	2012 06 27	-	420	-	-	-	1,320	-	-	140	-	-	153	-	263	690	-	-	-	-	-	-	-	20	-	< 0.002			
	GL9-1-20121204	2012 12 04	-	392	-	-	-	1,350	-	-	160	< 100	-	152	-	299	684	-	-	-	-	-	-	-	18	-	< 0.002			
	GL9-1-20130626	2013 06 26	-	418	-	-	-	1,260	-	-	167	< 100	-	153	770	279	727	-	-	-	-	< 1.0	-	-	< 20	-	-			
	GL9-1-20131114	2013 11 14	-	410	-	-	-	1,230	-	-	155	< 100	-	155	580	254	872	-	-	-	-	< 1.0	-	-	< 20	-	-			
	GL9-1-20140604	2014 06 04	-	374	-	-	-	1,190	-	-	106	< 100	-	156	820	244	879	-	-	-	-	< 1.0	-	-	< 20	-	< 0.0010			
	DUP1-20140604	Duplicate	-	366	-	-	-	1,190	-	-	92.2	< 50	-	153	720	238	849	-	-	-	-	0.63	-	-	< 20	-	< 0.0010			
	QA/QC RPD%		-	2	-	-	-	0	-	-	14	*	-	2	13	2	3	-	-	-	-	*	-	-	*	-	*			
	GL9-1-20141125	2014 11 25	-	404	-	-	-	1,310	-	-	189	< 100	-	154	640	250	776	-	-	-	-	< 1.0	-	-	28	-	< 0.0010			
	GL9-1-20150609	2015 06 09	8.9	332	-	-	-	1,140	-	-	76.2	< 25	-	153	590	224	833	-	-	-	-	0.72	-	-	< 20	-	< 0.0010			
	GL9-1-20151109	2015 11 09	8.97	326	-	-	-	1,220	-	-	74.2	< 100	-	153	600	218	684	-	-	-	-	< 1.0	-	-	< 20	-	< 0.0010			
	GL9-1-20170530	2017 05 30	8.9	363	-	-	-	1,150	-	-	314,000	< 50	-	159	660	223	693	-	-	-	-	0.71	-	-	1,150	-	< 0.0010			
	GL9-1-180604	2018 06 04	8.03	480	7.21	-	2,027	1,390	2.53	< 0.0050	261	< 100	< 10	153	650	314	739	739	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	< 0.0050	-			
	GL9-1-190530	2019 05 30	8.33	407	8.25	-	1961	1,330	1.44	< 0.0050	280	< 10	< 10	140	720	270	713	701	12	< 1.0	6	0.39	-	-	< 20	< 0.0050	-			
	GL9-1-200611	2020 06 11	7.9	584	7.06	-	2,032	1,470	1.77	-	255	< 100	< 100	109	< 1,000	267	1,060	1,060	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0500			
	DUPC-200611	Duplicate	7.86	570	-	-	-	1,450	1.26	-	255	< 100	< 100	113	< 1,000	276	1,050	1,050	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0500			
	QA/QC RPD%		1	2	-	-	-	1	*	-	0	*	*	4	*	3	1	1	*	*	*	*	*	-	-	*	-	*		
GL9-2	GL9-1-210611	2021 06 11	7.75	746	6.79	-	2,568	1,630	0.74	-	239	< 100	< 100	99	< 1,000	277	1,220	1,220	< 1.0	< 1.0	< 1.0	< 1.00	-	-	35	-	< 0.0500			
	GL 9-2-20091111	2009 11 11	-	9,260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL9-2-20100810	2010 08 10	-	6,980	-	-	-	40,200	-	-	800	-	-	1,300	-	23,000	720	-	-	-	-	-	-	-	100	-	0.011			
	GL9-2-20110628	2011 06 28	-	8,320	-	-	-	40,500	-	-	40	-	-	1,150	-	25,300	606	-	-	-	-	-	-	-	110	-	0.095			
	GL 9-2-20120627	2012 06 27	-	8,200	-	-	-	41,400	-	-	< 10	-	-	1,130	-	26,000	588	-	-	-	-	-	-	-	190	-	0.006			
	GL9-2-20121204	2012 12 04	-	8,370	-	-	-	39,400	-	-	100	< 1,000	-	1,210	-	27,000	564	-	-	-	-	-	-	-	101	-	0.009			
	Dup-B-20121204	Duplicate	-	7,980	-	-	-	39,800	-	-	< 10	< 1,000	-	1,120	-	27,100	564	-	-	-	-	-	-	-	89	-	0.006			
	QA/QC RPD%		-	5	-	-	-	1	-	-	*	*	-	8	-	0	0	-	-	-	-	-	-	-	13	-	40			
	GL9-2-20130626	2013 06 26	-	7,670	-	-	-	40,500	-	-	140	< 500	-	1,250	3,040	26,900	898	-	-	-	-	< 5.0	-	-	78	-	-			
	DUP2-20130626	Duplicate	-	7,870	-	-	-	41,900	-	-	129	< 500	-	1,240	3,300	26,800	1,000	-	-	-	-	< 5.0	-	-	82	-	-			
	QA/QC RPD%		-	3	-	-	-	3	-	-	8	*	-	1	8	0	11	-	-	-	-	*	-	-	5	-	-			
	GL9-2-20131113	2013 11 13	-	7,950	-	-	-	40,900	-	-	485	< 500	-	1,250	3,100	25,500	950	-	-	-	-	-	-	-	64	-	-			
	GL9-2-20140605	2014 06 05	-	8,100	-	-	-	39,300	-	-	11.9	720	-	1,230	3,240	26,100	1,030	-	-	-	-	7.8	-	-	78	-	0.0054			
	GL9-2-20141125	2014 11 25	-	7,700	-	-	-	40,600	-	-	54.3	730	-	1,290	3,780	27,500	502	-	-	-	-	5.6	-	-	68	-	0.0054			
	GL9-2-20150609	2015 06 09	8.05	7,650	-	-	-	38,700	-	-	92.3	< 500	-	1,270	2,400	27,100	1,080	-	-	-	-	5.9	-	-	64	-	0.0052			
	GL9-2-20151104	2015 11 04	7.92	7,360	-	-	-	40,400	-	-	50.4	< 500	-	1,200	3,300	26,200	547	-	-	-	-	5.6	-	-	53	-	0.0057			

Associated CARO files available upon request.

Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL9-3	GL 9-3-20091111	2009 11 11	-	217	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL9-3-20100810	2010 08 10	-	10,500	-	-	-	48,500	-	-	< 10	-	-	1,610	-	29,400	944	-	-	-	-	-	-	-	100	-	0.028			
	GL9-3-20110628	2011 06 28	-	12,300	-	-	-	49,600	-	-	20	-	-	1,450	-	31,400	930	-	-	-	-	-	-	-	180	-	0.033			
	GL9-A-20110628	Duplicate	-	11,400	-	-	-	50,100	-	-	30	-	-	1,400	-	31,500	932	-	-	-	-	-	-	-	190	-	0.032			
	QA/QC RPD%		-	8	-	-	-	1	-	-	*	-	-	4	-	0	0	-	-	-	-	-	-	-	5	-	3			
	GL 9-3-20120627	2012 06 27	-	11,000	-	-	-	51,700	-	-	30	-	-	1,360	-	31,400	948	-	-	-	-	-	-	-	230	-	0.008			
	GL9-3-20121204	2012 12 04	-	10,400	-	-	-	50,200	-	-	< 10	< 1,000	-	1,500	-	31,800	947	-	-	-	-	-	-	-	156	-	< 0.002			
	GL9-3-20130626	2013 06 26	-	10,400	-	-	-	51,900	-	-	17.1	< 500	-	1,540	2,340	32,600	1,420	-	-	-	-	< 5.0	-	-	100	-	-			
	GL9-3-20131113	2013 11 13	-	10,500	-	-	-	49,000	-	-	9.6	560	-	1,590	2,420	31,500	1,450	-	-	-	-	-	-	-	281	-	-			
	GL9-3-20140605	2014 06 05	-	10,800	-	-	-	48,700	-	-	7.4	< 500	-	1,530	2,320	31,800	1,580	-	-	-	-	10.5	-	-	88	-	0.0051			
	GL9-3-20141125	2014 11 25	-	10,400	-	-	-	49,300	-	-	10.5	< 500	-	1,600	3,020	32,800	989	-	-	-	-	7.2	-	-	105	-	0.0054			
	DUP4-20141124	Duplicate	-	10,400	-	-	-	49,800	-	-	10.7	650	-	1,610	3,030	33,100	1,010	-	-	-	-	8	-	-	121	-	0.0074			
	QA/QC RPD%		-	0	-	-	-	1	-	-	*	*	-	1	0	1	2	-	-	-	-	11	-	-	14	-	31			
	GL9-3-20150609	2015 06 09	7.92	10,400	-	-	-	48,200	-	-	16.5	< 500	-	1,590	< 2,000a	33,500	1,530	-	-	-	-	8.5	-	-	91	-	0.0042			
	GL9-3-20151109	2015 11 09	7.69	9,720	-	-	-	50,200	-	-	9.9	< 500	-	1,530	3,200	32,100	926	-	-	-	-	6.2	-	-	124	-	0.0043			
	GL9-3-20160526	2016 05 26	7.78	10,600	-	-	-	62,800	-	-	10.4	< 500	-	1,780	3,500	37,100	915	-	-	-	-	10.8	-	-	78	-	0.0049			
	GL9-3-20170529	2017 05 29	7.9	11,100	-	-	-	46,400	-	-	30.5	< 500	-	1,680	2,700	34,600	834	-	-	-	-	11.2	-	-	80	-	0.0065			
	GL9-3-180528	2018 05 28	7.68	11,300	7.22	-	3,210	53,000	25.1	< 0.0050	69	6,320	< 1,000a	238	4,350	199	862	862	< 1.0	< 1.0	< 1.0	< 10.0	-	-	86	< 0.0050	-			
	GL9-3-190527	2019 05 27	7.73	12,600	7.54	-	44350	52,300	24.8	< 0.500	73	< 1,000	< 1,000a	1,540	< 10,000a	31,700	859	859	< 1.0	< 1.0	< 1.0	< 10.0	-	-	83	< 0.500	-			
	GL9-3-200608	2020 06 08	7.8	10,200	7.32	-	36,600	52,600	23.6	-	< 50	< 5,000a	< 5,000a	1,400	< 50,000a	34,500	921	921	< 1.0	< 1.0	< 1.0	< 50.0	-	-	79	-	< 2.50			
	GL9-3-210610	2021 06 10	7.74	10,700	7.29	-	41,476	54,200	18.8	-	< 50	< 1,000	< 1,000	1,600	< 10,000a	32,300	943	943	< 1.0	< 1.0	< 1.0	< 10.0	-	-	104	-	< 0.500			
GL10-1	GL10-1-20091112	2009 11 12	-	7,010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL10-1-20100810	2010 08 10	-	6,430	-	-	-	31,200	-	-	170	-	-	1,400	-	14,800	3,470	-	-	-	-	-	-	-	480	-	0.059			
	GL10-1-20110704	2011 07 04	-	8,310	-	-	-	31,700	-	-	140	-	-	1,420	-	17,600	3,200	-	-	-	-	-	-	-	210	-	0.035			
	GL10-1-20120626	2012 06 26	-	8,760	-	-	-	33,800	-	-	140	-	-	1,450	-	19,300	2,640	-	-	-	-	-	-	-	230	-	0.006			
	GL10-1-20121204	2012 12 04	-	8,350	-	-	-	33,000	-	-	210	< 1,000	-	1,270	-	19,400	267	-	-	-	-	-	-	-	228	-	0.004			
	GL10-1-20130626	2013 06 26	-	7,720	-	-	-	31,400	-	-	142	< 500	-	1,270	1,860	18,800	2,540	-	-	-	-	10.5	-	-	166	-	-			
	GL10-1-20140605	2014 06 05	-	6,550	-	-	-	28,900	-	-	81.5	< 500	-	1,130	1,900	17,400	2,560	-	-	-	-	11.1	-	-	145	-	0.0044			
	GL10-1-20141125	2014 11 25	-	6,570	-	-	-	28,000	-	-	129	710	-	1,250	2,250	19,100	2,180	-	-	-	-	9.5	-	-	177	-	0.0063			
	GL10-1-20150610	2015 06 10	7.95	6,240	-	-	-	26,600	-	-	170	< 500	-	1,020	< 2,000a	16,300	2,300	-	-	-	-	8.7	-	-	145	-	0.0024			
	GL10-1-20151109	2015 11 09	7.57	5,980	-	-	-	25,100	-	-	152	< 500	-	963	< 2,000a	15,500	1,950	-	-	-	-	7.4	-	-	210	-	0.0019			
	DUP2-20151109	Duplicate	7.64	5,800	-	-	-	25,200	-	-	173	< 500	-	998	2,200	16,100	1,960	-	-	-	-	7.9	-	-	126	-	0.0028			
	QA/QC RPD%		1	3	-	-	-	0	-	-	13	*	-	4	*	4	1	-	-	-	-	7	-	-	50	-	*			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL12-1	GL12-1-20091112	2009 11 12	-	3,250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL12-1-20100811	2010 08 11	-	3,080	-	-	-	7,420	-	-	< 10	-	-	174	-	3,890	558	-	-	-	-	-	-	-	50	-	0.004			
	GL12-1-20110629	2011 06 29	-	3,310	-	-	-	7,330	-	-	20	-	-	151	-	4,240	544	-	-	-	-	-	-	-	30	-	0.095			
	GL30-1-20110629	Duplicate	-	3,400	-	-	-	7,270	-	-	30	-	-	151	-	4,190	542	-	-	-	-	-	-	-	20	-	0.092			
	QA/QC RPD%		-	3	-	-	-	1	-	-	*	-	-	0	-	1	0	-	-	-	-	-	-	-	*	-	3			
	GL 12-1-20111218	2011 12 18	-	3,160	-	-	-	8,050	-	-	< 10	3,660	-	168	-	3,040	571	-	-	-	-	-	-	-	40	-	0.03			
	GL12-1-20120625	2012 06 25	-	3,520	-	-	-	7,750	-	-	< 10	-	-	173	-	4,400	589	-	-	-	-	-	-	-	70	-	0.003			
	GL12-1-20121204	2012 12 04	-	3,610	-	-	-	7,920	-	-	< 10	5,830	-	182	-	4,770	606	-	-	-	-	-	-	-	72	-	0.007			
	GL12-1-20130626	2013 06 26	-	3,720	-	-	-	8,440	-	-	5.4	8,300	-	222	2,200	4,980	767	-	-	-	-	< 2.5	-	-	63	-	-			
	GL12-1-20131113	2013 11 13	-	3,900	-	-	-	8,560	-	-	6.7	5,870	-	251	1,800	4,820	860	-	-	-	-	-	-	-	69	-	-			
	GL12-1-20140604	2014 06 04	-	4,090	-	-	-	9,790	-	-	69.6	2,640	-	467	2,900	5,550	1,170	-	-	-	-	< 2.5	-	-	258	-	0.357			
	GL12-1-20141118	2014 11 18	-	3,910	-	-	-	9,400	-	-	86.6	< 250	-	404	1,600	5,610	1,110	-	-	-	-	< 2.5	-	-	219	-	0.0076			
	GL12-1-20150609	2015 06 09	7.68	3,880	-	-	-	7,990	-	-	274	< 100	-	607	1,830	4,560	842	-	-	-	-	< 1.0	-	-	378	-	0.0016			
	DUP3-20150609	Duplicate	7.64	3,900	-	-	-	8,000	-	-	279	< 50	-	603	1,650	4,430	855	-	-	-	-	0.63	-	-	372	-	0.0011			
	QA/QC RPD%		1	1	-	-	-	0	-	-	2	*	-	1	10	3	2	-	-	-	-	*	-	-	2	-	*			
	GL12-1-20151104	2015 11 04	7.31	3,480	-	-	-	8,290	-	-	252	< 250	-	455	2,000	4,980	744	-	-	-	-	< 2.5	-	-	260	-	< 0.0010			
	GL12-1-20160524	2016 05 24	7.14	3,840	-	-	-	8,210	-	-	467	< 250	-	500	2,000	4,600	768	768	< 1.0	< 1.0	-	< 2.5	-	-	393	-	< 0.0010			
	GL12-1-20160921	2016 09 21	7.34	3,590	-	-	-	8,290	-	-	648	< 250	-	574	2,000	4,430	824	-	-	-	-	< 2.5	-	-	657	-	0.0062			
	GL12-1-20170529	2017 05 29	7.17	2,610	-	-	-	7,280	-	-	2,020	< 250	-	514	1,700	3,850	823	-	-	-	-	< 2.5	-	-	1,070	-	0.372			
	GL12-1-20170926	2017 09 26	7.39	3,240	-	-	-	6,500	-	-	1,720	< 100	-	556	1,750	3,540	877	-	-	-	-	< 1.0	-	-	751	-	0.157			
	GL12-1-180604	2018 06 04	7.31	3,390	6.73	-	58,741	6,950	382	0.0074	1,430	< 5,000a	< 10	1,050	1,220	9,180	865	865	< 1.0	< 1.0	< 1.0	< 50.0	-	-	542	0.0074	-			
	GL12-1-180919	2018 09 19	7.07	3,890	6.99	-	5,880	7,730	190	< 0.0050	1,840	< 100	< 100	495	1,840	3,660	882	882	< 1.0	< 1.0	< 1.0	< 1.00	-	-	513	< 0.0050	-			
	GL12-1-190527	2019 05 27	7.49	3,850	6.75	-	8360	7,860	155	0.0125	1,750	59	24	480	1,560	3,800	907	907	< 1.0	< 1.0	< 1.0	0.33	-	-	485	0.0125	-			
	GL12-1-190919	2019 09 19	7.43	3,830	6.81	-	7380	7,920	175	-	1,270	< 100	< 100	496	1,190	3,620	886	886	< 1.0	< 1.0	< 1.0	< 1.00	-	-	458	-	< 0.0500			
	GL12-1-200610	2020 06 10	7.39	4,490	6.78	-	6,947	8,040	203	-	4,260	< 100	< 100	610	1,200	3,880	997	997	< 1.0	< 1.0	< 1.0	< 1.00	-	-	544	-	< 0.0500			
	GL12-1-201102	2020 11 02	7.51	4,720	6.64	-	8,081	8,040	179	-	7,300	< 1,000	< 10	603	1,400	3,820	948	948	< 1.0	< 1.0	< 1.0	0.84	-	-	566	-	< 0.0050			
	GL12-1-210525	2021 05 25	7.69	4,090	6.69	-	7,982	7,150	156	-	4,360	< 1,000	< 10	568	1,430	3,850	915	915	< 1.0	< 1.0	< 1.0	< 10.0	-	-	563	-	< 0.0050			
	GL12-1-211005	2021 10 05	7.27	4,140	6.67	-	7,452	7,940	174	-	4,660	< 100	< 100	579	1,300	4,280	928	928	< 1.0	< 1.0	< 1.0	< 1.00	-	-	536	-	< 0.0500			
	GL12-1-220607	2022 06 07	6.86	3720	-	-	6887	7760	199	<0.0500	6910	<1000	<1000	559	1050	3910	685	685	<1.0	<1.0	<1.0	<1.00	-	-	563	-	-			
	GL12-1-221005	2022 10 05	7.14	3420	-	-	7795	7490	182	<0.500	7960	<1000	<1000	598	<1000	3870	815	815	<1.0	<1.0	<1.0	<10.0	-	-	613	-	-			
GL13-1	GL13-1-20091117	2009 11 17	-	3,530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL13-1-20100811	2010 08 11	-	3,550	-	-	-	11,200	-	-	< 10	-	-	178	-	5,870	640	-	-	-	-	-	-	10	-	0.005				
	GL13-1-20110627	2011 06 27	-	3,950	-	-	-	10,800	-	-	< 10	-	-	196	-	6,580	666	-	-	-	-	-	-	30	-	0.007				
	GL13-1-20111217	2011 12 17	-	3,500	-	-	-	10,900	-	-	40	220	-	183	-	5,900	682	-	-	-	-	-	-	30	-	0.03				
	DUPC-20111217	Duplicate	-	113	-	-	-	1,570	-	-	410	< 50	-	72.6	-	2.3	1,420	-	-	-	-	-	-	< 10	-	0.02				
	QA/QC RPD%		-	187	-	-	-	150	-	-	*	*	-	86	-	200	70	-	-	-	-	-	-	-	*	-	40			
GL13-1-20120625	2012 06 25	-	3,580	-	-	-	9,930	-	-	< 10	-	-	170	-	5,900	647	-	-	-	-	-	-	-	30	-	0.007				
GL13-1-20121204	2012 12 04	-	3,440	-	-	-	9,990	-	-	< 10	< 1,000	-	174	-	5,750	672	-	-	-	-	-	-	-	41	-	0.006				

Associated CARO files available upon request.

Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL14-1	GL14-1-20091116	2009 11 16	-	40	-	-	-	-	-	-	-	-	-	-	-	-	783	-	-	-	-	-	-	-	-	-	-	-		
	GL14-1-20100811	2010 08 11	-	40	-	-	-	1,120	-	-	40	-	-	7	-	141	783	-	-	-	-	-	-	-	< 10	-	0.051			
	GL14-1-20110704	2011 07 04	-	48	-	-	-	1,100	-	-	60	-	-	8.6	-	132	809	-	-	-	-	-	-	-	30	-	0.11			
	GL14-1-20120627	2012 06 27	-	40	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-			
	GL14-1-20120704	2012 07 04	-	-	-	-	-	1,120	-	-	-	-	-	0.11	-	141	799	-	-	-	-	-	-	-	-	-	0.125			
GL15-1	GL14-1-20121204	2012 12 04	-	35	-	-	-	1,190	-	-	70	< 100	-	8.66	-	145	790	-	-	-	-	-	-	-	26	-	0.137			
	GL15-1-20091117	2009 11 17	-	702	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL30-3-20091117	Duplicate	-	662	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	QA/QC RPD%		-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL15-1-20140604	2014 06 04	-	335	-	-	-	782	-	-	15.2	233	-	6.7	2,190	261	446	-	-	-	-	< 0.50	-	-	< 20	-	0.076			
	GL15-1-20141117	2014 11 17	-	340	-	-	-	793	-	-	38.3	72	-	10	1,950	280	479	-	-	-	-	< 0.50	-	-	< 20	-	0.0409			
	GL15-1-20150610	2015 06 10	8.32	339	-	-	-	959	-	-	32.2	< 25	-	4.9	1,310	175	468	-	-	-	-	< 0.25	-	-	< 20	-	0.0308			
	DUP4-20150610	Duplicate	8.3	326	-	-	-	804	-	-	32	< 25	-	7.2	1,960	269	469	-	-	-	-	< 0.25	-	-	< 20	-	0.0283			
	QA/QC RPD%		0	4	-	-	-	18	-	-	1	*	-	38	40	42	0	-	-	-	-	*	-	-	*	-	8			
	GL15-1-20151103	2015 11 03	8.12	336	-	-	-	814	-	-	47.7	< 25	-	8.5	1,900	269	457	-	-	-	-	< 0.25	-	-	< 20	-	0.155			
	GL15-1-20160920	2016 09 20	8.01	385	-	-	-	874	-	-	17.8	89	-	12.3	1,760	295	446	-	-	-	-	< 0.25	-	-	< 20	-	0.0562			
	GL15-1-20170925	2017 09 25	8.1	326	-	-	-	767	-	-	12.5	98	-	8.1	2,090	264	428	-	-	-	-	< 0.25	-	-	< 20	-	0.0338			
	GL15-1-180928	2018 09 28	7.87	333	7.47	-	1,320	819	1.75	< 0.0050	78	23	< 10	8.32	1,810	280	441	441	< 1.0	< 1.0	< 1.0	< 0.10	-	-	21	< 0.0050	-			
	GL15-1-190924	2019 09 24	8.09	327	7.35	-	1259	826	1.68	-	240	< 10	< 10	7.96	1,970	263	442	442	< 1.0	< 1.0	< 1.0	< 0.10	-	-	< 20	-	< 0.0050			
	GL15-1-201104	2020 11 04	7.8	1,530	7.18	-	3,904	3,210	10.8	-	51	2,440	< 10	241	860	1,200	644	644	< 1.0	< 1.0	< 1.0	<1.00	-	-	32	-	< 0.0050			
GL15-1-211007	2021 10 07	8.08	468	7.47	-	1,528	1,030	2.11	-	< 50	< 100	< 100	24.3	1,310	358	489	489	< 1.0	< 1.0	< 1.0	<1.00	-	-	< 20	-	< 0.0500				
GL15-1-221005	2022 10 05	8.01	345	-	-	1308	811	1.03	0.068	50	<100	<100	9.27	1,490	292	414	414	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	-				
GL15-2	GL15-2-20110704	2011 07 04	-	2,090	-	-	-	3,760	-	-	< 10	-	-	52.4	-	1,900	650	-	-	-	-	-	-	-	20	-	0.024			
	GL15-2-20120627	2012 06 27	-	3,300	-	-	-	6,180	-	-	40	-	-	121	-	3,230	644	-	-	-	-	-	-	-	30	-	0.017			
	GL15-2-20121205	2012 12 05	-	3,580	-	-	-	6,750	-	-	< 10	< 10,000a	-	155	-	4,020	686	-	-	-	-	-	-	-	63	-	0.018			
	GL15-2-20130708	2013 07 08	-	3,920	-	-	-	7,970	-	-	< 5.0	8,850	-	143	< 1,000	4,190	822	-	-	-	-	< 2.5	-	-	30	-	-			
	GL15-2-20140604	2014 06 04	-	3,290	-	-	-	7,380	-	-	< 5.0	7,610	-	159	2,100	4,000	1,030	-	-	-	-	< 2.5	-	-	36	-	0.0188			
	GL15-2-20141117	2014 11 17	-	3,250	-	-	-	6,750	-	-	< 5.0	8,200	-	185	< 1,000	4,040	972	-	-	-	-	< 2.5	-	-	39	-	0.0193			
	GL15-2-20150610	2015 06 10	7.84	3,700	-	-	-	7,960	-	-	< 5.0	7,690	-	197	1,000	4,800	900	-	-	-	-	< 2.5	-	-	38	-	0.017			
	GL15-2-20151103	2015 11 03	7.5	3,910	-	-	-	7,970	-	-	< 5.0	7,470	-	182	1,100	4,800	807	-	-	-	-	< 2.5	-	-	32	-	0.0186			
	GL15-2-20160920	2016 09 20	7.4	5,010	-	-	-	10,400	-	-	< 5.0	3,700	-	259	1,400	6,740	807	-	-	-	-	< 2.5	-	-	45	-	0.0166			
	GL15-2-20170925	2017 09 25	7.59	4,190	-	-	-	8,470	-	-	7.6	3,120	-	181	1,300	4,560	794	-	-	-	-	< 2.5	-	-	41	-	0.0179			
	GL15-2-180928	2018 09 28	7.41	3,300	6.88	-	7,089	6,990	15.4	< 0.0050	73	2,590	< 10	214	1,030	3,730	765	765	< 1.0	< 1.0	< 1.0	<1.00	-	-	38	< 0.0050	-			
	GL15-2-190924	2019 09 24	7.7	3,470	6.77	-	7047	7,220	12.2	-	< 20	3,550	< 100	246	< 1,000	4,060	748	748	< 1.0	< 1.0	< 1.0	<1.00	-	-	26	-	< 0.0500			
	GL15-2-201104	2020 11 04	7.69	6,230	6.94	-	10,680	11,900	19	-	< 50	1,690	< 10	360	1,020	7,190	794	794	< 1.0	< 1.0	< 1.0	< 10.0	-	-	33	-	< 0.0050			
	DUP2-201104	Duplicate	7.67	6,360	-	-	-	11,200	19.5	-	< 50	1,790	< 10	367	970	7,160	797	797	< 1.0	< 1.0	< 1.0	< 10.0	-	-	32	-	< 0.0050			
	QA/QC RPD%		0	2	-	-	-	6	3	-	*	6	*	2	5	0	0	0	*	*	*	*	-	-	*	-	*			
GL15-2-211007	2021 10 07	7.67	< 10.0	6.89	-	8,617	9270	14	-	< 50	1300	< 100	346	< 1,000	5,260	817	817	< 1.0	< 1.0	< 1.0	<1.00	-	-	26	-	< 0.0500				
GL15-2-221005	2022 10 05	7.54	3100	-	-	7,326	7170	12.1	<0.0500	<50	874	<100	361	<1,000	4,080	650	650	<1.0	<1.0	<1.0	<1.00	-	-	38	-	-				

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL16-1	GL 16-1-20091111	2009 11 11	-	1,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL 16-1-20111217	2011 12 17	-	987	-	-	-	4,500	-	-	< 10	220	-	166	-	2,240	985	-	-	-	-	-	-	-	10	-	0.04			
	GL16-1-20100811	2010 08 11	-	1,700	-	-	-	6,750	-	-	470	-	-	252	-	3,520	1,170	-	-	-	-	-	-	-	< 10	-	0.012			
	GL16-1-20110627	2011 06 27	-	1,210	-	-	-	4,780	-	-	< 10	-	-	168	-	2,480	982	-	-	-	-	-	-	-	10	-	0.024			
	GL30-1-20110627	Duplicate	-	1,200	-	-	-	4,790	-	-	30	-	-	165	-	2,330	980	-	-	-	-	-	-	-	20	-	0.023			
	QA/QC RPD%		-	1	-	-	-	0	-	-	*	-	-	2	-	6	0	-	-	-	-	-	-	-	*	-	4			
	GL16-1-20120626	2012 06 26	-	1,260	-	-	-	4,490	-	-	500	-	-	162	-	2,270	1,170	-	-	-	-	-	-	-	30	-	0.011			
	GL16-1-20121204	2012 12 04	-	1,020	-	-	-	4,170	-	-	1,130	120	-	154	-	2,110	1,190	-	-	-	-	-	-	-	34	-	0.018			
	GL16-1-20130626	2013 06 26	-	1,040	-	-	-	4,200	-	-	448	< 250	-	153	1,500	2,080	1,100	-	-	-	-	< 2.5	-	-	35	-	-			
	GL16-1-20131113	2013 11 13	-	949	-	-	-	4,160	-	-	39.9	590	-	158	< 1,000	1,940	1,120	-	-	-	-	-	-	-	< 20	-	-			
	GL16-1-20140605	2014 06 05	-	930	-	-	-	3,880	-	-	382	< 100	-	154	900	1,970	1,200	-	-	-	-	<1.00	-	-	< 20	-	0.0033			
	GL16-1-20141118	2014 11 18	-	845	-	-	-	3,830	-	-	125	150	-	148	890	1,850	1,170	-	-	-	-	<1.00	-	-	< 20	-	0.017			
	GL16-1-20150610	2015 06 10	7.96	900	-	-	-	3,880	-	-	350	< 100	-	155	880	1,960	1,050	-	-	-	-	<1.00	-	-	< 20	-	0.0046			
	GL16-1-20151103	2015 11 03	7.76	827	-	-	-	3,670	-	-	34.9	260	-	151	940	1,860	1,180	-	-	-	-	<1.00	-	-	< 20	-	0.0451			
	DUP3-20151103	Duplicate	7.64	828	-	-	-	3,630	-	-	36.3	230	-	145	900	1,780	943	-	-	-	-	<1.00	-	-	< 20	-	0.0448			
	QA/QC RPD%		2	0	-	-	-	1	-	-	4	12	-	4	4	4	22	-	-	-	-	*	-	-	*	-	1			
	GL16-1-20160524	2016 05 24	7.84	803	-	-	-	3,470	-	-	< 5.0	250	-	145	1,020	1,770	938	938	< 1.0	< 1.0	-	<1.00	-	-	< 20	-	0.0526			
	GL16-1-20170525	2017 05 25	8.51	833	-	-	-	3,530	-	-	< 5.0	330	-	139	940	1,710	898	-	-	-	-	<1.00	-	-	< 20	-	0.0517			
	DUP2-20170525	Duplicate	8.45	847	-	-	-	3,510	-	-	< 5.0	280	-	142	990	1,750	866	-	-	-	-	<1.00	-	-	< 20	-	0.0528			
	QA/QC RPD%		1	2	-	-	-	1	-	-	*	16	-	2	5	2	4	-	-	-	-	*	-	-	*	-	2			
	GL16-1-180604	2018 06 04	7.67	762	7.11	-	3,660	3,180	2.93	0.0072	27	< 5,000a	< 10	273	690	4,040	944	944	< 1.0	< 1.0	< 1.0	< 50.0	-	-	24	0.0072	-			
	GL16-1-190529	2019 05 29	7.83	756	7.03	-	4453	3,390	3.06	< 0.0500	68	< 100	< 100	133	1,240	1,480	965	965	< 1.0	< 1.0	< 1.0	<1.00	-	-	< 20	< 0.0500	-			
	GL16-1-200608	2020 06 08	7.98	699	7.08	-	3,720	3,020	1.59	-	256	< 1,000	< 1,000a	95.1	< 10,000a	1,270	973	973	< 1.0	< 1.0	< 1.0	< 10.0	-	-	< 20	-	< 0.500			
	GL16-1-210609	2021 06 09	7.98	658	7.01	-	4,173	2,670	2.15	-	124	< 100	< 100	113	< 1,000	1,110	978	978	< 1.0	< 1.0	< 1.0	<1.00	-	-	< 20	-	< 0.0500			
	GL16-1-220602	2022 06 02	7.93	651	-	-	4,010	2,790	1.51	<0.0500	118	137	<0.100	130	<1,000	1,410	833	833	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	-			
GL17-1	GL17-1-20091112	2009 11 12	-	3,390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL17-1-20100811	2010 08 11	-	3,280	-	-	-	9,080	-	-	50	-	-	172	-	4,600	678	-	-	-	-	-	-	-	30	-	0.003			
	GL30-4-20100811	Duplicate	-	3,170	-	-	-	8,730	-	-	70	-	-	174	-	4,710	679	-	-	-	-	-	-	-	40	-	0.003			
	QA/QC RPD%		-	3	-	-	-	4	-	-	33	-	-	1	-	2	0	-	-	-	-	-	-	-	*	-	*			
	GL17-1-20110628	2011 06 28	-	3,580	-	-	-	8,930	-	-	180	-	-	164	-	5,060	664	-	-	-	-	-	-	-	40	-	0.088			
	GL17-1-20120625	2012 06 25	-	130	-	-	-	1,610	-	-	340	-	-	71.5	-	6.7	1,480	-	-	-	-	-	-	-	20	-	0.034			
	GL17-1-20121204	2012 12 04	-	98	-	-	-	1,570	-	-	360	< 100	-	72.6	-	6.3	614	-	-	-	-	-	-	-	33	-	0.031			
	GL17-1-20160526	2016 05 26	8.18	118	-	-	-	1,480	-	-	371	< 100	-	71	2,040	< 6.0	1,330	-	-	-	-	< 1.0	-	-	< 20	-	0.0152			
	GL17-1-20160919	2016 09 19	8.32	123	-	-	-	1,490	-	-	184	< 100	-	93	1,930	29.3	1,240	-	-	-	-	< 1.0	-	-	< 20	-	0.053			
	GL17-1-20170531	2017 05 31	8.13	125	-	-	-	1,530	-	-	353	< 100	-	78	1,890	< 6.0	1,350	-	-	-	-	< 1.0	-	-	< 20	-	0.0146			
	GL17-1-20170926	2017 09 26	7.95	121	-	-	-	1,480	-	-	334	< 100	-	81	1,950	7.6	1,310	-	-	-	-	< 1.0	-	-	< 20	-	0.0114			
	GL17-1-180604	2018 06 04	7.83	127	7.3	-	2,044	1,480	2.54	< 0.0050	373	< 10	< 10	68.9	1,710	18.3	1,330	1,330	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	< 0.0050	-			
	GL17-1-180919	2018 09 19	7.8	130	7.5	-	2,197	1,480	2.83	< 0.0050	287	< 100	< 10	88.4	2,060	45.7	1,220	1,220	< 1.0	< 1.0	< 1.0	0.4	-	-	< 20	< 0.0050	-			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL17-1 (cont'd)	GL17-1-190527	2019 05 27	8.11	124	7.56	-	2558	1,490	2.02	< 0.0050	445	< 10	< 10	75.7	1,960	14.4	1,380	1,380	< 1.0	< 1.0	< 1.0	0.18	-	-	< 20	< 0.0050	-			
	DUP1-190527	Duplicate	8.13	120	7.56	-	2558	1,470	1.76	< 0.0050	481	< 10	< 10	75.5	1,940	13.8	1,400	1,400	< 1.0	< 1.0	< 1.0	0.2	-	-	< 20	< 0.0050	-			
	QA/QC RPD%		0	3	*	-	*	1	*	*	8	*	*	0	1	4	1	1	*	*	*	*	-	-	*	*	-			
	GL17-1-190923	2019 09 23	8.11	128	7.67	-	2421	1,550	1.92	-	351	< 10	< 10	78.7	1,940	14.3	1,360	1,360	< 1.0	< 1.0	< 1.0	0.42	-	-	< 20	-	0.0715			
	GL17-1-200608	2020 06 08	8.2	121	7.35	-	2,138	1,590	2.32	-	349	< 10	< 10	62.6	1,820	3.9	1,400	1,400	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	0.05			
	GL17-1-201020	2020 10 20	8.01	132	7.43	-	2,457	1,530	2.22	-	402	< 10	< 10	69.6	1,990	4.4	1,300	1,300	< 1.0	< 1.0	< 1.0	0.33	-	-	< 20	-	0.0103			
	GL17-1-210604	2021 06 04	8.14	135	-	-	-	1,220	1.36	-	315	< 10	< 10	71	2,030	3.9	1,410	1,410	< 1.0	< 1.0	< 1.0	0.34	-	-	< 20	-	< 0.0050			
	GL17-1-211006	2021 10 06	7.98	127	7.33	-	2,153	1,660	1.24	-	399	< 10	< 10	64.2	1,970	< 10.0	1,460	1,460	< 1.0	< 1.0	< 1.0	< 1.00	-	-	< 20	-	< 0.0050			
	GL17-1-220531	2022 05 31	8.16	129	-	-	2,415	1,250	1.98	<0.0050	300	<10	<10	65.6	2,040	1.9	1,220	1,220	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	-			
GL17-1-220928	2022 09 28	8.15	118	-	-	2,184	1,520	0.98	0.0088	347	<10	<10	70.9	2,120	<1.0	1,450	1450	<1.0	<1.0	<1.0	0.35	-	-	<20	-	-				
GL17-2	GL17-2-20091112	2009 11 12	-	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL30-2-20091112	Duplicate	-	119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	QA/QC RPD%		-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL17-2-20100811	2010 08 11	-	110	-	-	-	1,630	-	-	350	-	-	65.2	-	6.2	1,480	-	-	-	-	-	-	-	10	-	0.058			
	GL17-2-20110628	2011 06 28	-	109	-	-	-	1,510	-	-	220	-	-	68	-	60	135	-	-	-	-	-	-	-	10	-	0.109			
	GL17-2-20120625	2012 06 25	-	3,440	-	-	-	9,700	-	-	190	-	-	204	-	5,740	606	-	-	-	-	-	-	-	40	-	< 0.002			
	GL17-2-20121204	2012 12 04	-	3,920	-	-	-	10,000	-	-	110	2,500	-	180	-	6,120	652	-	-	-	-	-	-	-	33	-	< 0.002			
	GL17-2-20130626	2013 06 26	-	4,000	-	-	-	10,800	-	-	< 5.0	2,610	-	191	2,300	6,330	780	-	-	-	-	< 2.5	-	-	33	-	-			
	GL17-2-20131113	2013 11 13	-	4,190	-	-	-	10,800	-	-	22.6	1,840	-	262	1,700	6,380	864	-	-	-	-	-	-	-	24	-	-			
	GL17-2-20140605	2014 06 05	-	3,650	-	-	-	10,500	-	-	32.4	1,490	-	226	1,300	6,290	822	-	-	-	-	< 2.5	-	-	29	-	0.0025			
	GL17-2-20141118	2014 11 18	-	3,860	-	-	-	11,300	-	-	47	1,330	-	247	1,400	6,820	966	-	-	-	-	< 2.5	-	-	40	-	0.0014			
	GL17-2-20150608	2015 06 08	7.5	4,010	-	-	-	10,300	-	-	33.2	1,680	-	241	1,700	6,660	870	-	-	-	-	< 2.5	-	-	32	-	0.0025			
	GL17-2-20151104	2015 11 04	7.65	3,760	-	-	-	11,100	-	-	9.3	1,970	-	257	1,700	7,000	705	-	-	-	-	< 2.5	-	-	26	-	0.0033			
	GL18-2	GL 18-2-20091110	2009 11 10	-	1,060	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
GL18-2-20100811		2010 08 11	-	1,380	-	-	-	6,930	-	-	1,400	-	-	568	-	3,800	154	-	-	-	-	-	-	-	40	-	0.005			
GL18-2-20110629		2011 06 29	-	1,510	-	-	-	6,440	-	-	710	-	-	572	-	3,770	260	-	-	-	-	-	-	-	40	-	0.078			
GL18-2-20120626		2012 06 26	-	1,480	-	-	-	6,820	-	-	1,020	-	-	572	-	3,620	156	-	-	-	-	-	-	-	40	-	0.004			
DUP-A-20120626		Duplicate	-	1,520	-	-	-	6,670	-	-	1,280	-	-	585	-	3,670	167	-	-	-	-	-	-	-	60	-	0.004			
QA/QC RPD%		-	3	-	-	-	2	-	-	23	-	-	2	-	1	7	-	-	-	-	-	-	-	*	-	*				
GL18-2-20121205		2012 12 05	-	1,380	-	-	-	6,600	-	-	1,450	< 10,000a	-	785	-	8,090	165	-	-	-	-	-	-	-	22	-	0.005			
GL18-2-20130627		2013 06 27	-	1,400	-	-	-	6,660	-	-	1,330	< 250	-	611	< 1,000	3,900	177	-	-	-	-	3.7	-	-	47	-	-			
GL18-2-20131114		2013 11 14	-	1,380	-	-	-	6,670	-	-	1,370	< 250	-	618	< 1,000	3,870	181	-	-	-	-	3.7	-	-	32	-	-			
GL18-2-20140609		2014 06 09	-	1,380	-	-	-	6,260	-	-	1,440	< 250	-	608	< 1,000	3,820	180	-	-	-	-	3.4	-	-	150	-	0.0043			
GL18-2-20141126		2014 11 26	-	1,380	-	-	-	6,330	-	-	1,370	760	-	613	< 1,000	3,780	680	-	-	-	-	3.5	-	-	38	-	0.0042			
DUP3-20141126		Duplicate	-	1,390	-	-	-	6,080	-	-	1,440	420	-	627	< 1,000	3,860	170	-	-	-	-	3.8	-	-	40	-	0.0033			
QA/QC RPD%		-	1	-	-	-	4	-	-	5	58	-	2	*	2	120	-	-	-	-	8	-	-	*	-	*				
GL18-2-20150615		2015 06 15	7.98	1,340	-	-	-	6,410	-	-	1,330	< 250	-	608	< 1,000	3,780	170	-	-	-	-	3.7	-	-	35	-	0.0043			
GL18-2-20170529		2017 05 29	7.95	1,370	-	-	-	6,310	-	-	1,390	< 250	-	619	< 1,000	3,820	141	-	-	-	-	3.2	-	-	< 20	-	0.0027			
GL18-2-180604		2018 06 04	7.38	1,410	7.797.8	8,140	7,172	6,140	2.92	0.0231	1,520	< 5,000a	< 10	1,130	230	8,810	138	138	< 1.0	< 1.0	< 1.0	< 50.0	< 0.01a	< 0.020	38	0.0231	-			
DUP-180604	Duplicate	7.43	1,430	7.79	-	7,172	6,310	2.91	0.0216	1,530	< 5,000a	< 10	1,130	250	8,740	139	139	< 1.0	< 1.0	< 1.0	< 50.0	-	-	36	0.0216	-				
QA/QC RPD%		1	1	*	-	*	3	0	*	1	*	*	0	*	1	1	1	*	*	*	*	-	-	*	*	-				

Associated CARO files available upon request.

Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL20-1	GL20-1-20091112	2009 11 12	-	998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL20-1-20100811	2010 08 11	-	997	-	-	-	6,910	-	-	13,000	-	-	868	-	33	5,940	-	-	-	-	-	-	-	1,500	-	0.36			
	GL20-1-20110629	2011 06 29	-	113	-	-	-	6,900	-	-	317,000	-	-	880	-	600	582	-	-	-	-	-	-	-	110	-	3.8			
	GL20-1-20111217	2011 12 17	-	997	-	-	-	7,110	-	-	354,000	< 200	-	986	-	< 3	5,820	-	-	-	-	-	-	-	1,500	-	0.49			
	DUPA-20111217	Duplicate	-	988	-	-	-	7,140	-	-	364,000	< 200	-	982	-	< 3	5,810	-	-	-	-	-	-	-	1,400	-	0.64			
	QA/QC RPD%		-	1	-	-	-	0	-	-	3	*	-	0	-	*	0	-	-	-	-	-	-	-	7	-	27			
	GL20-1-20120625	2012 06 25	-	1,030	-	-	-	6,820	-	-	288,000	-	-	885	-	25.3	5,670	-	-	-	-	-	-	-	1,300	-	0.52			
	GL20-1-20121203	2012 12 03	-	872	-	-	-	7,070	-	-	485,000	< 1,000	-	923	-	< 50	5,900	-	-	-	-	-	-	-	1,280	-	15.7			
	GL20-1-20130625	2013 06 25	-	1,130	-	-	-	8,490	-	-	273,000	< 250	-	865	1,600	294	6,320	-	-	-	-	6.9	-	-	1,180	-	-			
	GL20-1-20140605	2014 06 05	-	907	-	-	-	7,650	-	-	96,100	123,000	-	586	< 1,000	1,250	3,850	-	-	-	-	5.3	-	-	566	-	0.791			
	DUP4-20140605	Duplicate	-	897	-	-	-	7,590	-	-	95,300	129,000	-	572	< 1,000	1,230	3,940	-	-	-	-	5.5	-	-	572	-	0.711			
	QA/QC RPD%		-	1	-	-	-	1	-	-	1	5	-	2	*	2	2	-	-	-	-	4	-	-	1	-	11			
	GL20-1-20141126	2014 11 26	-	945	-	-	-	7,430	-	-	180,000	< 250	-	819	< 1,000	21	6,130	-	-	-	-	6.8	-	-	923	-	6.4			
	GL20-1-20150611	2015 06 11	7.84	848	-	-	-	7,590	-	-	110,000	27,200	-	724	< 1,000	754	5,200	-	-	-	-	5.7	-	-	655	-	0.66			
	GL20-1-200826	2020 08 26	7.73	118	6.99	-	8,514	5,240	122	-	140,000	< 100	< 100	506	< 1,000	86.3	4,460	4,460	< 1.0	< 1.0	< 1.0	< 1.00	-	-	422	-	2.39			
	GL20-1-201020	2020 10 20	7.5	565	7	-	8,684	5,230	< 0.50	-	116,000	< 100	< 100	493	< 1,000	32.6	4,240	4,240	< 1.0	< 1.0	< 1.0	< 1.00	-	-	429	-	2.48			
	GL20-1-210511	2021 05 11	7.72	686	7.04	-	8,487	5,750	0.81	-	94,500	< 100	< 100	467	< 1,000	132	4,520	4,520	< 1.0	< 1.0	< 1.0	< 1.00	-	-	423	-	< 0.0500			
	GL20-1-210924	2021 09 24	7.6	565	6.9	-	8,332	5,520	118	-	111,000	582	50	463	320	14.7	4,740	4,740	< 1.0	< 1.0	< 1.0	2.62	-	-	445	-	0.0835			
	DUP 2-210924	Duplicate	7.63	551	6.9	-	8,332	5,660	132	-	102,000	594	45	462	350	14.9	4,790	4,790	< 1.0	< 1.0	< 1.0	2.66	-	-	432	-	0.0863			
	QA/QC RPD%		0	3	0	-	0	3	11	-	8	2	*	0	*	1	1	1	*	*	*	2	-	-	3	-	3			
	GL21-1	GL20-1-220531	2022 05 31	7.7	583	-	-	7,236	4,210	113	<0.0500	70,400	<100	<100	370	<1000	251	3,130	3,130	<1.0	<1.0	<1.0	<1.00	-	-	283	-	-		
		GL20-1-220927	2022 09 27	7.63	497	-	-	7,925	4,510	89	1.46	85,700	<100	165	399	<1000	172	2,820	2,820	<1.0	<1.0	<1.0	2.11	-	-	369	-	-		
GL21-1-20091117		2009 11 17	-	4,230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
GL21-1-20110705		2011 07 05	-	520	-	-	-	14,200	-	-	-	-	-	19	-	170	1,230	-	-	-	-	-	-	-	-	0.07				
GL 21-1-20110707		2011 07 07	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	140	-	-			
GL21-1-20120625		2012 06 25	-	4,660	-	-	-	14,800	-	-	< 10	-	-	697	-	8,380	1,120	-	-	-	-	-	-	-	110	-	0.052			
GL22-1	GL21-1-20121204	2012 12 04	-	4,300	-	-	-	14,600	-	-	90	1,880	-	628	-	7,910	1,160	-	-	-	-	-	-	-	125	-	0.042			
	GL 22-1-20091110	2009 11 10	-	1,050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
GL23-1	GL22-1-20100811	2010 08 11	-	970	-	-	-	1,450	-	-	70	-	-	25.6	-	338	961	-	-	-	-	-	-	-	60	-	0.01			
	GL 23-1-20091110	2009 11 10	-	1,140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL23-1-20100811	2010 08 11	-	1,000	-	-	-	1,640	-	-	40	-	-	30.9	-	352	1,220	-	-	-	-	-	-	-	50	-	0.005			
	GL23-1-20110704	2011 07 04	-	1,160	-	-	-	1,720	-	-	40	-	-	31.9	-	467	1,170	-	-	-	-	-	-	-	160	-	0.008			
	GL 23-1-20120627	2012 06 27	-	1,100	-	-	-	1,780	-	-	< 10	-	-	32.9	-	497	1,160	-	-	-	-	-	-	-	40	-	0.008			
	GL23-1-20121203	2012 12 03	-	270	-	-	-	1,790	-	-	80	< 100	-	33.8	-	500	1,080	-	-	-	-	-	-	-	44	-	0.009			
	GL23-1-20130627	2013 06 27	-	1,170	-	-	-	1,750	-	-	< 5.0	110	-	35	1,650	544	1,180	-	-	-	-	< 1.0	-	-	30	-	-			
	GL23-1-20140603	2014 06 03	-	1,080	-	-	-	1,710	-	-	11.6	160	-	41	1,170	522	1,130	-	-	-	-	< 1.0	-	-	38	-	0.0065			
	GL23-1-20141124	2014 11 24	-	1,210	-	-	-	1,790	-	-	26.9	< 100	-	37	1,210	624	1,100	-	-	-	-	< 1.0	-	-	48	-	0.0054			
	GL23-1-20150608	2015 06 08	7.67	1,130	-	-	-	1,700	-	-	< 5.0	< 100	-	36	1,090	500	1,200	-	-	-	-	< 1.0	-	-	41	-	0.0059			
	GL23-1-20151104	2015 11 04	7.68	1,050	-	-	-	1,570	-	-	17.2	< 100	-	33	940	390	1,130	-	-	-	-	< 1.0	-	-	37	-	0.0048			
	GL23-1-20160526	2016 05 26	7.99	1,080	-	-	-	1,570	-	-	< 5.0	< 100	-	34	1,030	382	1,090	-	-	-	-	< 1.0	-	-	38	-	0.003			
	GL23-1-20160531	2016 05 31	7.64	-	-	-	-	1,580	-	-	< 20	66	-	30.6	1,050	384	1,090	-	-	-	-	-	-	-	-	-	< 0.01			
	GL23-1-20170525	2017 05 25	8.45	1,150	-	-	-	1,610	-	-	10.4	< 100	-	35	890	386	1,070	-	-	-	-	< 1.0	-	-	42	-	0.0034			
DUP3-20170525	Duplicate	8.41	1,150	-	-	-	1,580	-	-	< 5.0	< 100	-	35	900	387	1,020	-	-	-	-	< 1.0	-	-	37	-	0.0033				
QA/QC RPD%		0	0	-	-	-	2	-	-	*	*	-	0	1	0	5	-	-	-	-	*	-	-	*	-	*				

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters													Dissolved Inorganics											
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate
GL23-1 (cont'd)	GL23-1-180529	2018 05 29	7.86	1,260	7.22	-	2,014	1,560	14.3	0.0062	36	< 10	66	34.2	710	341	1,090	1,090	< 1.0	< 1.0	< 1.0	0.27	-	-	39	0.0062	-
	GL23-1-190523	2019 05 23	8.01	1,170	7.7	-	2332	1,590	14.8	< 0.0050	33	72	< 10	34.0	660	384	1,120	1,120	< 1.0	< 1.0	< 1.0	0.27	-	-	30	< 0.0050	-
	GL23-1-190917	2019 09 17	7.78	1,130	-	-	-	1,610	16.4	-	60	< 10	< 10	35.0	750	394	1,090	1,090	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	-	< 0.0050
	GL23-1-200617	2020 06 17	7.97	1,000	6.95	-	2,150	1,530	14.6	-	< 50	134	< 100	32.3	< 1,000	405	964	964	< 1.0	< 1.0	< 1.0	< 1.00	-	-	33	-	< 0.0500
	GL23-1-200910	2020 09 10	7.98	1,130	-	-	-	1,660	14.8	-	< 50	28	< 10	33.1	780	402	1,110	1,110	< 1.0	< 1.0	< 1.0	0.32	-	-	-	-	< 0.0050
	GL23-1-210513	2021 05 13	7.85	1,080	7.06	-	2,319	1,370	13.9	-	< 50	10	< 10	33.2	760	376	1,180	1,180	< 1.0	< 1.0	< 1.0	0.33	-	-	22	-	< 0.0050
	DUP 1-210513	Duplicate	7.73	1,090	7.06	-	2,319	1,490	14.7	-	< 50	< 10	< 10	34.4	720	356	1,170	1,170	< 1.0	< 1.0	< 1.0	0.30	-	-	43	-	< 0.0050
	QA/QC RPD%		2	1	0	-	0	8	6	-	*	*	*	4	5	5	1	1	*	*	*	*	-	-	*	-	*
GL24-1	GL23-1-220606	2022 06 06	7.78	1,170	-	-	2,306	1,610	11.2	<0.0050	<50	41	<10	31.9	570	416	962	962	<1.0	<1.0	<1.0	<0.10	-	-	35	-	-
	GL24-1-20100811	2010 08 11	-	1,200	-	-	-	2,110	-	-	< 10	-	-	91.4	-	762	852	-	-	-	-	-	-	-	20	-	0.034
	GL24-1-20160531	2016 05 31	7.64	-	-	-	-	1,570	-	-	< 20	11,700	-	188	1,270	349	778	-	-	-	-	-	-	-	-	-	0.1
	GL24-1-20180927	2018 09 27	-	1,760	-	-	-	-	-	-	31	61,600	-	99.1	1,140	1,450	-	-	-	-	-	< 0.10	-	-	-	-	< 0.0050
	GL24-1-180612	2018 06 12	7.63	1,300	-	-	-	2,380	-	0.0083	60	13,100	29	216	1,090	742	1,060	1,060	< 1.0	< 1.0	< 1.0	< 0.10	-	-	-	0.0083	-
	GL24-1-190917	2019 09 17	7.92	1,100	-	-	-	1,870	9.09	-	47	6,540	< 100	163	1,200	591	921	921	< 1.0	< 1.0	< 1.0	< 1.00	-	-	-	-	< 0.0500
	GL24-1-200910	2020 09 10	8.04	856	-	-	-	1,750	6.56	-	< 50	1,690	< 10	123	1,390	418	930	930	< 1.0	< 1.0	< 1.0	0.30	-	-	-	-	< 0.0050
	GL25-1-20091117	2009 11 17	-	1,540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GL25-1	GL25-1-20100812	2010 08 12	-	1,480	-	-	-	2,630	-	-	< 10	-	-	67	-	1,350	455	-	-	-	-	-	-	-	60	-	0.016
	GL26-1-20091112	2009 11 12	-	654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GL26-1-20100812	2010 08 12	-	527	-	-	-	1,230	-	-	30	-	-	8.9	-	309	706	-	-	-	-	-	-	-	10	-	0.005
	GL30-5-20100812	Duplicate	-	575	-	-	-	1,250	-	-	50	-	-	8.8	-	306	705	-	-	-	-	-	-	-	10	-	0.005
GL26-2	QA/QC RPD%		-	9	-	-	-	2	-	-	50	-	-	1	-	1	0	-	-	-	-	-	-	-	*	-	0
	GL26-2-20091116	2009 11 16	-	629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GL26-2-20100812	2010 08 12	-	491	-	-	-	1,210	-	-	< 10	-	-	15.5	-	346	655	-	-	-	-	-	-	-	20	-	0.013
	GL26-2-20110629	2011 06 29	-	634	-	-	-	1,160	-	-	< 10	-	-	14.8	-	357	644	-	-	-	-	-	-	-	< 10	-	0.108
	GL26-2-20120625	2012 06 25	-	670	-	-	-	1,210	-	-	30	-	-	18.3	-	367	644	-	-	-	-	-	-	-	20	-	0.006
	GL26-2-20121204	2012 12 04	-	572	-	-	-	1,200	-	-	100	< 100	-	14.9	-	357	643	-	-	-	-	-	-	-	23	-	< 0.002
	GL26-2-20130626	2013 06 26	-	673	-	-	-	1,170	-	-	62.7	120	-	15	1,380	410	666	-	-	-	-	< 1.0	-	-	< 20	-	-
	GL26-2-20131114	2013 11 14	-	639	-	-	-	1,160	-	-	68.3	< 50	-	19.3	1,320	417	818	-	-	-	-	< 0.50	-	-	< 20	-	-
	GL26-2-20140605	2014 06 05	-	665	-	-	-	1,130	-	-	52	< 50	-	14.3	1,170	400	782	-	-	-	-	< 0.50	-	-	< 20	-	0.0021
	DUP2-20140605	Duplicate	-	668	-	-	-	1,130	-	-	58.7	< 50	-	14.2	1,170	396	816	-	-	-	-	< 0.50	-	-	< 20	-	0.0014
	QA/QC RPD%		-	0	-	-	-	0	-	-	12	*	-	1	0	1	4	-	-	-	-	*	-	-	*	-	*
	GL26-2-20141117	2014 11 17	-	638	-	-	-	1,120	-	-	50.8	< 100	-	20	1,160	403	830	-	-	-	-	< 1.0	-	-	< 20	-	0.0023
	GL26-2-20150608	2015 06 08	7.58	643	-	-	-	1,120	-	-	80.2	99	-	19.1	1,170	406	735	-	-	-	-	< 0.50	-	-	< 20	-	0.0096
	GL26-2-20151104	2015 11 04	7.73	617	-	-	-	1,170	-	-	62.4	< 50	-	13.6	1,170	388	613	-	-	-	-	< 0.50	-	-	< 20	-	< 0.0010
GL26-3	GL26-3-20091111	2009 11 11	-	682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GL26-3-20100812	2010 08 12	-	538	-	-	-	1,500	-	-	< 10	-	-	62	-	499	604	-	-	-	-	-	-	-	20	-	0.03

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL27-1	GL27-1-20091116	2009 11 16	-	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL27-1-20100812	2010 08 12	-	67	-	-	-	1,650	-	-	210	-	-	68	-	57	1,580	-	-	-	-	-	-	-	10	-	0.041			
	GL27-1-20110629	2011 06 29	-	88	-	-	-	1,600	-	-	70	-	-	44	-	70	161	-	-	-	-	-	-	-	<10	-	0.165			
	GL 27-1-20120626	2012 06 26	-	94	-	-	-	1,660	-	-	70	-	-	36.5	-	8	1,600	-	-	-	-	-	-	-	20	-	-			
	GL 27-1-20120704	2012 07 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.121				
	GL27-1-20121204	2012 12 04	-	73	-	-	-	1,670	-	-	100	<100	-	39.8	-	6.3	1,570	-	-	-	-	-	-	-	18	-	0.128			
	GL27-1-20130626	2013 06 26	-	88.4	-	-	-	1,730	-	-	126	<100	-	37	3,540	< 10	1,550	-	-	-	-	<1.0	-	-	<20	-	-			
	GL27-1-20131113	2013 11 13	-	93.5	-	-	-	1,630	-	-	107	<100	-	41	3,400	< 10	1,500	-	-	-	-	-	-	-	<20	-	-			
	GL27-1-20140605	2014 06 05	-	94.4	-	-	-	1,630	-	-	126	<100	-	38	3,420	< 10	1,560	-	-	-	-	<1.0	-	-	<20	-	0.12			
	GL27-1-20141118	2014 11 18	-	86.8	-	-	-	1,640	-	-	171	<100	-	39	3,280	< 10	1,640	-	-	-	-	<1.0	-	-	38	-	0.115			
	GL27-1-20150610	2015 06 10	8.41	87.1	-	-	-	1,470	-	-	122	<100	-	38	3,250	< 6.0	1,590	-	-	-	-	<1.0	-	-	<20	-	0.102			
	GL27-1-20151104	2015 11 04	8.18	86.6	-	-	-	1,610	-	-	180	<100	-	36	3,080	< 6.0	1,500	-	-	-	-	<1.0	-	-	<20	-	0.0954			
	GL27-1-20160526	2016 05 26	8.27	91.8	-	-	-	1,620	-	-	116	<100	-	38	3,450	< 6.0	1,500	-	-	-	-	<1.0	-	-	<20	-	0.0886			
	DUP-1-20160526	Duplicate	8.31	85.7	-	-	-	1,690	-	-	111	<100	-	38	3,490	< 6.0	1,480	-	-	-	-	<1.0	-	-	<20	-	0.0902			
	QA/QC RPD%			0	7	-	-	-	4	-	-	4	*	-	0	1	*	1	-	-	-	-	*	-	-	*	-	2		
	GL27-1-20160919	2016 09 19	8.34	90.8	-	-	-	1,630	-	-	152	<100	-	36	3,000	< 6.0	1,530	-	-	-	-	<1.0	-	-	<20	-	0.112			
	GL27-1-20170525	2017 05 25	8.83	95.2	-	-	-	1,640	-	-	70.1	<100	-	38	3,310	6	1,560	-	-	-	-	<1.0	-	-	<20	-	0.0674			
	GL27-1-20170925	2017 09 25	8.14	92	-	-	-	1,650	-	-	155	<100	-	32	3,260	6.6	1,450	-	-	-	-	<1.0	-	-	<20	-	0.0553			
	GL27-1-180815	2018 08 15	7.98	89.6	7.63	-	1,870	1,680	2.57	0.0407	276	18	<10	33.6	3,100	27.5	1,500	1,500	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0407	-			
	GL27-1-180919	2018 09 19	7.91	99.9	7.62	-	2,388	1,620	3.45	0.0445	220	<10	<10	35.1	3,210	19.2	1,450	1,450	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0445	-			
	GL27-1-190527	2019 05 27	8.2	90.6	7.67	-	2620	1,430	2.89	0.0794	272	<10	<10	36.2	3,020	21.8	1,480	1,480	<1.0	<1.0	<1.0	<0.10	-	-	<20	0.0794	-			
	GL27-1-190919	2019 09 19	8.22	92.8	7.48	-	2471	1,610	2.84	-	242	<10	<10	35.6	3,290	19.9	1,490	1,490	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	0.0424			
	GL27-1-200608	2020 06 08	8.31	93.2	7.5	-	2,216	1,530	2.12	-	230	<10	<10	35.5	3,060	17	1,500	1,480	22.6	<1.0	11.3	<0.10	-	-	<20	-	< 0.0050			
	GL27-1-201022	2020 10 22	8.1	85.2	7.63	-	2,525	1,600	2.79	-	243	<10	<10	37.7	3,330	7.8	1,420	1,420	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	0.0567			
	GL27-1-210602	2021 06 02	8.16	103	7.47	-	2,633	1,260	2.04	-	186	<10	<10	36.8	3,190	11.7	1,510	1,510	<1.0	<1.0	<1.0	0.16	-	-	<20	-	0.0558			
	GL27-1-210924	2021 09 24	8.21	107	7.47	-	2,544	1,810	106	-	318	<10	<10	36.7	3,320	11.8	1,550	1,550	<1.0	<1.0	<1.0	0.12	-	-	<20	-	0.0391			
	GL27-1-220531	2022 05 31	8.22	95.2	-	-	2,405	1,140	2.52	<0.0050	242	<10	<10	36.8	3,330	13.2	1,270	1,270	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	-			
	GL27-1-220927	2022 09 27	8.19	90.3	-	-	2,575	1,600	1.71	<0.0050	241	<10	<10	37.6	3,510	17.3	1,570	1,570	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	-			
GL27-2	GL27-1-20111217	2011 12 17	-	83	-	-	-	1,630	-	-	80	< 50	-	40.1	-	20.4	1,500	-	-	-	-	-	-	-	10	-	0.08			
	GL27-2-20091116	2009 11 16	-	3,760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL27-2-20100812	2010 08 12	-	3,540	-	-	-	14,300	-	-	290	-	-	740	-	6,590	708	-	-	-	-	-	-	-	130	-	0.057			
GL27-3	GL27-3-20091112	2009 11 12	-	5,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL27-3-20100812	2010 08 12	-	4,700	-	-	-	17,800	-	-	500	-	-	800	-	8,490	645	-	-	-	-	-	-	-	60	-	0.007			
	GL27-3-20110629	2011 06 29	-	5,170	-	-	-	16,700	-	-	470	-	-	610	-	9,700	639	-	-	-	-	-	-	-	30	-	0.268			
	GL27-3-20111217	2011 12 17	-	4,500	-	-	-	17,100	-	-	410	<200	-	582	-	10,900	653	-	-	-	-	-	-	-	40	-	0.04			
	GL27-3-20120625	2012 06 25	-	5,060	-	-	-	16,400	-	-	520	-	-	543	-	9,620	638	-	-	-	-	-	-	-	70	-	0.003			
	GL27-3-20121204	2012 12 04	-	4,480	-	-	-	15,900	-	-	660	<1,000	-	502	-	9,230	626	-	-	-	-	-	-	-	62	-	0.002			
	GL27-3-20130626	2013 06 26	-	5,280	-	-	-	17,200	-	-	730	<500	-	589	1,300	11,100	864	-	-	-	-	<5.0	-	-	53	-	-			
	GL27-3-20131113	2013 11 13	-	4,890	-	-	-	16,200	-	-	552	<500	-	577	1,390	9,840	876	-	-	-	-	-	-	-	31	-	-			
	GL27-3-20140605	2014 06 05	-	5,120	-	-	-	16,300	-	-	564	<250	-	586	< 1,000	10,600	967	-	-	-	-	4	-	-	47	-	0.0024			
GL27-3-20141118	2014 11 18	-	4,560	-	-	-	13,300	-	-	416	<500	-	545	1,200	9,930	947	-	-	-	-	<5.0	-	-	38	-	0.0055				

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

			Physical Parameters														Dissolved Inorganics													
Sample Location	Sample ID	Sample Date (yyyy mm dd)	pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL27-3 (cont'd)	GL27-3-20150610	2015 06 10	8.07	4,990	-	-	-	17,900	-	-	615	<500	-	600	<2,000a	11,100	840	-	-	-	-	<5.0	-	-	44	-	0.0015			
	GL27-3-20151104	2015 11 04	7.88	4,380	-	-	-	16,000	-	-	487	<500	-	557	<2,000a	10,400	624	-	-	-	-	<5.0	-	-	33	-	0.0043			
	GL27-3-20160524	2016 05 24	7.85	4,850	-	-	-	16,200	-	-	582	<500	-	620	<2,000a	11,400	604	604	<1.0	<1.0	-	<5.0	-	-	27	-	0.0025			
	GL27-3-20170925	2017 09 25	7.82	5,080	-	-	-	15,200	-	-	600	<500	-	543	<2,000a	10,500	601	-	-	-	-	<5.0	-	-	31	-	0.0027			
	GL27-3-180815	2018 08 15	7.71	5,450	7.91	-	9,589	18,000	9.12	< 0.500	589	<1,000	<1,000a	516	970	10,200	622	622	<1.0	<1.0	<1.0	<10.0	-	-	<20	<0.500	-			
	GL27-3-190527	2019 05 27	7.9	5,350	7.45	-	16199	13,500	7.11	< 0.500	57	1,470	<1,000a	475	<10,000a	9,330	610	610	< 1.0	<1.0	<1.0	<10.0	-	-	<20	<0.500	-			
	GL27-3-200608	2020 06 08	7.88	5,540	7.3	-	15,172	18,200	6.3	-	806	6,600	<5,000a	442	<50,000a	10,400	586	586	<1.0	<1.0	<1.0	<50.0	-	-	21	-	<2.50			
	GL27-3-210603	2021 06 03	7.95	6,070	7.38	-	17,777	19,800	8.09	-	823	<2,500	<2,500a	569	<25,000a	11,400	571	571	<1.0	<1.0	<1.0	<25.0	-	-	21	-	<1.25			
	GL27-3-2205331	2022 05 31	7.84	6,640	-	-	14,231	20,000	8.76	<0.0500	933	<1,000	<100	585	<1,000	10,300	479	479	<1.0	<1.0	<1.0	1.57	-	-	<20	-	-			
GL27-4 GL28-1	GL27-4-20100812	2010 08 12	-	4,380	-	-	-	13,400	-	-	14,000	-	-	780	-	4,900	3,370	-	-	-	-	-	-	-	360	-	4.76			
	GL28-1-20091116	2009 11 16	-	1,680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL30-5-20091116	Duplicate	-	1,720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	QA/QC RPD%		-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	GL28-1-20100812	2010 08 12	-	1,600	-	-	-	3,990	-	-	210	-	-	64	-	1,840	655	-	-	-	-	-	-	-	20	-	0.009			
	GL28-1-20110627	2011 06 27	-	944	-	-	-	3,060	-	-	< 10	-	-	27	-	1,700	346	-	-	-	-	-	-	-	10	-	0.009			
	GL28-1-20120626	2012 06 26	-	550	-	-	-	1,610	-	-	130	-	-	11.3	-	954	139	-	-	-	-	-	-	-	<10	-	0.003			
	GL28-1-20121203	2012 12 03	-	1,680	-	-	-	3,870	-	-	220	<100	-	38.7	-	2,240	649	-	-	-	-	-	-	-	18	-	<0.002			
	DUP-A-20121203	Duplicate	-	1,700	-	-	-	3,830	-	-	170	<100	-	39.4	-	2,240	647	-	-	-	-	-	-	-	33	-	<0.002			
	QA/QC RPD%		-	1	-	-	-	1	-	-	26	*	-	2	-	0	0	-	-	-	-	-	-	-	*	-	*			
	GL28-1-20130708	2013 07 08	-	1,740	-	-	-	3,530	-	-	175	<100	-	28	680	1,510	368	-	-	-	-	<1.0	-	-	<20	-	-			
	DUP1-20130708	Duplicate	-	1,740	-	-	-	4,220	-	-	178	<100	-	34	890	1,890	619	-	-	-	-	<1.0	-	-	<20	-	-			
	QA/QC RPD%		-	0	-	-	-	18	-	-	2	*	-	19	27	22	51	-	-	-	-	*	-	-	*	-	-			
	GL28-1-20140603	2014 06 03	-	1,600	-	-	-	3,930	-	-	162	< 250	-	59	1,100	2,230	778	-	-	-	-	<2.5	-	-	53	-	<0.0010			
	GL28-1-20141117	2014 11 17	-	1,690	-	-	-	3,970	-	-	165	130	-	53	1,070	2,270	897	-	-	-	-	<1.0	-	-	<20	-	<0.0010			
	GL28-1-20150611	2015 06 11	7.93	1,630	-	-	-	3,920	-	-	166	<100	-	48	1,110	2,270	730	-	-	-	-	<1.0	-	-	30	-	<0.0010			
	GL28-1-20151105	2015 11 05	7.65	1,600	-	-	-	3,930	-	-	170	<100	-	50	1,150	2,280	626	626	<1.0	<1.0	-	<1.0	-	-	46	-	<0.0010			
	GL28-1-20160524	2016 05 24	7.97	1,710	-	-	-	3,950	-	-	179	<100	-	67	1,510	2,950	624	624	<1.0	<1.0	-	<1.0	-	-	<20	-	<0.0010			
	GL28-1-20160920	2016 09 20	7.69	1,740	-	-	-	4,080	-	-	173	<100	-	54	1,220	2,380	612	-	-	-	-	<1.0	-	-	<20	-	0.0014			
	GL28-1-20170711	2017 07 11	8.21	1,620	-	-	-	3,740	-	-	163	<100	-	50	1,160	2,270	579	-	-	-	-	<1.0	-	-	<20	-	<0.0010			
	GL28-1-20170926	2017 09 26	7.67	1,620	-	-	-	3,460	-	-	145	<100	-	48	1,110	2,190	554	-	-	-	-	<1.0	-	-	<20	-	<0.0010			
	GL28-1-180528	2018 05 28	7.72	1,710	6.99	-	3,741	3,730	4.85	<0.0050	122	1,480	<10	45	700	2,040	551	551	<1.0	<1.0	<1.0	<10.0	-	-	<20	<0.0050	-			
	GL28-1-180925	2018 09 25	7.72	1,750	7.21	-	3,761	3,770	4.88	<0.0050	163	<1,000	<10	41.8	960	2,150	531	531	<1.0	<1.0	<1.0	<0.10	-	-	<20	<0.0050	-			
	DUP1-180925	Duplicate	7.73	1,730	7.21	-	3,761	3,930	4.81	<0.0050	176	<1,000	<10	40.5	1,000	2,220	528	528	<1.0	<1.0	<1.0	<0.10	-	-	<20	<0.0050	-			
	QA/QC RPD%		0	1	*	-	*	4	1	*	8	*	*	3	4	3	1	1	*	*	*	*	*	-	-	*	*	-		
	GL28-1-190528	2019 05 28	7.81	1,690	7.12	-	3741	3,650	4.74	<0.0050	236	<100	<100	38.3	1,100	2,060	531	531	<1.0	<1.0	<1.0	<1.00	-	-	<20	<0.0050	-			
	GL28-1-190919	2019 09 19	7.78	1,650	7.39	-	3802	3,470	4.47	-	98	<100	<100	40.6	1,010	2,010	521	521	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0050			
	GL28-1-200610	2020 06 10	7.71	1,770	7.15	-	3,321	3,300	4.43	-	120	<100	<100	37.8	<1,000	2,080	554	554	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0050			
	DUPB-200610	Duplicate	7.75	1,630	7.15	-	3,321	3,680	3.83	-	124	<100	<100	38.1	<1,000	2,140	544	544	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0050			
QA/QC RPD%		1	8	*	-	*	11	15	-	*	*	*	1	*	3	2	2	*	*	*	*	*	-	-	*	-	*			

Associated CARO files available upon request.

Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL28-1 (cont'd)	GL28-1-201104	2020 11 04	7.82	1,850	7.14	-	4,082	3,840	6.24	-	128	<1,000	<10	46.9	1,020	2,240	516	516	<1.0	<1.0	<1.0	<10.0	-	-	<20	-	<0.0050			
	DUP3-201104	Duplicate	7.8	1,850	-	-	-	3,450	6.09	-	127	<1,000	<10	46.3	1,000	2,190	515	515	<1.0	<1.0	<1.0	<10.0	-	-	<20	-	<0.0050			
	QA/QC RPD%		0	0	-	-	-	11	2	-	*	*	*	1	2	2	0	0	*	*	*	*	-	-	*	-	*			
	GL28-1-210609	2021 06 09	7.83	1,720	6.99	-	3,969	3,130	7.14	-	82	<100	<100	57.4	1,270	1,910	542	542	<1.0	<1.0	<1.0	<1.00	-	-	25	-	<0.0500			
	GL28-1-211007	2021 10 07	7.8	1,860	7.04	-	3,843	3,550	8	-	119	<100	<100	65.4	<1,000	1,940	550	550	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	DUP 3-211007	Duplicate	7.78	1,840	7.04	-	3,843	3,620	8.06	-	124	<100	<100	63.3	<1,000	1,930	549	549	<1.0	<1.0	<1.0	<1.00	-	-	26	-	<0.0500			
	QA/QC RPD%		0	1	0	-	0	2	1	-	*	*	*	3	*	1	0	0	*	*	*	*	-	-	*	-	*			
	GL28-1-220602	2022 06 02	7.81	1,670	-	-	3,919	3,450	14.7	<0.0500	51	187	<100	84	<1,000	2070	469	469	<1.0	<1.0	<1.0	<1.00	-	-	33	-	-			
	GL28-1-221006	2022 10 06	7.73	1,850	-	-	4,055	3,630	9.73	<0.0500	0.09	<100	<100	93.5	<1,000	2130	477	477	<1.0	<1.0	<1.0	<1.00	-	-	29	-	-			
	GL28-2-180528	2018 05 16	-	1,530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
GL28-2	GL28-2-20160524	2016 05 24	7.72	1,840	-	-	-	4,530	-	-	5.1	11,200	-	46	<1,000	2,870	696	696	<1.0	<1.0	-	<2.5	-	-	<20	-	0.0082			
	GL28-2-20160920	2016 09 20	7.5	1,810	-	-	-	4,760	-	-	<5.0	12,100	-	49	<1,000	2,760	693	-	-	-	-	<2.5	-	-	<20	-	0.0097			
	DUP1-20160920	Duplicate	7.51	3,610	-	-	-	4,750	-	-	<5.0	12,000	-	48	<1,000	2,740	693	-	-	-	-	<2.5	-	-	<20	-	0.0089			
	QA/QC RPD%		0	66	-	-	-	0	-	-	*	1	-	2	*	1	0	-	-	-	-	*	-	-	*	-	9			
	GL28-2-20170711	2017 07 11	8.03	1,680	-	-	-	4,400	-	-	< 5.0	13,100	-	47	<400	2,590	671	-	-	-	-	<1.00	-	-	<20	-	0.0093			
	GL28-2-20170926	2017 09 26	7.48	1,920	-	-	-	4,640	-	-	< 5.0	12,100	-	50	<400	2,840	670	-	-	-	-	<1.00	-	-	<20	-	0.0095			
	GL28-2-180528	2018 05 28	7.42	1,900	6.77	-	4,680	4,730	6.09	<0.0500	24	8,440	<10	44	110	2,690	686	686	<1.0	<1.0	<1.0	<10.0	-	-	<20	<0.0050	-			
	DUP1-180528	Duplicate	7.51	1,860	6.77	-	4,680	4,960	6.55	<0.0500	27	8,560	<1,000a	44.5	100	2,690	709	709	<1.0	<1.0	<1.0	<10.0	-	-	<20	<0.0050	-			
	QA/QC RPD%		1	2	*	-	*	5	7	*	*	1	*	1	*	0	3	3	*	*	*	*	-	-	*	*	-			
	GL28-2-180925	2018 09 25	7.6	2,280	6.97	-	5,093	5,370	8.34	<0.0500	63	9,480	<10	44.2	140	3,160	700	700	<1.0	<1.0	<1.0	< 0.10	-	-	24	<0.0050	-			
	GL28-2-190528	2019 05 28	7.7	2,170	6.97	-	5,200	5,280	6.36	<0.0500	24	11,600	<100	48.6	<1,000	2,830	723	723	<1.0	<1.0	<1.0	<1.00	-	-	<20	<0.0050	-			
	GL28-2-190919	2019 09 19	7.64	2,030	7.24	-	5,225	5,380	5.96	-	48	10,600	<100	51.7	<1,000	2,790	700	700	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	GL28-2-200610	2020 06 10	7.66	1,730	6.95	-	3,882	4,250	4.99	-	<50	9,190	<100	32	<1,000	2,490	587	587	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	GL28-2-201104	2020 11 04	7.7	2,200	6.9	-	5,499	4,790	6.26	-	<50	9,400	<10	42.9	130	3,020	677	677	<1.0	<1.0	<1.0	< 0.10	-	-	<20	-	<0.0500			
	GL28-2-210609	2021 06 09	7.76	1,910	6.86	-	8,381	4,610	6.84	-	<50	11,400	<100	46.3	<1,000	2,670	675	675	<1.0	<1.0	<1.0	<1.00	-	-	39	-	<0.0500			
	GL28-2-211007	2021 10 07	7.66	2,460	6.84	-	5,591	5,450	6.29	-	<50	10,000	<100	53	<1,000	3,050	728	728	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	GL28-2-220602	2022 06 02	7.76	1,930	-	-	5,306	5,170	7.77	<0.0500	<50	10,800	<100	57.8	<1,000	3,160	621	621	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	-			
	GL28-2-221006	2022 10 06	7.65	1,960	-	-	5,599	5,040	5.72	<0.0500	<50	13,200	<100	62.1	<1,000	3,120	615	615	<1.0	<1.0	<1.0	<1.00	-	-	21	-	-			
GL28-3	GL28-3-20091116	2009 11 16	-	1,760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	GL28-3-20100812	2010 08 12	-	1,580	-	-	-	4,230	-	-	< 10	-	-	60	-	1,950	702	-	-	-	-	-	-	-	30	-	0.038			
	GL28-3-20160524	2016 05 24	7.52	2,740	-	-	-	6,310	-	-	<5.0	2,380	-	48	<1,000	4,070	782	782	<1.0	<1.0	-	<2.5	-	-	<20	-	0.018			
	GL28-3-20160920	2016 09 20	7.57	1,280	-	-	-	6,550	-	-	<5.0	<250	-	49	<1,000	4,140	858	-	-	-	-	<2.5	-	-	20	-	0.0332			
	GL28-3-20170711	2017 07 11	8.13	2,480	-	-	-	6,160	-	-	8.4	690	-	48	<1,000	4,000	840	-	-	-	-	<2.5	-	-	<20	-	0.0373			
	GL28-3-20170926	2017 09 26	7.6	2,520	-	-	-	6,150	-	-	<5.0	1,120	-	49	<400	4,100	807	-	-	-	-	<1.00	-	-	<20	-	0.0358			
	GL28-3-180528	2018 05 28	7.51	2,770	6.8	-	6,392	7,280	10.3	<0.0500	29	5,640	<10	45.9	230	3,780	870	870	<1.0	<1.0	<1.0	<10.0	-	-	23	<0.0050	-			
	GL28-3-180925	2018 09 25	7.6	3,080	7	-	6,777	7,490	12.1	<0.0500	76	7,780	47	49.6	280	4,350	827	827	<1.0	<1.0	<1.0	<0.10	-	-	35	<0.0050	-			
	GL28-3-190528	2019 05 28	7.78	2,880	7	-	6,743	6,780	8.29	<0.0500	40	5,880	<100	49.4	<1,000	4,040	846	846	<1.0	<1.0	<1.0	<1.00	-	-	<20	<0.0050	-			
	DUP2-190528	Duplicate	7.63	2,830	7	-	6,743	7,120	7.97	<0.0500	44	6,130	<100	62.1	<1,000	4,170	855	855	<1.0	<1.0	<1.0	<1.00	-	-	<20	<0.0050	-			
	QA/QC RPD%		2	2	*	-	-	5	4	*	10	4	*	23	*	3	1	1	*	*	*	*	-	-	*	-	-			
	GL28-3-190919	2019 09 19	7.65	2,790	7.19	-	6,895	7,490	8.62	-	26	4,180	<100	51.7	<1,000	4,100	865	865	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	DUP1-190919	Duplicate	7.78	2,830	7.19	-	6,895	7,330	8.84	-	37	4,000	<100	48.8	<1,000	3,900	844	844	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	<0.0500			
	QA/QC RPD%		2	1	*	-	*	2	3	-	35	4	*	6	*															

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL29-1	GL29-1-20130708	2013 07 08	-	444	-	-	-	1,160	-	-	216	<100	-	24	1,000	186	910	-	-	-	-	<1.0	-	-	<20	-	-			
	GL29-1-20131113	2013 11 13	-	493	-	-	-	1,280	-	-	219	<100	-	36	1,190	356	836	-	-	-	-	-	-	<20	-	-				
	DUP3-20131113	Duplicate	-	495	-	-	-	1,240	-	-	206	<100	-	37	1,180	358	750	-	-	-	-	-	-	<20	-	-				
	QA/QC RPD%		-	0	-	-	-	3	-	-	6	*	-	3	1	1	11	-	-	-	-	-	-	-	*	-	-			
	GL29-1-20140603	2014 06 03	-	516	-	-	-	1,430	-	-	135	<100	-	48	1,240	514	764	-	-	-	-	<1.0	-	-	<20	-	0.0088			
	GL29-1-20141118	2014 11 18	-	699	-	-	-	1,950	-	-	253	<100	-	74	1,230	958	708	-	-	-	-	<1.0	-	-	37	-	0.002			
	GL29-1-20150609	2015 06 09	8.12	629	-	-	-	1,900	-	-	244	< 25	-	63.5	1,200	804	692	-	-	-	-	0.29	-	-	27	-	0.0097			
	GL29-1-20151105	2015 11 05	7.85	671	-	-	-	1,780	-	-	226	<100	-	72	1,210	785	579	-	-	-	-	<1.0	-	-	74	-	0.0161			
	GL29-1-20160524	2016 05 24	7.94	682	-	-	-	1,650	-	-	61	640	-	77	1,220	667	593	593	<1.0	<1.0	-	<1.0	-	-	116	-	0.0187			
	GL29-1-20160921	2016 09 21	8.08	639	-	-	-	1,590	-	-	32.2	260	-	67	1,230	573	586	-	-	-	-	<1.0	-	-	110	-	0.0231			
	GL29-1-20170529	2017 05 29	8.1	586	-	-	-	1,300	-	-	20.6	1,100	-	57.9	1,130	408	642	-	-	-	-	<0.50	-	-	90	-	0.0199			
	GL29-1-20170926	2017 09 26	7.88	542	-	-	-	1,290	-	-	15.3	415	-	51.6	1,240	389	644	-	-	-	-	<0.50	-	-	72	-	0.0243			
	DUP1-20170926	Duplicate	7.88	539	-	-	-	1,330	-	-	17.9	383	-	53.1	1,240	401	645	-	-	-	-	<0.50	-	-	72	-	0.0243			
	QA/QC RPD%		0	1	-	-	-	3	-	-	*	8	-	-	3	0	3	0	-	-	-	-	*	-	-	0	-	0		
	GL29-1-180604	2018 06 04	7.71	659	7.24	-	-	1,240	1,220	118	0.0343	166	26,900	<10	58.1	310	161	450	450	<1.0	<1.0	<1.0	<0.10	-	-	321	0.0343	-		
	GL29-1-180919	2018 09 19	7.7	683	7.38	-	-	1,389	1,190	93.7	< 0.0050	137	23,800	88	63.8	470	181	463	463	<1.0	<1.0	<1.0	<0.10	-	-	302	<0.0050	-		
	GL29-1-190603	2019 06 03	7.76	467	7.06	-	-	1,715	1,160	12.8	< 0.0500	192	<10	<10	23.3	1,030	176	885	885	<1.0	<1.0	<1.0	<0.10	-	-	21	<0.0500	-		
	GL29-1-190924	2019 09 24	7.89	448	7	-	-	1,731	1,160	11.1	-	102	<10	<10	29.7	1,180	211	820	820	<1.0	<1.0	<1.0	<0.10	-	-	25	-	<0.0050		
	GL29-1-200612	2020 06 12	7.04	421	7.01	-	-	1,380	1,110	6.25	-	199	<100	<100	21.8	<1,000	185	758	-	-	-	<1.0	-	-	31	-	<0.0500			
	GL29-1-201120	2020 11 20	7.84	442	7.07	-	-	1,723	1,050	3.16	-	230	<10	<10	22.9	1,290	172	814	814	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050		
	GL29-1-210611	2021 06 11	7.9	460	7	-	-	1,705	1,070	3.11	-	200	<100	<100	22.1	1,320	183	859	859	<1.0	<1.0	<1.0	<1.0	-	-	<20	-	<0.0500		
	GL29-1-211006	2021 10 06	7.89	436	7.37	-	-	1,660	1,100	6.01	-	222	<10	<10	26.6	1,310	190	801	801	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050		
	GL29-1-220606	2022 06 06	7.98	555	-	-	-	1,698	1,250	67	<0.0500	90	3.01	<100	71.2	<1,000	213	590	590	<1.0	<1.0	<1.0	<1.0	-	-	188	-	-		
	GL29-1-221006	2022 10 06	7.88	548	-	-	-	1,769	1,240	85.4	<0.0050	118	<10	<10	0.62	<100	2	617	617	<1.0	<1.0	<1.0	<0.10	-	-	217	-	-		
GL29-2	GL29-2-20130627	2013 06 27	-	2,830	-	-	-	7,910	-	-	67.9	<250	-	243	2,200	5,020	335	-	-	-	-	<2.5	-	-	69	-	-			
	GL29-2-20131113	2013 11 13	-	2,910	-	-	-	7,890	-	-	99.1	<250	-	252	1,400	4,820	351	-	-	-	-	-	-	-	53	-	-			
	GL29-2-210608	2021 06 08	7.82	3,020	7.14	-	8,180	8,130	12.8	-	<50	<100	<100	225	1,900	4,730	331	331	<1.0	<1.0	<1.0	<1.0	-	-	57	-	<0.0500			
	GL29-2-211006	2021 10 06	7.75	3,410	7.13	-	7,842	8,200	12.1	-	<50	<100	<100	215	1,390	4,740	353	353	<1.0	<1.0	<1.0	<1.0	-	-	48	-	<0.0500			
	GL29-2-220606	2022 06 06	7.82	3,090	-	-	6,515	7,590	13.7	<0.0500	<50	<100	<100	220	1,210	5,030	293	293	<1.0	<1.0	<1.0	<1.00	-	-	39	-	-			
	GL29-2-221006	2022 10 06	7.72	2,920	-	-	7,809	7,680	14.8	<0.0500	<50	<100	<100	232	1,500	4,710	316	316	<1.0	<1.0	<1.0	<1.00	-	-	40	-	-			
GL31-1	GL31-3-20130627	2013 06 27	-	4,240	-	-	-	15,300	-	-	2,300	<500	-	863	600	8,470	2,810	-	-	-	-	<5.0	-	-	85	-	-			
	GL31-3-20141126	2014 11 26	-	4,280	-	-	-	14,700	-	-	2,500	1,210	-	866	416	8,360	2,620	-	-	-	-	<5.0	-	-	63	-	0.0085			
GL31-3	BH 11-18C-20120627	2012 06 27	-	4,600	-	-	-	15,500	-	-	2,300	-	-	821	-	7,800	2,580	-	-	-	-	-	-	-	80	-	0.013			
	GL31-3-20121205	2012 12 05	-	4,470	-	-	-	15,400	-	-	2,450	< 10,000a	-	569	-	3,820	2,560	-	-	-	-	-	-	-	39	-	0.004			
	GL31-3-20131114	2013 11 14	-	4,310	-	-	-	15,800	-	-	2,240	<500	-	875	393	8,510	2,700	-	-	-	-	<5.0	-	-	58	-	-			
	GL31-3-20140609	2014 06 09	-	4,420	-	-	-	14,900	-	-	2,460	<250	-	833	<1,000	8,070	2,780	-	-	-	-	4	-	-	60	-	0.0049			
	GL31-3-20150611	2015 06 11	7.83	4,460	-	-	-	13,400	-	-	2,490	<500	-	839	<2,000a	8,140	2,920	-	-	-	-	<5.0	-	-	62	-	0.0046			
	GL31-3-20151109	2015 11 09	7.55	4,060	-	-	-	15,200	-	-	2,640	<500	-	857	<2,000a	8,440	2,590	-	-	-	-	<5.0	-	-	34	-	0.0076			
	DUP4-20151109	Duplicate	7.5	4,060	-	-	-	15,200	-	-	2,380	<500	-	861	<2,000a	8,460	2,600	-	-	-	-	<5.0	-	-	33	-	0.0094			
QA/QC RPD%			1	0	-	-	-	0	-	-	10	*	-	0	*	0	0	-	-	-	-	*	-	-	*	-	21			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters													Dissolved Inorganics												
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate	
GL35-3	BH11-31C-20111217	2011 12 17	-	1,100	-	-	-	37,000	-	-	57,300	<500	-	4,000	-	10,800	17,000	-	-	-	-	-	-	-	-	2,400	-	0.16
	DUPB-20111217	Duplicate	-	1,090	-	-	-	37,900	-	-	56,600	<500	-	4,110	-	10,900	15,600	-	-	-	-	-	-	-	-	2,500	-	0.17
	QA/QC RPD%		-	1	-	-	-	2	-	-	1	*	-	3	-	1	9	-	-	-	-	-	-	-	-	4	-	6
	BH11-31C-20120625	2012 06 25	-	2,740	-	-	-	10,900	-	-	2,740	-	-	546	-	5,150	2,620	-	-	-	-	-	-	-	-	50	-	0.008
	GL35-3-20121205	2012 12 05	-	2,680	-	-	-	10,900	-	-	2,590	<10,000a	-	520	-	5,330	2,290	-	-	-	-	-	-	-	-	48	-	0.004
	DUP-C-20121205	Duplicate	-	2,720	-	-	-	10,800	-	-	2,720	<10,000a	-	503	-	5,150	2,300	-	-	-	-	-	-	-	-	41	-	0.004
	QA/QC RPD%		-	1	-	-	-	1	-	-	5	*	-	3	-	3	0	-	-	-	-	-	-	-	-	*	-	*
	GL35-3-20130627	2013 06 27	-	2,220	-	-	-	8,910	-	-	2,330	<250	-	475	2,200	4,630	2,400	-	-	-	-	-	2.6	-	-	38	-	-
	DUP3-20130627	Duplicate	-	2,240	-	-	-	8,910	-	-	2,350	270	-	483	2,400	4,650	2,380	-	-	-	-	-	2.5	-	-	36	-	-
	QA/QC RPD%		-	1	-	-	-	0	-	-	1	*	-	2	9	0	1	-	-	-	-	-	4	-	-	*	-	-
	GL35-3-20131113	2013 11 13	-	2,280	-	-	-	9,430	-	-	1,310	<250	-	482	1,400	4,250	2,380	-	-	-	-	-	-	-	-	46	-	-
	GL35-3-20140609	2014 06 09	-	2,220	-	-	-	8,650	-	-	2,420	<250	-	460	1,500	4,300	2,270	-	-	-	-	<2.5	-	-	-	43	-	<0.0010
	GL35-3-20141126	2014 11 26	-	2,060	-	-	-	8,860	-	-	3,210	270	-	478	1,600	4,280	2,680	-	-	-	-	2.8	-	-	-	33	-	0.0076
	GL35-3-20150611	2015 06 11	7.63	2,170	-	-	-	8,690	-	-	2,490	<250	-	447	1,500	4,170	2,340	-	-	-	-	<2.5	-	-	-	50	-	0.0037
	GL35-3-20151109	2015 11 09	7.67	2,030	-	-	-	12,000	-	-	6,870	<500	-	676	<2,000a	5,210	3,610	-	-	-	-	<5.0	-	-	-	198	-	1.36
	GL35-3-20160526	2016 05 26	7.59	2,200	-	-	-	8,300	-	-	2,590	<250	-	500	1,900	4,690	2,050	-	-	-	-	2.6	-	-	-	32	-	0.0291
	GL35-3-20170926	2017 09 26	7.45	2,010	-	-	-	7,480	-	-	1,870	<250	-	403	1,400	3,750	1,990	-	-	-	-	2.6	-	-	-	21	-	<0.0010
	GL35-3-180815	2018 08 15	7.29	2,070	6.98	-	6,480	8,230	7.93	<0.0050	1,720	<10	279	341	1,720	3,320	2,070	2,070	<1.0	<1.0	<1.0	<10.0	-	-	-	<20	<0.0050	-
	GL35-3-190530	2019 05 30	7.58	2,000	6.85	-	9,132	7,760	4.72	<0.0500	1,220	<100	<100	351	1,730	3,510	2,000	2,000	<1.0	<1.0	<1.0	<1.00	-	-	-	26	<0.0500	-
	GL35-3-200608	2020 06 08	7.73	2,180	6.73	-	7,916	7,520	3.66	-	1,490	<1,000	<1,000a	325	1,410	3,410	1,920	1,920	<1.0	<1.0	<1.0	<10.0	-	-	-	<20	-	<0.500
	DUPA-200608	Duplicate	7.73	2,080	6.73	-	7,916	7,520	4.14	-	1,470	<100	<100	365	1,130	3,280	1,910	1,910	<1.0	<1.0	<1.0	1.78	-	-	-	<20	-	<0.0500
	QA/QC RPD%		0	5	*	-	*	0	12	-	1	*	*	12	22	4	1	1	*	*	*	*	-	-	-	*	-	*
	GL35-3-210610	2021 06 10	7.49	1,860	6.67	-	8,182	6,380	3.6	-	1,200	<100	<100	343	1,600	3,050	1,810	1,810	<1.0	<1.0	<1.0	1.4	-	-	-	<20	-	<0.0500
	DUP3-210610	Duplicate	7.47	1,870	6.67	-	8,182	6,440	3.54	-	1,210	<100	<100	337	1,630	3,050	1,790	1,790	<1.0	<1.0	<1.0	1.48	-	-	-	<20	-	<0.0500
	GL35-3-220531	2022 05 31	7.62	1,940	-	-	8,148	6,730	5.42	<0.0500	1,360	<100	<100	344	<1,000	2,940	1,530	1,530	<1.0	<1.0	<1.0	<1.00	-	-	-	<20	-	-
	QA/QC RPD%		0	1	0	-	0	1	2	-	1	*	*	2	2	0	1	1	*	*	*	6	-	-	-	*	-	*
GL37	GL37-20130708	2013 07 08	-	5,860	-	-	-	35,900	-	-	1,660	<500	-	783	410	14,500	1,590	-	-	-	-	<5.0	-	-	-	109	-	-
	GL37-20131114	2013 11 14	-	5,970	-	-	-	28,600	-	-	1,370	<500	-	1,030	343	18,600	1,580	-	-	-	-	6.3	-	-	-	44	-	-
GL39-1	GL39-1-191205	2019 12 05	7.86	1,790	-	-	-	3,610	8.17	-	116	1,640	25	98.1	1,240	1,910	576	576	<1.0	<1.0	<1.0	<0.10	-	-	-	179	-	<0.0050
	GL39-1-200609	2020 06 09	7.81	2,120	7.02	-	3,724	3,710	6.4	-	56	4,470	<1,000a	102	<10,000a	2,110	598	598	<1.0	<1.0	<1.0	<10.0	-	-	-	22	-	<0.500
	GL39-1-201019	2020 10 19	7.85	1,970	7.03	-	4,547	4,140	8.1	-	< 50	5,840	<10	134	1,230	2,120	574	574	<1.0	<1.0	<1.0	<0.10	-	-	-	29	-	<0.0050
	GL39-1-210526	2021 05 26	7.71	3,300	6.92	-	5,480	4,660	8.82	-	< 50	6,500	<10	144	1,140	460	659	659	<1.0	<1.0	<1.0	<2.50	-	-	-	<20	-	<0.0050
	GL39-1-210914	2021 09 14	-	2,630	6.96	-	5,187	5,370	9.04	-	< 50	5,300	<10	149	1,290	2,790	677	677	<1.0	<1.0	<1.0	<1.00	-	-	-	22	-	<0.0050
	GL39-1-220531	2022 05 31	7.82	2,620	-	-	4,888	4,720	12.7	<0.0500	<50	4,880	<100	145	<1,000	2,740	546	546	<1.0	<1.0	<1.0	<1.00	-	-	-	<20	-	-
	GL39-1-220923	2022 09 23	7.87	2,230	-	-	4,961	4,700	8.02	<0.0500	<50	5,880	<100	149	<1,000	2,670	637	637	<1.0	<1.0	<1.0	<1.00	-	-	-	22	-	-
	GL39-2-191205	2019 12 05	7.93	1,940	-	-	-	5,110	7.99	-	121	1,140	12	176	470	2,790	407	407	<1.0	<1.0	<1.0	< 0.10	-	-	-	152	-	<0.0050
GL39-2	GL39-2-200609	2020 06 09	7.85	1,910	7.29	-	4,140	4,110	6.23	-	<50	1,820	<1,000a	174	<10,000a	2,400	401	401	<1.0	<1.0	<1.0	< 10.0	-	-	-	26	-	<0.500
	GL39-2-201016	2020 10 16	7.88	1,240	7.35	-	3,324	2,990	6.14	-	<50	1,400	<10	180	500	1,540	374	374	<1.0	<1.0	<1.0	<1.00	-	-	-	21	-	<0.0050
	DUP1-201016	Duplicate	7.9	1,260	7.69	-	1,582	3,090	5.89	-	<50	1,440	<10	181	<2,500a	1,570	397	397	<1.0	<1.0	<1.0	<1.00	-	-	-	23	-	<0.0050
	QA/QC RPD%		0	2	*	-	*	3	4	-	*	3	*	1	*	2</												

Table H1: Historical Summary of Analytical Results For Groundwater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters														Dissolved Inorganics													
			pH	Total Hardness	pH (field)	Conductivity	Field Conductivity	Total Dissolved Solids	Dissolved Organic Carbon	Phosphate	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bromide	Hydrogen Sulfide	Sulfide	Chemical Oxygen Demand	Dissolved Phosphate	Ortho-Phosphate			
GL41-2	GL41-2-191205	2019 12 05	8.05	530	-	-	-	1,230	6.32	-	174	1,560	50	301	700	138	558	558	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050			
	GL41-2-200612	2020 06 12	7.44	726	7.24	-	2,073	1,390	6.13	-	<50	1,500	<100	387	<1,000	166	563	-	-	-	<1.0	<1.0	-	-	<20	-	<0.0500			
	DUPD-200612	Duplicate	7.5	743	7.24	-	2,073	1,370	6.38	-	<50	1,460	<100	404	<1,000	164	559	-	-	-	-	<1.0	-	-	<20	-	< 0.0500			
	QA/QC RPD%		1	2	*	-	*	1	4	-	*	3	*	4	*	1	1	-	-	-	-	*	-	-	*	-	*			
	GL41-2-201022	2020 10 22	7.83	684	7.31	-	2,562	1,410	6.58	-	<50	1,960	<10	402	640	175	559	559	<1.0	<1.0	<1.0	<1.0	-	-	<20	-	<0.0050			
	GL41-2-210525	2021 05 25	8.05	753	7.17	-	2,498	1,400	6.37	-	<50	1780	<10	423	670	151	595	595	<1.0	<1.0	<1.0	<2.50	-	-	24	-	<0.0050			
	GL41-2-210907	2021 09 07	7.91	711	7.21	-	2,442	1,320	5.28	-	<50	2140	<10	383	580	138	608	608	<1.0	<1.0	<1.0	<0.10	-	-	<20	-	<0.0050			
	GL41-2-220615	2022 06 15	7.89	474	-	-	1,663	986	3.38	<0.0500	<50	1,540	<100	232	<1,000	109	533	533	<1.0	<1.0	<1.0	<1.00	-	-	28	-	-			
	GL41-2-220923	2022 09 23	8.11	556	-	-	1,928	1,080	6.17	<0.0050	<50	2,020	17	286	670	122	554	554	<1.0	<1.0	<1.0	0.18	-	-	<20	-	-			
	GL41-3	GL41-3-200612	2020 06 12	7.4	755	7.26	-	2,133	1,580	6.68	-	141	1180	<100	423	<1,000	159	575	-	-	-	-	<1.0	-	-	<200	-	<0.0500		
	GL41-3-201022	2020 10 22	7.86	696	7.31	-	2,621	1,400	6.93	-	<50	1380	<10	423	650	160	570	570	<1.0	<1.0	<1.0	<1.0	-	-	<20	-	<0.0050			
	GL41-3-210525	2021 05 25	8.05	792	7.2	-	2,646	1,340	6.71	-	<50	1510	<10	471	660	160	618	618	<1.0	<1.0	<1.0	<2.50	-	-	24	-	<0.0050			
	GL41-3-210907	2021 09 07	7.87	723	7.22	-	2,545	1,400	5.94	-	<50	1780	<10	406	590	143	622	622	<1.0	<1.0	<1.0	<0.10	-	-	26	-	<0.0050			
	DUP 1-210907	Duplicate	7.88	715	7.22	-	2,545	1,390	5.91	-	<50	1,780	<10	412	600	145	610	610	<1.0	<1.0	<1.0	<0.10	-	-	30	-	<0.0050			
	QA/QC RPD%		0	1	0	-	0	1	1	-	*	0	*	1	2	1	2	2	*	*	*	*	-	-	*	-	*			
	GL41-3-220615	2022 06 15	7.88	474	-	-	1,695	1,010	3.52	<0.0500	<50	1,320	<100	250	<1.00	108	533	533	<1.0	<1.0	<1.0	<1.00	-	-	21	-	-			
	GL41-3-220923	2022 09 23	8.02	618	-	-	2,142	1,230	4.2	<0.0050	<50	1,750	17	337	630	133	587	587	<1.0	<1.0	<1.0	0.2	-	-	22	-	-			
GL42-1	GL42-1-200612	2020 06 12	7.12	184	7.28	-	2,332	2,360	2.39	-	703	<100	<100	36.7	<1,000	20.8	2,050	-	-	-	-	<1.0	-	-	330	-	0.058			
	GL42-1-201106	2020 11 06	7.8	171	7.27	-	5,266	3,620	2.95	-	743	<10	<10	47.6	560	1.3	3,030	3,030	<1.0	<1.0	<1.0	0.34	-	-	35	-	<0.0050			
	GL42-1-210603	2021 06 03	8.05	187	7.35	-	5,277	3,170	2.14	-	698	<10	<10	49.7	650	<10.0	3,560	3,560	<1.0	<1.0	<1.0	0.28	-	-	76	-	<0.0050			
	GL42-1-220607	2022 06 07	7.55	143	-	-	4,808	3,380	3.1	<0.0050	624	<10	<10	48.6	580	28.2	900	900	<1.0	<1.0	<1.0	0.33	-	-	<20	-	-			
GL42-2	GL42-2-200616	2020 06 16	8.08	855	7.45	-	4,649	3,910	6.51	-	461	1,760	232	64.3	<1,000	2,050	928	928	<1.0	<1.0	<1.0	<1.0	-	-	519	-	<0.0500			
	GL42-2-201109	2020 11 09	7.76	1,270	7.34	-	5,360	4,220	7.7	-	83	883	153	63.6	590	2,250	918	918	<1.0	<1.0	<1.0	<10.0	-	-	89	-	<0.0050			
	GL42-2-210607	2021 06 07	8.02	1,230	7.34	-	5,808	4,340	7.36	-	<50	8,820	<250	70.9	<2,500a	2,220	1,020	1,020	<1.0	<1.0	<1.0	<2.50	-	-	<20	-	< 0.125			
	GL42-1-220617	2022 06 17	8.01	1,390	-	-	5,031	5,080	5.4	<0.0500	<50	9,080	<100	81.5	<1,000	2,790	1,040	1,040	<1.0	<1.0	<1.0	<1.00	-	-	<20	-	-			

Associated CARO files available upon request.
Associated Exova file(s): 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 813438, 846260, 878316, 879073, 909346, 909448, 909654.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

			Dissolved Metals																																	
Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L			
09BH03	09BH03-20151105	2015 11 05	< 10	87.9	< 30	107	< 10	5	458	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.050	11.1	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	25.2	< 5.0	15.3	< 0.050	1,960	< 0.020	< 30	< 50	-	130	< 30	< 5.0			
	09BH03-20170601	2017 06 01	< 10	132	< 30	149	< 10	6.4	494	< 0.50	< 1.0	23	< 5.0a	< 100	< 0.050	11.5	< 0.50	1.7	< 1.0	< 50	< 0.20	21.5	< 5.0	45.8	< 0.050	2,570	< 0.020	< 30	< 50	-	124	< 30	< 5.0			
	09BH03-180604	2018 06 04	< 5.0	156	153	179	< 0.20	6.95	604	< 0.20	0.63	17.4	< 0.10	14.4	0.045	21	0.17	8.16	< 0.20	29.9	< 0.010	26.4	3.25	44.8	< 0.050	3,300	< 0.020	< 0.20	< 5.0	< 1.0	168	1.5	< 4.0			
	09BH03-190530	2019 05 30	< 5.0	129	< 10	147	3.51	5.53	449	< 0.20	< 0.50	15.8	< 0.10	13	0.039	18.8	0.12	1.24	< 0.20	33.3	< 0.010	20.8	0.75	26	< 0.050	3,040	< 0.020	< 0.20	< 5.0	< 1.0	161	< 1.0	< 4.0			
	09BH03-200609	2020 06 09	1.2	184	< 2.0	197	0.089	7.9	92.3	0.064	0.5	24.1	< 0.010	13.3	0.0278	34.1	0.145	1.96	< 0.050	31	< 0.010	26.3	1.26	52.4	< 0.010	1,390	< 0.0040	< 0.050	< 0.20	< 0.20	207	1.91	1.1			
09BH03-220606	2022 06 06	<2.0	116	<4.0	147	<0.100	6.08	460	<0.100	0.373	17.7	<0.020	10.1	<0.0120	10.9	0.093	2.06	<0.100	20.2	< 0.010	23.4	0.78	46.1	0.028	2560	<0.0080	<0.100	<0.40	<0.40	140	<2.00	<2.0				
09BH04	09BH04-20151105	2015 11 05	< 10	147	10,100	183	681	14	617	< 0.50	5	30	< 5.0a	< 100	< 0.050	< 0.50	1.12	< 1.0a	< 1.0	252	< 0.20	14.9	< 5.0	< 1.0	< 0.050	3,080	< 0.020	< 30	< 50	-	48.5	< 30	< 5.0			
09BH06-S	09BH06-S-20131112	2013 11 12	< 10a	56.5	131	51.4	146	4.3	125	< 0.50	2.2	32	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	15	< 5.0	< 1.0	< 0.050	1,290	< 0.20	< 30	< 50	-	8.48	< 30	< 5.0			
	09BH06-S-20140602	2014 06 02	< 10a	56.6	152	52.5	159	4.2	130	< 0.50	2.2	34	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.8	< 5.0	< 1.0	< 0.050	1,270	< 0.20	< 30	< 50	-	8.2	< 30	< 5.0			
	09BH06-S-20141117	2014 11 17	< 10a	56.5	195	51.7	158	4.2	127	< 0.50	2.5	35	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.6	< 5.0	< 1.0	< 0.050	1,280	< 0.20	< 30	< 50	-	7.83	< 30	< 5.0			
	09BH06-S-20150610	2015 06 10	16	56.9	485	50.7	162	4.2	127	< 0.50	3.3	35	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.6	< 5.0	< 1.0	< 0.050	1,270	< 0.010	< 30	< 50	-	7.26	< 30	< 5.0			
09BH06-D	09BH06-S-20151105	2015 11 05	< 10	57.8	220	49.7	161	4.3	130	< 0.50	2.5	35	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.4	< 5.0	< 1.0	< 0.050	1,320	< 0.010	< 30	< 50	-	7.72	< 30	< 5.0			
	09BH06-D-20131112	2013 11 12	< 10a	60.5	371	53.6	164	4.3	129	< 0.50	2.7	40	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.4	< 5.0	< 1.0	< 0.050	1,390	< 0.20	< 30	< 50	-	9.62	< 30	< 5.0			
	DUP4-20131112	Duplicate	< 10a	59.9	360	53.3	160	4.2	127	< 0.50	2.7	39	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.4	< 5.0	< 1.0	< 0.050	1,370	< 0.20	< 30	< 50	-	9.36	< 30	< 5.0			
	QA/QC RPD%			*	1	3	1	2	*	2	*	0	3	*	*	*	*	*	*	*	*	*	0	*	*	*	*	1	*	*	*	*	-	3	*	*
	09BH06-D-20140602	2014 06 02	< 10a	58.9	351	53.2	158	4.2	127	< 0.50	2.6	40	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.2	< 5.0	< 1.0	< 0.050	1,330	< 0.20	< 30	< 50	-	9.13	< 30	< 5.0			
	09BH06-D-20141117	2014 11 17	< 10a	60.4	359	53.6	165	4.1	128	< 0.50	2.6	41	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.1	< 5.0	< 1.0	< 0.050	1,360	< 0.20	< 30	< 50	-	8.87	< 30	< 5.0			
	09BH06-D-20150610	2015 06 10	< 10	64	385	54.7	168	4.3	131	< 0.50	2.6	42	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	14.1	< 5.0	< 1.0	< 0.050	1,430	< 0.010	< 30	< 50	-	9	< 30	< 5.0			
	09BH06-D-20151105	2015 11 05	< 10	62	374	51.9	167	4.2	131	< 0.50	2.5	42	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	15.9	< 5.0	< 1.0	< 0.050	1,420	< 0.010	< 30	< 50	-	9.32	< 30	< 5.0			
	09BH06-D-20170606	2017 06 06	< 10	60.1	395	51.9	182	4.3	142	< 0.50	2.9	41	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	15.6	< 5.0	< 1.0	< 0.050	1,440	< 0.010	< 30	< 50	-	6.31	< 30	< 5.0			
	09BH06-D-180604	2018 06 04	< 5.0	62.2	526	56.1	190	4.52	142	< 0.20	3.06	41.9	< 0.10	15	0.016	0.55	0.13	1.63	< 0.20	48.5	< 0.010	15.9	1.24	1.07	< 0.050	1,480	< 0.020	< 0.20	< 5.0	< 1.0	8.62	< 1.0	< 4.0			
09BH06-D-190528	2019 05 28	< 5.0	69.2	431	63.5	199	4.69	151	< 0.20	2.8	52.5	< 0.10	8.5	0.011	0.91	0.22	0.63	< 0.20	60.3	< 0.010	17	< 0.40	< 0.50	< 0.050	1,740	< 0.020	< 0.20	< 5.0	< 1.0	11.6	< 1.0	< 4.0				
09BH06-D-200609	2020 06 09	< 1.0	70.1	459	60	199	4.73	156	< 0.050	2.85	48.2	< 0.010	15	0.0048	< 0.10	0.19	< 0.10	< 0.050	59.9	< 0.010	18	0.377	< 0.10	< 0.010	1,650	0.0045	< 0.050	< 0.20	< 0.20	10.2	< 0.20	< 1.0				
09BH06-D-210608	2021 06 08	< 1.0	57.4	405	46	165	4.08	129	< 0.050	3.73	37.4	< 0.010	16.6	0.0048	< 0.10	0.143	0.11	< 0.050	46.9	< 0.010	18.6	0.287	< 0.10	< 0.010	1,150	< 0.0040	< 0.050	< 0.20	< 0.20	6.03	< 0.20	< 1.0				
09BH06-D-220602	2022 06 02	1.4	44.9	378	47.3	162	3.79	128	<0.050	3	39.2	<0.010	10.4	0.0041	0.1	0.136	0.63	<0.050	42.6	< 0.010	18.9	0.292	<0.10	<0.010	1300	<0.0040	<0.050	<0.20	<0.20	5.81	<1.00	<1.0				
GL0-1	GL0-1-20130625	2013 06 25	38	71.2	99	60.6	763	11.4	83.7	1	4.8	92	< 5.0a	< 100	0.059	< 0.50	1.82	< 1.0a	< 1.0	< 50	< 0.20	29.8	23.2	1.7	< 0.050	1,210	< 0.20	< 30	< 50	-	11.2	< 30	< 5.0			
	GL0-1-20140603	2014 06 03	< 10a	63.9	< 30	62.3	135	10.2	69.8	< 0.50	3.2	66	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	24.1	< 5.0	< 1.0	< 0.050	1,370	< 0.20	< 30	< 50	-	4.93	< 30	< 5.0			
	GL0-1-20141124	2014 11 24	< 10a	66.8	< 30	65.3	160	10.7	69.2	< 0.50	3.3	60	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	<																

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL0-3	GL0-3-20130627	2013 06 27	< 10a	117	< 30	114	29	11	191	< 0.50	< 1.0	33	< 5.0a	< 100	0.096	< 0.50	1.79	< 1.0a	< 1.0	< 50	< 0.20	14.6	< 5.0	2.3	< 0.050	1,930	< 0.20	< 30	< 50	-	123	< 30	< 5.0	
	GL0-3-20140603	2014 06 03	< 10a	114	< 30	112	< 10	10.2	180	< 0.50	< 1.0	27	< 5.0a	< 100	0.185	< 0.50	2.32	< 1.0a	< 1.0	< 50	< 0.20	15.1	< 5.0	2.4	< 0.050	1,960	< 0.20	< 30	< 50	-	120	< 30	< 5.0	
	GL0-3-20141124	2014 11 24	< 10a	123	< 30	119	13	11.3	192	< 0.50	< 1.0	27	< 5.0a	< 100	0.087	< 0.50	3.55	44.9	< 1.0	< 50	< 0.20	14.8	< 5.0	2.5	< 0.050	1,930	< 0.20	< 30	< 50	-	119	< 30	26.9	
	GL0-3-20150608	2015 06 08	< 10	120	< 30	115	< 10	10.7	179	< 0.50	< 1.0	26	< 5.0a	< 100	0.149	< 0.50	1.67	3.4	< 1.0	< 50	< 0.20	15.4	< 5.0	2.2	< 0.050	2,050	< 0.010	< 30	< 50	-	119	< 30	18.7	
	GL0-3-20151103	2015 11 03	< 10	118	< 30	111	< 10	10.2	188	< 0.50	< 1.0	24	< 5.0a	< 100	0.132	< 0.50	1.71	2.2	< 1.0	< 50	< 0.20	15.2	< 5.0	1.8	< 0.050	2,100	< 0.010	< 30	< 50	-	122	< 30	12.3	
	GL0-3-20160524	2016 05 24	< 10	117	< 30	112	< 10	10.2	179	< 0.50	< 1.0	23	< 5.0a	< 100	0.216	< 0.50	1.26	1.7	< 1.0	< 50	< 0.20	14.1	< 5.0	2.2	< 0.050	1,930	< 0.010	< 30	< 50	-	111	< 30	10.7	
	GL0-3-20170524	2017 05 24	< 10	120	< 30	114	< 10	10.4	180	< 0.50	< 1.0	24	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	15.9	< 5.0	1.3	< 0.050	2,160	< 0.010	< 30	< 50	-	124	< 30	7.1	
	GL0-3-180529	2018 05 29	< 5.0	123	< 10	120	1.88	10.4	187	< 0.20	< 0.50	21.7	0.26	23.8	0.028	< 0.50	0.32	1.79	< 0.20	41.1	< 0.010	14.4	1.86	1.14	< 0.050	1,910	< 0.020	0.4	< 5.0	< 1.0	130	< 1.0	10.8	
	GL0-3-190529	2019 05 29	< 5.0	176	< 10	163	1.91	12.4	239	< 0.20	< 0.50	30.4	0.26	29.3	0.059	1.6	0.59	3.11	< 0.20	52.3	< 0.010	13.8	2.67	10.8	< 0.050	2,980	< 0.020	0.57	< 5.0	< 1.0	198	< 1.0	26.2	
	GL0-3-200310	2020 03 10	< 5.0	154	64	150	1.85	11.9	230	< 0.20	< 0.50	28.3	0.17	37.7	0.046	1.12	0.49	2.43	< 0.20	50.1	< 0.010	14.4	2.6	6.33	< 0.050	2,800	< 0.020	< 0.20	< 5.0	< 1.0	178	< 1.0	9.3	
GL1-1	GL 1-1-20091109	2009 11 09	78	67.1	< 100	170	23	10.2	147	< 2	< 2	40	< 0.4	60	< 0.1	< 4	0.4	< 10a	< 1	40	-	21	< 10	< 6	< 0.10	3,120	< 0.1	< 1	< 10	-	36	1	< 10	
	GL1-1-20100810	2010 08 10	< 50a	62	< 100	155	9	10	140	< 2	< 2	40	< 0.4	70	< 0.10	< 4	0.3	< 10a	< 1	40	-	23	< 10	< 6	< 0.1	3,010	< 0.1	< 1	< 100	-	48	< 1	< 10	
	GL30-1-20100810	Duplicate	85	61	160	152	35	14	154	< 2	6	40	< 0.4	50	< 0.10	< 4	0.4	< 10a	< 1	40	-	24	< 10	< 6	< 0.1	3,130	< 0.1	< 1	< 100	-	51	2	< 10	
	QA/QC RPD%		*	2	*	2	118	33	10	*	*	0	*	33	*	*	*	*	*	0	-	4	*	*	*	*	4	*	*	*	-	6	*	*
	GL1-1-20160531	2016 05 31	< 50	71.2	< 100	182	27	-	174	< 1	< 5	50	< 1	60	< 0.1a	< 5	< 0.5	< 2a	< 1	49	-	24	< 2	< 5	< 0.5	3,410	< 0.2	-	< 50	-	56.3	< 10	-	
	GL1-1-20180927	2018 09 27	< 5.0	58.9	< 10	142	53	9.78	154	< 0.20	0.51	41	< 0.10	63.7	0.142	< 0.50	0.2	1.06	< 0.20	38.9	< 0.010	27.3	1.77	1.02	< 0.050	2,830	< 0.020	< 0.20	< 5.0	-	48.9	< 1.0	< 4.0	
	GL1-1-180612	2018 06 12	< 5.0	58.3	< 10	145	36.5	9.94	155	< 0.20	< 0.50	42.6	< 0.10	44.7	0.118	< 0.50	0.17	1.01	< 0.20	41.8	< 0.010	26.8	1.78	1.71	< 0.050	2,890	< 0.020	< 0.20	< 5.0	< 1.0	49.6	< 1.0	< 4.0	
	GL1-1-190917	2019 09 17	< 5.0	60	< 10	149	33.2	9.61	164	< 0.20	0.61	45.7	< 0.10	55.3	0.154	1.14	0.17	0.95	< 0.20	43.7	-	33.2	1.96	< 0.50	< 0.050	3,160	< 0.020	< 0.20	< 5.0	< 1.0	55.1	< 1.0	< 4.0	
	GL1-1-200910	2020 09 10	2.4	63.4	3.4	143	29.4	9.46	153	0.095	0.624	43	< 0.010	45.8	0.123	0.19	0.156	1.28	0.078	39.7	-	29.6	1.85	0.41	< 0.010	3,120	0.0073	< 0.050	0.2	0.42	54.6	0.21	2.9	
GL1-2	GL 1-2-20091109	2009 11 09	66	65.4	< 100	181	2	10.2	144	< 2	< 2	40	< 0.4	60	< 0.1	< 4	0.3	< 10a	< 1	50	-	20	< 10	< 6	< 0.10	3,160	< 0.1	< 1	< 10	-	36	2	< 10	
	GL1-2-20100810	2010 08 10	< 50a	65	< 100	164	< 2	10	132	< 2	< 2	40	< 0.4	70	< 0.1	< 4	0.4	< 10a	< 1	40	-	20	< 10	< 6	< 0.1	3,220	< 0.1	< 1	< 100	-	46	2	< 10	
	GL1-2-20160531	2016 05 31	< 50	69.3	< 100	174	< 2	-	161	< 1	< 5	< 50	< 1	60	< 0.1a	< 5	< 0.5	< 2a	< 1	49	-	21	< 2	< 5	< 0.5	3,310	< 0.2	-	< 50	-	49	< 10	< 40	
	GL1-2-180612	2018 06 12	< 5.0	61.7	< 10	154	0.34	10.8	169	< 0.20	0.99	64.4	< 0.10	49.8	0.022	< 0.50	< 0.10	1.83	< 0.20	38.1	< 0.010	28	1.34	0.78	< 0.050	3,040	< 0.020	< 0.20	< 5.0	< 1.0	61.6	4.2	< 4.0	
	GL1-2-20180927	2018 09 27	< 5.0	59.2	< 10	148	14.7	10.6	149	< 0.20	0.7	47.1	< 0.10	45.4	0.029	< 0.50	0.1	0.95	< 0.20	38.5	< 0.010	18.5	1.18	1.59	< 0.050	2,910	< 0.020	< 0.20	< 5.0	-	49.8	3.2	< 4.0	
	GL1-2-190917	2019 09 17	< 5.0	60.7	< 10	148	4.15	9.95	147	< 0.20	0.56	47	< 0.10	43.6	0.036	1.03	< 0.10	0.88	< 0.20	42.7	-	23	1.24	0.75	< 0.050	3,160	< 0.020	< 0.20	< 5.0	< 1.0	58.1	2.5	< 4.0	
	GL1-2-200910	2020 09 10	2.2	68.1	< 2.0	156	3.48	10.8	157	0.087	0.752	49.8	< 0.010	39.2	0.0328	0.13	0.143	1.24	< 0.050	40	-	23.5	1.24	0.26	< 0.010	3,510	< 0.0040	< 0.050	0.26	< 0.20	59.8	2.34	< 1.0	
	GL 2-1-20091109	2009 11 09	64	75.8	230	38.6	124	3.6	75.2	< 2	2	120	< 0.4	< 40	< 0.1	< 4	0.5	< 10a	< 1	10	-	7	< 10	< 6	< 0.10	2,470	< 0.1	< 1	< 10	-	6	< 1	< 10	
	GL2-1-20100810	2010 08 10	76	77	240	41	144	3	74	< 2	2	100	< 0.4	< 40	< 0.10	< 4	0.3	< 10a	< 1	10	-	7	< 10	< 6	< 0.1	2,710	< 0.1	< 1	< 100	-	8	< 1	< 10	
	GL30-2-20100810	Duplicate	95	76	220	40	161	6	76	< 2	4	120	< 0.4	< 40	< 0.10	< 4	0.6	< 10a	< 1	10	-	7	< 10	< 6	< 0.1	2,670	< 0.1	< 1	< 100	-	8	1	10	
	QA/QC RPD%		22	1	9	2	11	*	3	*	67	18	*	*	*	*	*	*	*	0	-	0	*	*	*	*	1	*	*	*	-	0	*	*
GL2-1	GL2-1-20110629	2011 06 29	< 5	77.6	474	40.2	145	3.2	75.7																									

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																														
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L
GL2-1 (Cont'd)	GL2-1-200609	2020 06 09	< 1.0	124	1,220	60	157	4.45	122	< 0.050	2.46	92.7	< 0.010	12.3	0.0075	< 0.10	0.052	0.23	< 0.050	14.1	< 0.010	14.3	0.127	< 0.10	< 0.010	29	< 0.0040	< 0.050	< 0.20	< 0.20	5.07	< 0.20	< 1.0
	GL2-1-200820	2020 08 20	1.6	106	1,210	50.8	129	3.92	98.7	< 0.050	2.82	88.1	< 0.010	11.7	0.0068	0.15	0.058	< 0.10	< 0.050	12.8	< 0.010	13.8	0.077	< 0.10	< 0.010	39	< 0.0040	< 0.050	< 0.20	< 0.20	4.13	< 0.20	< 1.0
	DUPA-200820	Duplicate	3	107	1,200	51	130	3.98	99.4	< 0.050	2.81	87.3	< 0.010	11.4	0.0057	0.12	0.045	< 0.10	< 0.050	12.9	< 0.010	13.7	0.079	< 0.10	< 0.010	39.5	< 0.0040	0.113	< 0.20	< 0.20	4.13	< 0.20	< 1.0
	QA/QC RPD%		*	1	1	0	1	2	1	*	0	1	*	3	*	*	26	*	*	1	*	1	*	*	*	*	*	*	*	*	0	*	*
	GL2-1-201019	2020 10 19	< 1.0	125	1,490	48.8	129	4.18	101	< 0.050	3.25	76.5	< 0.010	6.3	< 0.0020	< 0.10	0.053	< 0.10	< 0.050	11.2	< 0.010	14.9	0.087	< 0.10	< 0.010	3,840	< 0.0040	< 0.050	< 0.20	< 0.20	4.03	< 0.20	< 1.0
	GL2-1-210512	2021 05 12	< 1.0	119	954	53	126	4.24	117	< 0.050	2.37	72.9	< 0.010	11	0.005	0.17	0.034	< 0.10	< 0.050	13.6	< 0.010	14.1	0.093	< 0.10	< 0.010	3,840	< 0.0040	0.052	< 0.20	< 0.20	4.14	< 0.20	< 1.0
	GL2-1-211005	2021 10 05	7.5	134	1,130	60.3	126	4.4	127	< 0.050	2.12	73.5	< 0.010	40.7	0.0095	0.15	0.043	0.56	< 0.050	13.8	< 0.010	15.4	0.084	< 0.10	< 0.010	3,620	< 0.0040	< 0.050	0.63	< 0.20	3.82	< 0.20	< 1.0
	GL2-1-220530	2022 05 30	1.5	115	954	64	112	4.22	143	< 0.050	2.07	60.6	< 0.010	7.7	< 0.0050	0.14	0.024	< 0.10	< 0.050	14.8	< 0.010	15.3	0.066	< 0.10	0.011	3,830	< 0.0040	< 0.050	< 0.20	< 0.20	3.33	< 1.00	< 1.0
	GL2-1-220927	2022 09 27	< 1.0	136	1020	64.4	119	4.49	146	< 0.050	1.92	70	< 0.010	9.6	< 0.0050	0.14	0.028	0.64	< 0.050	14.8	< 0.010	15.9	0.073	< 0.10	< 0.010	4,180	< 0.0040	< 0.050	< 0.20	< 0.20	3.61	< 1.00	< 1.0
	GL 2-2-20091109	2009 11 09	417	70.2	380	44.7	68	3.8	72.7	< 2	< 2	70	< 0.4	< 40	< 0.1	< 4	0.6	< 10a	< 1	10	-	5	< 10	< 6	< 0.10	2,430	< 0.1	< 1	< 10	-	< 4	1	< 10
GL2-2-20100810	2010 08 10	< 50a	70	< 100	43	20	3	67	< 2	< 2	60	< 0.4	< 40	< 0.10	< 4	< 0.2	< 10a	< 1	10	-	5	< 10	< 6	< 0.1	2,480	< 0.1	< 1	< 100	-	8	< 1	< 1	

RDL Denotes reported detection limit.

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																														
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L
GL5-1	GL5-1-20091116	2009 11 16	< 50a	3.4	< 100	16.6	4	10.6	539	< 2	< 2	< 10	< 0.4	< 40	< 0.1	< 4	< 0.2	< 10a	< 1	580	-	7	< 10	< 6	< 0.10	1,050	< 0.1	< 1	< 10	-	< 4	< 1	< 10
	GL5-1-20100810	2010 08 10	71	13	840	20	34	9	604	< 2	< 2	10	< 0.4	40	< 0.1	< 4	< 0.2	< 10a	< 1	750	-	7	< 10	< 6	< 0.1	2,030	< 0.1	< 1	< 100	-	< 4	< 1	50
GL5-2	GL5-2-20180528	2018 05 28	< 5.0	79.8	< 10	115	0.44	7.77	268	< 0.20	< 0.50	60.6	< 0.10	30.8	0.02	3.92	< 0.10	1.03	< 0.20	39.3	< 0.010	9.37	< 0.40	4.95	< 0.050	4,900	< 0.020	< 0.20	< 5.0	-	20	3.7	< 4.0
	GL5-2-20091116	2009 11 16	132	68	180	105	12	7.6	128	< 2	< 2	30	< 0.4	< 40	< 0.1	< 4	0.2	< 10a	< 1	40	-	16	< 10	< 6	< 0.10	3,680	< 0.1	< 1	20	-	26	5	< 10
	GL30-1-20091116	Duplicate	< 50a	67.5	< 100	104	10	7.7	124	< 2	< 2	30	< 0.4	< 40	< 0.1	< 4	< 0.2	< 10a	< 1	40	-	17	< 10	< 6	< 0.10	3,590	< 0.1	< 1	< 10	-	25	4	< 10
	QA/QC RPD%		*	1	*	1	18	1	3	*	*	0	*	*	*	*	*	*	*	0	-	6	*	*	*	2	*	*	*	-	4	22	*
	GL5-2-20100810	2010 08 10	134	68	< 100	113	10	8	129	< 2	< 2	30	< 0.4	< 40	< 0.10	< 4	0.4	< 10a	< 1	40	-	15	< 10	< 6	< 0.1	3,750	< 0.1	< 1	< 100	-	27	4	< 10
	GL30-3-20100810	Duplicate	147	69	150	113	11	10	134	< 2	< 2	40	< 0.4	< 40	< 0.10	< 4	0.2	< 10a	< 1	40	-	14	< 10	< 6	< 0.1	3,870	< 0.1	< 1	< 100	-	28	5	10
	QA/QC RPD%		9	1	*	0	10	22	4	*	*	29	*	*	*	*	*	*	*	0	-	7	*	*	*	3	*	*	*	-	4	22	*
	GL5-2-20110704	2011 07 04	< 5	84.4	6	138	4	8.6	152	< 0.2	0.5	34	< 0.04	33	0.02	0.9	0.45	< 1a	< 0.1	45	-	17.1	1	1.8	< 0.01	4,300	< 0.01	< 0.1	< 10	-	24.3	7.4	< 1
	GL 5-2-20120627	2012 06 27	< 50a	78	100	126	< 10	8	150	< 2	< 2	30	< 0.4	< 40	< 0.1	7	< 0.2	< 10a	< 1	40	-	14	< 10	< 6	< 0.10	4,160	< 0.1	< 1	< 100	-	23	5	< 10
	DUP C-20120627	Duplicate	< 50a	79	140	129	< 10	7	158	< 2	< 2	40	< 0.4	< 40	< 0.1	4	< 0.2	< 10a	< 1	40	-	15	< 10	< 6	< 0.10	4,100	< 0.1	< 1	< 100	-	26	5	< 10
	QA/QC RPD%		*	1	33	2	*	13	5	*	*	29	*	*	*	55	*	*	*	0	-	7	*	*	*	1	*	*	*	-	12	0	*
	GL5-2-20121205	2012 12 05	52	72.3	97	116	< 10	7.7	145	< 2.0	< 2.0	30	< 0.40	50	< 0.10	5.1	< 0.20	< 10a	< 1	50	-	17.4	< 10	< 6.0	< 0.10	3,980	< 0.10	< 1.0	< 100	-	27.7	5.28	< 10
GL5-2-20130626	2013 06 26	< 10a	80.9	< 30	127	10	8.9	163	< 0.50	< 1.0	35	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	18.6	< 5.0	< 1.0	< 0.050	3,770	< 0.20	< 30	< 50	-	28.1	< 30	< 5.0	
GL5-2-20131114	2013 11 14	< 10a	77.6	< 30	120	11	8.8	187	< 0.50	< 1.0	34	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	19.3	< 5.0	< 1.0	< 0.050	3,870	< 0.20	< 30	< 50	-	27.9	< 30	< 5.0	
GL5-2-20140603	2014 06 03	< 10a	73.7	< 30	114	< 10	8.1	174	< 0.50	< 1.0	37	< 5.0a	< 100	0.06	< 0.50	< 0.50	< 1.0a	< 1.0	51	< 0.20	19.2	< 5.0	< 1.0	< 0.050	3,660	< 0.20	< 30	< 50	-	26.7	< 30	< 5.0	
GL5-2-20141118	2014 11 18	< 10a	71.1	< 30	111	12	8.1	160	< 0.50	< 1.0	33	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	19.1	< 5.0	< 1.0	< 0.050	3,750	< 0.20	< 30	< 50	-	27.2	< 30	< 5.0	
DUP2-20141118	Duplicate	< 10a	70.2	< 30	112	12	8.2	161	< 0.50	< 1.0	33	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	17.4	< 5.0	< 1.0	< 0.050	3,730	< 0.20	< 30	< 50	-	24	< 30	< 5.0	
QA/QC RPD%		*	1	*	1	0	1	1	*	*	0	*	*	*	*	*	*	*	0	-	7	*	*	*	1	*	*	*	-	12	*	*	
GL5-2-20150608	2015 06 08	< 10	121	< 30	159	< 10	10.4	315	< 0.50	< 1.0	64	< 5.0a	< 100	< 0.050	1.7	< 0.50	< 1.0a	< 1.0	68	< 0.20	12.1	< 5.0	< 1.0	< 0.050	6,010	< 0.010	< 30	< 50	-	24.1	< 30	< 5.0	
GL5-2-20151103	2015 11 03	< 10	74.8	< 30	106	< 10	8.1	183	< 0.50	< 1.0	34	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	17.4	< 5.0	< 1.0	< 0.050	3,980	< 0.010	< 30	< 50	-	26.9	< 30	< 5.0	
GL5-2-20160526	2016 05 26	< 10	116	< 30	143	< 10	10	384	< 0.50	< 1.0	69	< 5.0a	< 100	2.39	4.26	< 0.50	< 1.0a	< 1.0	74	< 0.20	11.6	< 5.0	2.9	< 0.050	5,680	< 0.020	< 30	< 50	-	20.7	< 30	< 5.0	
GL5-2-20170525	2017 05 25	< 10	102	< 30	128	< 10	9.1	331	< 0.50	< 1.0	63	< 5.0a	< 100	< 0.050	3.64	< 0.50	< 1.0a	< 1.0	65	< 0.20	11.3	< 5.0	3.6	< 0.050	5,330	< 0.020	< 30	< 50	-	20.7	< 30	< 5.0	
DUP1-20170525	Duplicate	< 10	102	< 30	129	< 10	9.3	336	< 0.50	< 1.0	64	< 5.0a	< 100	< 0.050	3.59	< 0.50	< 1.0a	< 1.0	65	< 0.20	11.5	< 5.0	3.5	< 0.050	5,370	< 0.020	< 30	< 50	-	20.4	< 30	< 5.0	
QA/QC RPD%		*	0	*	1	*	2	1	*	*	2	*	*	*	1	*	*	*	0	-	2	*	*	3	*	1	*	*	*	-	1	*	*
GL5-3	GL5-2-180528	2018 05 28	< 5.0	79.8	< 10	115	0.44	7.77	268	< 0.20	< 0.50	60.6	< 0.10	30.8	0.02	3.92	< 0.10	1.03	< 0.20	39.3	< 0.010	9.37	< 0.40	4.95	< 0.050	4,900	< 0.020	< 0.20	< 5.0	< 1.0	20	3.7	< 4.0
	GL5-2-190527	2019 05 27	5.9	87.3	< 10	102	0.75	7.33	249	< 0.20	< 0.50	66.8	< 0.10	38.8	0.057	2.09	< 0.10	3.18	< 0.20	50.3	< 0.010	12.2	0.52	6.8	< 0.050	5,240	< 0.020	< 0.20	< 5.0	< 1.0	23.1	3.6	< 4.0
	GL5-2-200611	2020 06 11	4.2	65.3	< 2.0	82.1	0.187	6.98	195	< 0.050	0.339	48.2	< 0.010	24.9	0.023	0.37	0.025	0.47	< 0.050	36.8	< 0.010	12.5	0.325	0.36	< 0.010	3,720	< 0.0040	< 0.050	< 0.20	< 0.20	28.8	3.95	< 1.0
	GL5-2-210603	2021 06 03	< 1.0	103	< 2.0	110	0.061	8.27	258	< 0.050	0.339	59.8	< 0.010	42.2	0.0228	1.42	0.029	0.99	< 0.050	54.8	< 0.010	11.9	0.31	1.58	< 0.010	4,970	< 0.0040	< 0.050	< 0.20	< 0.20	31.1	3.56	< 1.0
	GL5-2-220602	2022 06 02	1.2	59.3	< 2.0	89	0.23	6.57	189	< 0.050	0.276	45	< 0.010	24.8	0.0183	0.32	0.018	0.61	< 0.050	41.7	< 0.010	13	0.232	0.38	< 0.010	3,870	< 0.0040	< 0.050	< 0.20	< 0.20	28.5	3.65	< 1.0

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																														
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L
GL6-1 (2011)	GL6-1 (2011)-190603	2019 06 03	86.8	190	507	192	412	421	1,490	1.1	5.96	321	< 0.10	2,660	< 0.010	16.7	21.7	11.9	< 0.20	41.5	< 0.010	1.44	19.3	0.5	< 0.050	3,160	< 0.020	4.82	11.2	1.9	19.2	3.1	< 4.0
	DUP3-190603	Duplicate	87.1	191	467	185	402	427	1,420	1.09	5.93	320	< 0.10	2,710	< 0.010	16.8	21.6	< 0.40a	< 0.20	39.3	< 0.010	1.27	19.1	0.6	< 0.050	3,140	< 0.020	4.8	11.3	1.9	11.6	3.1	< 4.0
GL7-1	QA/QC RPD%		0	1	8	4	2	1	5	1	1	0	*	2	*	1	0	*	*	5	*	13	1	*	*	1	*	0	1	*	49	0	*
	GL6-1-200611	2020 06 11	79.8	151	191	142	295	382	1,200	1.7	6.48	367	0.025	2,180	0.0081	18.1	22.2	0.88	0.151	28.1	< 0.010	1.31	23.7	0.86	< 0.010	2,850	< 0.0040	4.82	15.7	2.04	1.95	3.61	1.8
	GL6-1-210610	2021 06 10	79	229	1,180	160	439	356	988	0.81	4.88	398	0.029	3,510	0.0069	14.2	20.3	0.5	0.237	41.4	< 0.010	1.02	17	1.22	< 0.010	2,850	< 0.0040	3.19	11.2	1.67	0.228	2.69	2.3
	GL7-1-20110704	2011 07 04	< 5	176	5,590	182	1,060	21.4	492	< 0.2	36.4	15	2.2	148	0.02	62.9	1.75	1	0.4	266	-	56.3	9	19.8	< 0.01	4,680	< 0.01	< 0.1	< 10	-	80.8	17.8	11
	GL7-1-20120625	2012 06 25	< 50a	164	12,600	180	1,260	20	509	< 2	13	10	1.6	160	< 0.1	7	1.9	< 10a	< 1	260	-	42	< 10	< 6	< 0.10	4,580	< 0.1	< 1	< 100	-	74	2	20
	GL7-1-20121205	2012 12 05	54	159	5,360	176	971	18.7	496	< 2.0	22.5	20	2.64	160	< 0.10	12.2	4.81	< 10a	< 1.0	300	-	60.2	< 10	< 6.0	< 0.10	4,440	< 0.10	< 1	< 100	-	85.6	3.27	10
	GL7-1-20130626	2013 06 26	< 10a	162	4,850	172	1,350	21	526	< 0.50	19.8	< 20	< 5.0a	120	< 0.10	< 1.0	1.88	< 1.0a	3.5	292	< 0.20	56.7	7.5	< 2.0	< 0.050	3,860	< 0.20	< 30	< 50	-	79.4	< 30	33.3
	GL7-1-20131114	2013 11 14	< 10a	160	5,290	179	922	20	509	< 0.50	22.3	< 20	< 5.0a	110	< 0.10	< 1.0	1.38	< 1.0a	< 1.0	263	< 0.20	60.6	7	< 2.0	< 0.050	4,150	< 0.20	< 30	< 50	-	79.5	< 30	89.8
	DUP1-20131114	Duplicate	< 10a	159	5,200	179	918	19.8	503	< 0.50	22.6	< 20	< 5.0a	120	< 0.10	< 1.0	1.4	< 1.0a	< 1.0	260	< 0.20	61.3	6.9	< 2.0	< 0.050	4,080	< 0.20	< 30	< 50	-	79.1	< 30	86.7
	QA/QC RPD%		*	1	2	0	0	1	1	*	1	*	*	9	*	*	1	*	*	1	*	1	1	*	*	2	*	*	*	-	1	*	4
	GL7-1-20140604	2014 06 04	< 10a	164	7,030	190	1,130	20.6	502	< 0.50	21.7	< 20	< 5.0a	120	< 0.10	< 1.0	1.83	< 1.0a	< 1.0	342	< 0.20	38.6	7.6	< 2.0	< 0.050	4,190	< 0.20	< 30	< 50	-	62.4	< 30	55.8
	GL7-1-20141125	2014 11 25	< 10a	144	5,600	183	861	18.8	471	< 0.50	22.8	< 20	< 5.0a	110	< 0.10	< 1.0	1.44	< 1.0a	< 1.0	273	< 0.20	50.4	6.6	< 2.0	< 0.050	4,030	< 0.20	< 30	< 50	-	69.8	< 30	36.1
GL7-1-20150609	2015 06 09	< 10	151	7,710	173	963	19.5	478	< 0.50	26.7	< 20	< 5.0a	110	< 0.050	< 0.50	1.72	< 1.0a	1	284	< 0.20	40.7	7.3	< 1.0	< 0.050	4,050	< 0.020	< 30	< 50	-	65.4	< 30	61.6	
GL7-1-20151109	2015 11 09	< 10	155	3,030	169	904	19.7	464	< 0.50	13	< 20	< 5.0a	< 100	< 0.050	< 0.50	1.33	< 1.0a	< 1.0	291	< 0.20	44.6	7.3	< 1.0	< 0.050	3,840	< 0.020	< 30	< 50	-	65.1	< 30	45.4	
GL8-1	GL8-1-20080529	2008 05 29	70	93	200	144	625	15.2	832	< 2	6	10	< 1	40	0.7	< 5	< 1	< 10a	2	150	-	40	< 5	< 2	< 0.1	12,300	< 0.5	< 10	52	-	12	3	10
	GL8-1-20081104	2008 11 04	210	86.9	180	139	494	14.9	746	< 2	5	20	< 1	70	0.1	< 5	1	< 10a	< 1	160	-	40	6	< 2	< 0.1	11,900	< 0.5	< 10	43	-	10	2	10
GL8-2	GL 8-1-20091110	2009 11 10	86	20.4	< 100	2.2	421	2.4	19.6	< 2	8	10	< 0.4	40	0.32	< 4	0.8	< 10a	< 1	140	-	40	< 10	< 6	< 0.10	10,800	< 0.1	< 1	92	-	7	< 1	10
	GL8-1-20100810	2010 08 10	158	74	120	109	536	14	622	< 2	3	10	< 0.4	40	< 0.1	< 4	0.4	< 10a	< 1	140	-	44	< 10	< 6	< 0.1	11,200	< 0.1	< 1	< 100	-	11	< 1	< 10
	GL8-2-20080529	2008 05 29	< 50a	63.5	660	316	525	32.2	3,100	< 2	23	20	< 1	130	0.4	9	3	10	2	180	-	160	27	14	< 0.1	7,890	< 0.5	< 10	127	-	172	25	10
	GL30-1-20080529	Duplicate	< 50a	63.4	620	316	518	32.1	3,120	< 2	23	20	< 1	130	0.4	10	2	10	2	180	-	160	27	15	< 0.1	7,680	< 0.5	< 10	122	-	166	22	< 10
	QA/QC RPD%		*	0	6	0	1	0	1	*	0	0	*	0	0	11	40	0	0	0	-	0	0	7	*	3	*	*	4	-	4	13	*
	GL8-2-20081104	2008 11 04	< 50a	40.6	160	309	291	34.6	3,410	< 2	23	30	< 1	200	< 0.10a	63	14	10	< 1	180	-	280	34	9	0.19	7,210	< 0.5	< 10	98	-	152	152	< 10
	GL 8-2-20091110	2009 11 10	< 50a	32.5	190	270	280	34	150	< 2	16	20	< 0.4	170	0.39	26	1.2	< 10a	< 1	140	-	294	30	< 6	< 0.10	5,390	< 0.1	< 1	< 10	-	119	26	110
	GL8-2-20100810	2010 08 10	< 50a	33	340	205	86	30	2,340	< 2	13	20	< 0.4	160	< 0.1	5	0.8	20	< 1	120	-	227	20	10	< 0.1	5,360	< 0.1	< 1	< 100	-	131	28	< 10
	GL8-2-20110627	2011 06 27	< 50a	40.9	322	228	406	23	2,320	< 2	7	20	< 0.4	140	0.51	6	2	< 10a	< 1	140	-	191	20	< 6	< 0.1	5,310	< 0.1	< 1	< 10	-	111	10	< 10
	GL8-2-20111217	2011 12 17	< 50a	26.4	74	142	110	19.8	2,120	< 2	13	20	< 0.4	150	0.58	18	0.4	20	< 1	130	-	300	20	< 6	< 0.10	4,460	0.43	< 1	< 10	-	134	20	< 10
	GL 8-2-20120626	2012 06 26	< 50a	42	2,420	169	400	38	1,330	< 2	6	30	< 0.4	200	0.27	10	1	10	< 1	70	-	104	20	7	0.71	3,930	< 0.1	< 1	< 100	-	74	18	< 10
	DUP B-20120626	Duplicate	< 50a	41	2,540	169	390	38	1,340	< 2	5	30	< 0.4	180	0.23	10	0.9	< 10a	< 1	70	-	94	20	< 6	< 0.1	3,900	< 0.1	< 1	< 100	-	73	16	< 10
QA/QC RPD%		*	2	5	0	3	0	1	*	18	0	*	11	16	0	11	*	*	0	-	10	0	*	*	1	*	*	4	-	1	12	*	
GL8-2-20121204	2012 12 04	< 50a	22.4	86	128	96	19.6	2,170	< 2.0	8.3	30	< 0.40	150	0.18	22.5	2.37	< 10a	< 1.0	100	-	228	20	8.2	< 0.10	4,870	< 0.10	< 1.0	19	-	126	22	< 10	
GL8-2-20130626	2013 06 26	< 30a	76.5	< 90	240	613	25.7	2,160	< 1.0	2.3	< 30	< 15a	< 300	< 0.50a	< 5.0	< 1.0	< 5.0a	< 1.0															

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																																
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L		
GL9-1 (Cont'd)	GL9-1-20130626	2013 06 26	< 10a	19.7	1,380	89.5	70	14.1	346	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.10	< 1.0	< 0.50	< 1.0a	< 1.0	129	< 0.20	< 1.0	< 5.0	< 2.0	< 0.050	730	< 0.20	< 30	< 50	-	0.65	< 30	< 5.0		
	GL9-1-20131114	2013 11 14	< 10a	12.5	471	91.9	32	14.1	353	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.10	< 1.0	< 0.50	< 1.0a	< 1.0	127	< 0.20	< 1.0	< 5.0	< 2.0	< 0.050	464	< 0.20	< 30	< 50	-	0.31	< 30	< 5.0		
	GL9-1-20140604	2014 06 04	< 10a	9.15	191	85.3	25	13.9	348	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.10	< 1.0	< 0.50	< 1.0a	< 1.0	117	< 0.20	< 1.0	< 5.0	< 2.0	< 0.050	356	< 0.20	< 30	< 50	-	0.76	< 30	< 5.0		
	DUP1-20140604	Duplicate	< 10a	9.21	184	83.4	24	13.5	342	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.10	< 1.0	< 0.50	< 1.0a	< 1.0	117	< 0.20	< 1.0	< 5.0	< 2.0	< 0.050	356	< 0.20	< 30	< 50	-	0.25	< 30	< 5.0		
	QA/QC RPD%			*	1	4	2	4	3	2	*	*	*	*	*	*	*	*	*	0	*	*	*	*	*	0	*	*	*	*	-	101	*	*	
	GL9-1-20141125	2014 11 25	< 10a	12.8	60	90.3	15	13.8	348	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.10	< 1.0	< 0.50	< 1.0a	< 1.0	126	< 0.20	< 1.0	< 5.0	< 2.0	< 0.050	572	< 0.20	< 30	< 50	-	< 0.20	< 30	< 5.0		
	GL9-1-20150609	2015 06 09	< 10	7.76	80	75.9	19	12.9	332	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	101	< 0.20	1.2	< 5.0	< 1.0	< 0.050	316	< 0.020	< 30	< 50	-	< 0.20	< 30	< 5.0		
	GL9-1-20151109	2015 11 09	< 10	8.97	103	73.7	25	12.9	313	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	98	< 0.20	1.7	< 5.0	< 1.0	< 0.050	372	< 0.020	< 30	< 50	-	0.41	< 30	< 5.0		
	GL9-1-20170530	2017 05 30	< 10	9.1	127	82.7	27	13.7	359	< 0.50	< 1.0	< 20	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	112	< 0.20	2	< 5.0	< 1.0	< 0.050	357	< 0.020	< 30	< 50	-	0.3	< 30	< 5.0		
	GL9-1-180604	2018 06 04	< 5.0	49.8	253	86.3	104	13.8	340	< 0.20	0.8	7.7	< 0.10	44.3	< 0.010	< 0.50	< 0.10	< 0.40a	< 0.20	114	< 0.010	2.04	< 0.40	< 0.50	< 0.050	2,090	< 0.020	< 0.20	< 5.0	< 1.0	1.38	< 1.0	17.6		
	GL9-1-190530	2019 05 30	9	28.2	54	81.8	20.5	13.4	336	< 0.20	< 0.50	7.8	< 0.10	38.8	< 0.010	0.77	< 0.10	< 0.40a	< 0.20	130	< 0.010	0.37	< 0.40	< 0.50	< 0.050	1,430	< 0.020	< 0.20	< 5.0	< 1.0	0.225	< 1.0	< 4.0		
	GL9-1-200611	2020 06 11	< 1.0	100	19,300	80.9	411	14.8	320	< 0.050	0.238	28.6	0.07	36.3	0.0022	0.11	0.116	< 0.10	< 0.050	126	< 0.010	0.743	0.166	< 0.10	< 0.010	5,030	< 0.0040	< 0.050	< 0.20	< 0.20	1.96	0.23	< 1.0		
	DUPC-200611	Duplicate	< 1.0	98.1	18,800	78.8	400	14.4	313	< 0.050	0.187	27.9	0.068	34.8	0.0131	0.12	0.12	< 0.10	< 0.050	128	< 0.010	0.726	0.152	< 0.10	< 0.010	5,110	< 0.0040	< 0.050	< 0.20	< 0.20	1.97	0.21	1.2		
	QA/QC RPD%			*	2	3	3	3	3	2	*	*	2	3	4	*	*	3	*	*	2	*	2	*	*	*	2	*	*	*	*	-	1	*	*
GL9-2	GL9-1-210611	2021 06 11	1	128	814	103	303	17.7	418	< 0.050	0.16	27.3	0.25	51.1	< 0.0020	< 0.10	0.01	< 0.10	< 0.050	219	< 0.010	0.621	0.063	< 0.10	< 0.010	5,350	< 0.0040	< 0.050	0.28	< 0.20	2.63	< 0.20	< 1.0		
	GL9-2-20080529	2008 05 29	< 50a	294	< 10	1,760	313	84.2	9,840	< 2	17	< 10	< 1	< 20	0.3	< 5	4	50	< 2	90	-	80	< 5	11	< 0.10	11,200	< 0.5	< 10	814	-	< 0.20	< 30	< 5.0		
	GL9-2-20081104	2008 11 04	60	290	1,480	1,740	289	79.3	9,950	< 2	21	< 10	< 1	< 20	< 0.1a	10	2	30	< 1	80	-	90	23	5	< 0.1	11,000	< 0.5	< 10	603	-	950	4	40		
	GL 9-2-20091111	2009 11 11	659	79.5	2,670	2,200	473	110	12,400	< 2	16	< 10	< 0.4	< 40	0.14	4	2.3	< 10a	< 1	80	-	88	20	8	< 0.10	12,000	< 0.1	< 1	< 10	-	1,100	2	30		
	GL 9-2-20120627	2012 06 27	960	408	140	1,800	370	91	9,800	< 2	6	10	< 0.4	< 40	0.2	6	1.2	20	< 1	60	-	100	10	20	< 0.10	12,200	< 0.1	< 1	< 100	-	542	2	10		
	GL9-2-20100810	2010 08 10	144	345	2,170	1,490	500	104	9,940	< 2	18	< 10	< 0.4	< 40	< 0.1	4	2.8	10	< 1	60	-	93	20	11	< 0.1	12,000	< 0.1	< 1	< 100	-	874	3	20		
	GL9-2-20110628	2011 06 28	< 5	398	296	1,780	296	85	9,780	< 0.2	4.1	12	< 0.04	< 4	0.3	1.3	2.57	18	< 0.1	50	-	101	14	24.4	< 0.01	11,300	0.01	< 0.1	< 10	-	794	1.2	13		
	GL9-2-20121204	2012 12 04	< 50a	394	365	1,800	407	66.3	10,400	< 2.0	6.2	10	< 0.40	< 40	0.34	9	2.95	10	< 1.0	80	-	108	10	18.5	< 0.10	12,600	< 0.10	< 1.0	< 100	-	621	3.37	< 10		
	Dup-B-20121204	Duplicate	< 50a	399	318	1,700	416	64.6	9,660	< 2.0	5.3	10	< 0.40	< 40	0.36	8.3	1.16	20	< 1.0	60	-	108	10	15.6	< 0.10	12,300	< 0.10	< 1.0	< 100	-	644	2.78	10		
	QA/QC RPD%			*	1	14	6	2	3	7	*	16	0	*	*	6	8	87	67	*	29	-	0	0	17	*	*	2	*	*	*	-	4	19	*
	GL9-2-20130626	2013 06 26	< 150a	378	860	1,630	440	79	9,650	< 5.0	< 5.0	< 200	< 100a	< 2,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	< 200	< 0.20	104	< 25	< 50a	< 0.50	9,840	< 5.0a	< 600	< 200	-	578	< 600a	< 100		
	DUP2-20130626	Duplicate	< 150a	387	880	1,680	450	81	9,960	< 5.0	< 5.0	< 200	< 100a	< 2,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	< 200	< 0.20	93.8	< 25	< 50a	< 0.50	10,100	< 5.0a	< 600	< 200	-	507	< 600a	< 100		
	QA/QC RPD%			*	2	2	3	2	2	3	*	*	*	*	*	*	*	*	*	*	*	10	*	*	*	*	3	*	*	*	*	-	13	*	*
	GL9-2-20131113	2013 11 13	< 150a	406	980	1,680	590	82	9,970	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	130	< 0.20	99.5	< 25	< 50a	< 0.50	10,000	< 5.0a	< 300	< 100	-	598	< 300a	< 50		
GL9-2-20140605	2014 06 05	< 150a	412	< 600a	1,720	380	84	10,300	< 5.0	< 5.0	< 200	< 100a	< 2,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	< 200	< 0.20	89.6	< 25	< 50a	< 0.50	11,200	< 5.0a	< 600	< 200	-	536	< 600a	< 100			
GL9-2-20141125	2014 11 25	< 150a	396	450	1,630	381	80	9,660	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	4.2	< 100	< 0.20	92.1	< 25	< 50a	< 0.50	10,200	< 5.0a	< 300	< 100	-	478	< 300a	< 50			
GL9-2-20150609	2015 06 09	< 50	404	570	1,610	134	75	9,660	&lt																										

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL9-3 (Cont'd)	GL9-3-20160526	2016 05 26	< 50	385	< 600a	2,350	< 100	118	11,900	< 5.0	< 5.0	< 200	< 100a	< 2,000a	< 0.25	< 5.0	< 5.0	< 10a	< 2.5	< 200	< 0.20	75.9	< 25	< 2.5	< 0.50	11,200	< 0.50	< 600	< 200	-	1,410	< 600a	< 100	
	GL9-3-20170529	2017 05 29	< 50	377	< 600a	2,470	140	121	12,800	< 5.0	5.1	< 200	< 100a	< 2,000a	< 0.25	< 5.0	< 5.0	16	< 2.5	< 200	< 0.20	116	< 25	< 2.5	< 0.50	10,700	< 0.50	< 600	< 200	-	1,430	< 600a	< 100	
	GL9-3-180528	2018 05 28	< 5.0	445	12	2,480	271	165	12,600	< 0.20	0.89	14.8	< 0.10	8.8	0.302	< 0.50	0.9	2.87	< 0.20	89.6	< 0.010	98.4	5.9	1.39	< 0.050	15,300	0.44	< 0.20	< 5.0	1	1,680	< 1.0	< 4.0	
	GL9-3-190527	2019 05 27	13.7	516	16	2,760	153	167	13,900	< 0.20	1.16	14.9	< 0.10	8.7	0.212	1.37	0.64	4.83	< 0.20	139	< 0.010	112	5.29	1.24	< 0.050	12,900	0.429	< 0.20	< 5.0	< 1.0	1,620	< 1.0	< 4.0	
	GL9-3-200608	2020 06 08	159	430	19.3	2,230	217	238	12,900	0.15	1.19	15.8	0.021	11.2	0.145	1.31	1.07	3.44	< 0.050	135	< 0.010	110	6.26	1.94	0.016	13,000	0.409	< 0.050	0.83	0.5	1,780	1.05	1.5	
	GL9-3-210610	2021 06 10	3.3	427	2	2,350	137	132	12,100	0.145	0.746	10.7	< 0.010	10.2	0.133	0.21	0.75	2.3	< 0.050	116	< 0.010	91.3	4.96	0.49	0.012	11,800	0.37	< 0.050	< 0.20	0.39	1,430	< 0.20	1.4	
GL10-1	GL10-1-20091112	2009 11 12	< 50a	190	460	1,590	1,820	46	7,710	< 2	17	20	< 0.4	< 40	0.23	< 4	4.2	< 10a	< 1	400	-	98	50	7	< 0.1	17,400	0.6	< 1	< 10	-	2,540	3	10	
	GL10-1-20100810	2010 08 10	< 50a	198	480	1,440	2,120	57	7,660	< 2	32	20	< 0.4	< 40	< 0.1	6	5	20	< 1	310	-	91	60	12	0.26	19,200	0.21	< 1	< 100	-	2,190	6	10	
	GL10-1-20110704	2011 07 04	< 5	215	558	1,890	1,830	46	7,700	< 0.2	1.1	19	< 0.04	22	0.12	107	5.3	11	< 0.1	310	-	82.3	56	88.9	0.1	18,600	0.23	< 0.1	< 10	-	2,470	31.8	9	
	GL10-1-20120626	2012 06 26	< 50a	259	1,150	1,970	1,940	46	7,670	< 2	10	20	< 0.4	< 40	< 0.1	14	4.9	10	< 1	350	-	71	60	24	< 0.10	20,300	0.22	< 1	< 100	-	2,230	6	20	
	GL10-1-20121204	2012 12 04	< 50a	231	247	1,890	1,760	38.4	7,800	< 2	9.6	10	< 0.40	< 40	< 0.10	19.9	9.25	10	< 1.0	270	-	76.2	50	29.6	< 0.10	19,500	0.3	< 1.0	< 100	-	2,490	7.07	< 10	
	GL10-1-20130626	2013 06 26	< 150a	250	1,050	1,720	1,810	44	7,920	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	360	< 0.20	61.5	35	< 50a	< 0.50	15,200	< 5.0a	< 300	< 100	-	1,930	< 300a	< 50	
	GL10-1-20140605	2014 06 05	< 150a	214	710	1,460	1,530	39	6,440	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	310	< 0.20	66.8	39	< 50a	< 0.50	13,600	< 5.0a	< 300	< 100	-	1,770	< 300a	< 50	
	GL10-1-20141125	2014 11 25	< 150a	217	1,450	1,460	1,540	40	6,460	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	320	< 0.20	66.4	26	< 50a	< 0.50	13,600	< 5.0a	< 300	< 100	-	1,640	< 300a	< 50	
	GL10-1-20150610	2015 06 10	< 50	231	1,330	1,380	1,450	35	5,830	< 5.0	< 5.0	< 100	< 50a	< 1,000a	< 0.25	< 5.0	< 5.0	< 10a	< 2.5	290	< 0.20	64.3	28	< 2.5	< 0.50	14,100	< 0.50	< 300	< 100	-	1,660	< 300a	< 50	
	GL10-1-20151109	2015 11 09	< 20	228	< 300	1,310	1,370	36	5,530	< 2.0	< 2.0	< 100	< 50a	< 1,000a	< 0.10	< 2.0	3	4.1	< 1.0	290	< 0.20	67.2	25	< 1.0	< 0.20	13,300	< 0.20	< 300	< 100	-	1,660	< 300a	< 50	
	DUP2-20151109	Duplicate	< 20	225	< 300	1,270	1,350	36	5,470	< 2.0	< 2.0	< 100	< 50a	< 1,000a	< 0.10	< 2.0	2.8	< 4.0a	< 1.0	280	< 0.20	61.1	24	< 1.0	< 0.20	13,200	< 0.20	< 300	< 100	-	1,540	< 300a	< 50	
	QA/QC RPD%			*	2	*	3	1	0	1	*	*	*	*	*	*	7	*	*	4	*	10	4	*	*	1	*	*	*	-	8	*	*	
GL12-1	GL 12-1-20111218	2011 12 18	< 50a	420	< 5	513	466	17.6	863	7	2	10	< 0.4	50	0.4	6	0.9	30	< 1	160	-	30	30	< 6	< 0.10	13,600	0.62	2	< 10	-	272	< 1	< 10	
	GL12-1-20091112	2009 11 12	77	411	140	540	19	18.6	883	< 2	< 2	< 10	< 0.4	< 40	0.1	< 4	0.7	10	< 1	130	-	16	10	< 6	< 0.10	11,300	0.13	< 1	< 10	-	250	< 1	10	
	GL12-1-20100811	2010 08 11	< 50a	400	140	504	68	17	896	< 2	< 2	< 10	< 0.4	< 40	< 0.1	< 4	0.9	< 10a	< 1	120	-	18	20	< 6	< 0.1	11,700	0.13	< 1	< 100	-	206	< 1	< 10	
	GL12-1-20110629	2011 06 29	< 5	435	13	541	< 1	17.9	870	0.6	< 0.2	10	< 0.04	8	0.12	3.2	0.84	8	< 0.1	123	-	24.2	14	18.1	< 0.01	11,200	0.09	< 0.1	< 10	-	205	1.3	4	
	GL30-1-20110629	Duplicate	< 5	445	5	557	< 1	17.4	892	0.4	0.2	9	< 0.04	8	0.12	3.4	0.69	9	< 0.1	111	-	20.7	12	17.1	< 0.01	11,100	0.07	< 0.1	< 10	-	206	1.4	4	
	QA/QC RPD%			*	2	*	3	*	3	2	*	*	11	*	*	0	6	20	12	*	10	-	16	15	6	*	1	25	*	*	-	0	7	0
	GL12-1-20120625	2012 06 25	< 50a	473	640	569	790	21	952	< 2	< 2	10	< 0.4	< 40	0.15	< 4	1.6	20	< 1	140	-	23	20	< 6	< 0.10	12,900	0.19	< 1	< 100	-	210	1	10	
	GL12-1-20121204	2012 12 04	< 50a	472	< 5	591	778	19.2	1,010	< 2.0	< 2.0	10	< 0.40	< 40	0.33	6.8	2.43	20	< 1.0	140	-	27.6	20	< 6.0	< 0.10	13,300	0.3	< 1.0	< 10	-	272	2.51	< 10	
	GL12-1-20130626	2013 06 26	< 15a	472	< 60	616	549	23.5	1,130	< 0.50	< 1.0	< 20	< 10a	< 200	0.31	< 2.5	0.51	16.8	< 1.0	177	< 0.20	30.4	12	< 5.0	< 0.050	11,000	< 0.50	< 60	< 50	-	325	< 60	< 10	
	GL12-1-20131113	2013 11 13	< 15a	489	< 60	652	696	24.8	1,110	0.55	< 1.0	< 20	< 10a	< 200	0.36	< 2.5	1.03	18.5	< 1.0	262	< 0.20	35.6	14.9	< 5.0	< 0.050	11,000	< 0.50	< 60	< 50	-	332	< 60	< 10	
	GL12-1-20140604	2014 06 04	< 15a	493	62	694	2,280	55.7	1,290	< 0.50	8.6	< 20	< 10a	< 200	0.47	< 2.5	6.31	47.7	< 1.0	213	< 0.20	48.4	32	< 5.0	< 0.050	11,100	< 0.50	< 60	< 50	-	278	< 60	< 10	
	GL12-1-20141118	2014 11 18	< 15a	467	786	667	4,640	42.8	1,240	< 0.50	6.1	< 30	< 15a	< 300	< 0.25	< 2.5	30	3.8	< 1.0	192	< 0.20	47.6	30.7	< 5.0	< 0.050	11,500	< 0.50	< 90	< 50	-	343	< 90	< 15	

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL13-1 (Cont'd)	GL13-1-20111217	2011 12 17	< 50a	292	< 5	673	46	19	1,610	< 2	4	< 10	< 0.4	< 40	0.12	7	0.4	10	< 1	120	-	55	20	< 6	< 0.10	9,590	0.43	< 1	< 10	-	193	4	< 10	
	DUPC-20111217	Duplicate	< 50a	19.2	453	15.8	83	11.8	555	< 2	4	220	< 0.4	70	< 0.1	10	0.2	< 10a	< 1	250	-	< 1	< 10	< 6	< 0.10	4,020	0.31	< 1	< 10	-	< 4	4	< 10	
GL14-1	QA/QC RPD%		*	175	*	191	57	47	97	*	*	*	*	*	35	*	*	*	*	70	-	*	*	*	*	82	32	*	*	-	*	0	*	
	GL13-1-20120625	2012 06 25	< 50a	305	< 50	684	520	20	1,670	< 2	< 2	< 10	< 0.4	< 40	0.2	< 4	0.7	< 10a	< 1	80	-	50	10	9	< 0.10	8,250	< 0.1	< 1	< 100	-	124	1	10	
	GL13-1-20121204	2012 12 04	< 50a	284	< 50	664	23	18.3	1,660	< 2	< 2.0	< 10	< 0.40	< 40	< 0.10	7.6	8.8	10	< 1.0	60	-	45.8	< 10	7.3	< 0.10	8,720	< 0.10	< 1.0	< 100	-	194	2.72	< 10	
	GL14-1-20091116	2009 11 16	535	5.8	490	6.2	42	1.1	381	< 2	3	20	< 0.4	190	< 0.1	< 4	0.5	< 10a	< 1	140	-	9	< 10	< 6	< 0.10	1,470	< 0.1	< 1	< 10	-	< 4	8	20	
	GL14-1-20100811	2010 08 11	146	5	150	6	32	3	399	< 2	3	20	< 0.4	200	< 0.10	< 4	0.4	< 10a	< 1	130	-	9	< 10	< 6	< 0.1	1,470	< 0.1	< 1	< 100	-	< 4	9	< 10	
	GL14-1-20110704	2011 07 04	87	7.3	72	7.2	41	1.6	413	< 0.2	2.2	19	< 0.04	185	0.02	16.9	0.36	2	< 0.1	121	-	8.2	< 1	19	< 0.01	1,390	< 0.01	< 0.1	< 10	-	1.3	9.4	2	
	GL14-1-20120627	2012 06 27	< 50a	6	330	6	< 10	< 1	424	< 2	< 2	20	< 0.4	200	< 0.1	4	< 0.2	< 10a	< 1	130	-	5	< 10	< 6	< 0.10	1,490	< 0.1	< 1	< 100	-	< 4	5	< 10	
	GL14-1-20120704	2012 07 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
GL15-1	GL14-1-20121204	2012 12 04	659	5.36	483	5.35	26	1.1	418	< 2.0	< 2.0	20	< 0.40	210	< 0.10a	6.7	9.04	< 10a	< 1.0	110	-	8.44	< 10	< 6.0	< 0.10	1,510	< 0.10	< 1.0	36	-	< 4.0	7.42	< 10	
	GL15-1-20091117	2009 11 17	< 50a	101	< 100	109	21	2.9	163	< 2	< 2	70	< 0.4	< 40	0.2	< 4	0.4	< 10a	< 1	20	-	6	< 10	< 6	< 0.10	5,710	< 0.1	< 1	< 10	-	31	2	< 10	
	GL30-3-20091117	Duplicate	< 50a	94.5	< 100	104	20	2.5	157	< 2	< 2	60	< 0.4	< 40	< 0.1	< 4	0.4	20	< 1	20	-	6	< 10	< 6	< 0.10	5,710	< 0.1	< 1	< 10	-	30	2	10	
	QA/QC RPD%		*	7	*	5	5	*	4	*	*	15	*	*	*	*	*	*	*	0	-	0	*	*	*	*	0	*	*	*	-	3	0	*
	GL15-1-20140604	2014 06 04	< 10a	31.9	< 30	62.1	67	< 2.0	176	< 0.50	< 1.0	29	< 5.0a	< 100	0.339	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.7	< 5.0	< 1.0	< 0.050	3,260	< 0.20	< 30	< 50	-	5.16	< 30	< 5.0	
	GL15-1-20141117	2014 11 17	< 10a	32.3	< 30	63.1	148	< 2.0	178	< 0.50	< 1.0	31	< 5.0a	< 100	< 0.050	< 0.50	0.5	< 1.0a	< 1.0	< 50	< 0.20	6	< 5.0	< 1.0	< 0.050	3,440	< 0.20	< 30	< 50	-	5.76	< 30	< 5.0	
	GL15-1-20150610	2015 06 10	< 10	32.7	< 30	62.4	88	< 2.0	191	< 0.50	< 1.0	28	< 5.0a	< 100	0.136	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.6	< 5.0	< 1.0	< 0.050	3,550	< 0.010	< 30	< 50	-	5.13	< 30	< 5.0	
	DUP4-20150610	Duplicate	< 10	32.4	< 30	59.7	85	< 2.0	188	< 0.50	< 1.0	28	< 5.0a	< 100	0.141	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.9	< 5.0	< 1.0	< 0.050	3,540	< 0.010	< 30	< 50	-	5.23	< 30	< 5.0	
	QA/QC RPD%		*	1	*	4	3	*	2	*	*	0	*	*	4	*	*	*	*	*	*	5	*	*	*	*	0	*	*	*	-	2	*	*
	GL15-2	GL15-1-20151103	2015 11 03	< 10	32.8	73	61.7	210	< 2.0	189	< 0.50	< 1.0	32	< 5.0a	< 100	< 0.050	< 0.50	1.69	< 1.0a	< 1.0	< 50	< 0.20	5.8	< 5.0	< 1.0	< 0.050	3,700	< 0.010	< 30	< 50	-	5.66	< 30	< 5.0
GL15-1-20160920		2016 09 20	< 10	36.3	< 30	71.3	24	< 2.0	182	< 0.50	< 1.0	36	< 5.0a	< 100	0.363	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.9	< 5.0	< 1.0	< 0.050	3,850	0.012	< 30	< 50	-	6.74	< 30	< 5.0	
GL15-1-20170925		2017 09 25	< 10	31.9	< 30	59.8	20	< 2.0	175	< 0.50	< 1.0	28	< 5.0a	< 100	0.141	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.4	< 5.0	< 1.0	< 0.050	3,480	< 0.010	< 30	< 50	-	5.97	< 30	< 5.0	
GL15-1-180928		2018 09 28	5.8	31.3	< 10	61.8	32.8	1.44	177	< 0.20	< 0.50	27.6	< 0.10	9	0.038	< 0.50	< 0.10	< 0.40a	< 0.20	17.8	< 0.010	5.71	< 0.40	< 0.50	< 0.050	3,470	< 0.020	< 0.20	< 5.0	< 1.0	5.67	< 1.0	< 4.0	
GL15-1-190924		2019 09 24	< 5.0	31	< 10	60.6	45.2	1.55	173	< 0.20	< 0.50	30.5	< 0.10	14	0.02	< 0.50	< 0.10	0.14	< 0.20	17.8	< 0.010	6.18	0.63	< 0.50	< 0.050	3,690	< 0.020	< 0.20	< 5.0	< 1.0	6.04	1	< 4.0	
GL15-1-201104		2020 11 04	< 1.0	220	5.9	238	52.1	5.5	437	0.261	0.633	136	< 0.010	16.1	0.528	0.37	0.526	4.01	< 0.050	32.5	< 0.010	10.2	4.73	19.9	< 0.010	12,900	0.0152	< 0.050	< 0.20	< 0.20	95.8	5.75	2.2	
GL15-1-211007		2021 10 07	4.8	45.3	2.5	86	0.375	2.12	212	0.107	0.443	40.8	< 0.010	9.6	0.0891	0.23	0.024	2.84	0.051	15.4	< 0.010	7.52	1.03	1.53	< 0.010	4,920	0.0073	0.07	< 0.20	< 0.20	13.6	1.32	2.1	
GL15-1-221005		2022 10 05	<3.0	34.1	<2.0	63.1	0.794	1.62	172	<0.050	0.333	30.2	<0.010	7.9	0.0571	0.21	0.006	1.2	<0.050	16.7	<0.010	6.51	0.359	0.25	<0.010	3,790	0.0061	<0.050	<0.20	<0.20	6.35	1.12	1.1	
GL15-2-20110704		2011 07 04	< 5	261	10	350	< 1	10	406	< 0.2	1.3	18	< 0.04	17	0.15	17.8	0.67	5	< 0.1	39	-	11.7	23	49.8	< 0.01	7,230	0.03	< 0.1	< 10	-	149	5.9	6	
GL15-2-20120627		2012 06 27	< 50a	397	400	562	< 10	10	590	< 2	< 2	20	< 0.4	< 40	< 0.1	7	< 0.2	< 10a	< 1	40	-	7	< 10	32	< 0.10	9,840	< 0.1	< 1	< 100	-	258	2	< 10	
GL15-2-20121205		2012 12 05	54	414	< 5	618	< 1	9.1	670	< 2.0	< 2.0	20	< 0.40	40	0.1	9	< 0.20	< 10a	< 1.0	60	-	12.7	< 10	34.9	< 0.10	10,400	< 0.10	< 1.0	< 1,000	-	332	2.65	< 10	
GL15-2-20130708		2013 07 08	< 15a	423	< 60	696	< 10	14.1	786	< 0.50	< 1.0	< 20	< 10a	< 200	< 0.25	5.9	< 0.50	2.6	< 1.0	58	< 0.20	13	< 5.0	47.3	< 0.050	8,850								

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL16-1 (Cont'd)	GL16-1-20131113	2013 11 13	< 15a	104	91	168	90	19.9	945	< 0.50	7.1	< 20	< 5.0a	< 100	< 0.25	< 2.5	< 0.50	< 2.5a	< 1.0	256	< 0.20	15.2	12.7	< 5.0	< 0.050	15,800	< 0.50	< 30	< 50	-	10	< 30	< 5.0	
	GL16-1-20140605	2014 06 05	< 15a	108	860	160	767	19.5	972	< 0.50	12.2	< 20	< 10a	< 200	< 0.25	< 2.5	1.14	< 2.5a	< 1.0	266	< 0.20	13.2	< 5.0	< 5.0	< 0.050	17,200	< 0.50	< 60	< 50	-	8.43	< 60	< 10	
	GL16-1-20141118	2014 11 18	< 15a	92.3	256	149	277	19.5	950	< 0.50	8.7	< 20	< 5.0a	< 100	< 0.25	< 2.5	< 0.50	< 2.5a	< 1.0	268	< 0.20	15.5	< 5.0	< 5.0	< 0.050	15,900	< 0.50	< 30	< 50	-	9.17	< 30	< 5.0	
	GL16-1-20150610	2015 06 10	< 10	106	1,020	154	819	19.1	933	< 0.50	14.4	< 20	< 10a	< 200	0.101	< 0.50	1.24	< 1.0a	< 1.0	260	< 0.20	14.4	< 5.0	< 1.0	< 0.050	16,600	< 0.050	< 60	< 50	-	9.18	< 60	< 10	
	GL16-1-20151103	2015 11 03	< 10	95.4	< 30	143	60	18.7	997	< 0.50	7.1	< 20	< 5.0a	< 100	1.64	< 0.50	< 0.50	1.3	< 1.0	256	< 0.20	15.1	< 5.0	< 1.0	< 0.050	16,400	< 0.050	< 30	< 50	-	8.66	< 30	< 5.0	
	DUP3-20151103	Duplicate	< 10	95.8	< 30	143	60	18.7	993	< 0.50	6.5	< 20	< 5.0a	< 100	1.61	< 0.50	< 0.50	1.1	< 1.0	254	< 0.20	14.2	< 5.0	< 1.0	< 0.050	16,200	< 0.050	< 30	< 50	-	8.1	< 30	< 5.0	
	QA/QC RPD%		*	0	*	0	0	0	*	9	*	*	*	*	2	*	*	17	*	1	*	6	*	*	*	1	*	*	*	*	-	7	*	*
	GL16-1-20160524	2016 05 24	< 10	90.1	< 30	140	< 10	18.7	943	< 0.50	7.5	< 20	< 5.0a	< 100	0.508	< 0.50	< 0.50	< 1.0a	< 1.0	250	< 0.20	15.5	< 5.0	< 1.0	< 0.050	15,200	< 0.050	< 30	< 50	-	8.88	< 30	< 5.0	
	GL16-1-20170525	2017 05 25	< 10	92.8	< 30	146	< 10	19.7	952	< 0.50	7.5	< 20	< 5.0a	< 100	0.418	< 0.50	< 0.50	< 1.0a	< 1.0	276	< 0.20	14.6	< 5.0	< 1.0	< 0.050	16,400	< 0.050	< 30	< 50	-	8.43	< 30	< 5.0	
	DUP2-20170525	Duplicate	< 10	93.3	< 30	149	< 10	19.8	955	< 0.50	7.3	< 20	< 5.0a	< 100	0.385	< 0.50	< 0.50	< 1.0a	< 1.0	280	< 0.20	14.8	< 5.0	< 1.0	< 0.050	16,400	< 0.050	< 30	< 50	-	8.37	< 30	< 5.0	
	QA/QC RPD%		*	1	*	2	*	1	0	*	3	*	*	*	8	*	*	*	*	1	*	1	*	*	*	0	*	*	*	*	-	1	*	*
	GL16-1-180604	2018 06 04	< 5.0	96.5	< 10	126	0.45	18.1	815	< 0.20	5.98	13.4	< 0.10	71	0.172	< 0.50	< 0.10	0.63	< 0.20	256	< 0.010	15.5	< 0.40	< 0.50	< 0.050	15,400	< 0.020	< 0.20	< 5.0	< 1.0	7.93	< 1.0	< 4.0	
	GL16-1-190529	2019 05 29	15.5	89.6	< 10	129	4.19	18.5	849	< 0.20	6.51	16.2	< 0.10	71.1	0.154	0.81	< 0.10	0.57	< 0.20	259	< 0.010	18	1.19	< 0.50	0.07	15,600	0.037	< 0.20	< 5.0	< 1.0	8.53	< 1.0	< 4.0	
	GL16-1-200608	2020 06 08	3.6	95.1	424	112	335	19.9	832	0.062	18.4	13.6	0.011	65.3	0.057	0.6	0.567	0.93	0.2	249	< 0.010	16.7	1.05	< 0.10	< 0.010	17,200	0.0192	< 0.050	< 0.20	1.71	6.69	< 0.20	1.7	
	GL16-1-210609	2021 06 09	3	87.9	78.9	106	170	17.9	806	0.085	10.7	15.1	< 0.010	71.2	0.0338	< 0.10	0.216	0.48	< 0.050	285	< 0.010	15.9	0.885	< 0.10	< 0.010	15,300	0.0206	0.06	< 0.20	1.28	6.57	< 0.20	2.2	
	GL16-1-220602	2022 06 02	< 5.0	73.5	235	113	153	16.5	777	< 0.250	12.3	16	< 0.050	76.5	0.0242	< 0.50	0.198	1.39	< 0.250	278	< 0.010	15.8	0.779	< 0.50	< 0.050	15,300	< 0.0200	< 0.250	< 1.00	1.02	6.34	< 5.00	< 5.0	
GL17-1	GL17-1-20091112	2009 11 12	72	341	4,680	617	3,640	20	1,240	< 2	3	10	< 0.4	< 40	< 0.1	< 4	4.8	< 10a	< 1	110	-	38	30	< 6	< 0.10	9,310	< 0.1	< 1	11	-	133	1	10	
	GL17-1-20100811	2010 08 11	< 50a	355	920	582	3,290	22	1,250	< 2	3	10	< 0.4	< 40	< 0.10	< 4	5.1	< 10a	< 1	90	-	36	30	< 6	< 0.1	8,820	< 0.1	< 1	< 100	-	119	< 1	< 10	
	GL30-4-20100811	Duplicate	62	341	1,160	563	3,640	21	1,210	< 2	3	10	< 0.4	< 40	< 0.10	< 4	5.2	< 10a	< 1	90	-	38	30	< 6	< 0.1	9,450	< 0.1	< 1	< 100	-	129	< 1	10	
	QA/QC RPD%		*	4	23	3	10	5	3	*	0	0	*	*	*	2	*	*	*	0	-	5	0	*	*	7	*	*	*	*	-	8	*	*
	GL17-1-20110628	2011 06 28	< 5	381	2,170	638	3,260	17.3	1,290	< 0.2	1.8	16	< 0.04	14	0.11	1.1	7.97	4	< 0.1	94	-	35	31	3.3	< 0.01	8,700	0.01	< 0.1	< 10	-	143	0.9	9	
	GL17-1-20120625	2012 06 25	< 50a	20	880	18	70	15	582	< 2	2	220	< 0.4	40	< 0.1	4	1	< 10a	< 1	200	-	< 1	< 10	< 6	< 0.10	3,990	< 0.1	< 1	< 100	-	< 4	2	< 10	
	GL17-1-20121204	2012 12 04	< 50a	15.9	643	14.2	111	13.2	596	< 2	3.2	220	< 0.40	40	< 0.10	11.2	6.11	< 10a	< 1.0	170	-	< 1.0	< 10	< 6.0	< 0.10	3,920	< 0.10	< 1.0	< 10	-	< 4.0	3.33	< 10	
	GL17-1-20160526	2016 05 26	< 10	18.8	961	17.4	62	14.9	616	< 0.50	< 1.0	231	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	243	< 0.20	< 1.0	< 5.0	< 1.0	< 0.050	3,630	< 0.050	< 30	< 50	-	< 0.20	< 30	< 5.0	
	GL17-1-20160919	2016 09 19	< 10	19.8	836	17.8	58	14	564	< 0.50	1.4	178	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	184	< 0.20	< 1.0	< 5.0	< 1.0	< 0.050	3,510	< 0.010	< 30	< 50	-	0.31	< 30	< 5.0	
	GL17-1-20170531	2017 05 31	< 10	20	1,680	18.2	69	15	614	< 0.50	2.4	216	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	227	< 0.20	< 1.0	< 5.0	< 1.0	< 0.050	3,840	< 0.020	< 30	< 50	-	< 0.20	< 30	< 5.0	
	GL17-1-20170926	2017 09 26	< 10	19.5	1,430	17.5	57	14.9	563	< 0.50	2.1	212	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	227	< 0.20	< 1.0	< 5.0	< 1.0	< 0.050	3,720	< 0.020	< 30	< 50	-	< 0.20	< 30	< 5.0	
	GL17-1-180604	2018 06 04	< 5.0	22	1,250	17.4	46.5	14.4	562	< 0.20	1.64	198	< 0.10	81.8	< 0.010	< 0.50	0.26	< 0.40a	< 0.20	231	< 0.010	0.42	< 0.40	< 0.50	< 0.050	3,650	< 0.020	< 0.20	< 5.0	< 1.0	0.125	< 1.0	< 4.0	
	GL17-1-180919	2018 09 19	< 5.0	22.6	626	17.9	42.5	13.7	571	< 0.20	1.06	185	< 0.10	74.7	< 0.010	< 0.50	0.12	< 0.40a	< 0.20	206	< 0.010	0.35	< 0.40	< 0.50	< 0.050	3,650	< 0.020	< 0.20	< 5.0	< 1.0	0.276	< 1.0	< 4.0	
	GL17-1-190527	2019 05 27	< 5.0																															

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL18-2	GL 18-2-20091110	2009 11 10	< 50a	99.7	940	196	503	19	22.4	< 2	17	10	< 0.4	< 40	< 0.1	< 4	0.6	< 10a	< 1	10	-	32	< 10	< 6	< 0.10	4,990	< 0.1	< 1	< 10	-	< 4	< 1	20	
	GL18-2-20100811	2010 08 11	258	281	1,640	164	544	20	1,460	< 2	12	20	< 0.4	< 40	< 0.10	< 4	0.8	< 10a	< 1	< 10	-	34	< 10	< 6	< 0.1	4,840	< 0.1	< 1	< 100	-	< 4	2	< 10	
	GL18-2-20110629	2011 06 29	25	315	294	175	405	20.9	1,500	1.8	13.7	21	< 0.04	24	0.06	1.2	2.07	4	< 0.1	12	-	42.4	7	24	< 0.01	6,800	< 0.01	< 0.1	< 10	-	2.5	5.2	4	
	GL18-2-20120626	2012 06 26	< 50a	314	1,210	169	460	19	1,550	8	9	10	< 0.4	< 40	< 0.1	< 4	0.6	< 10a	< 1	10	-	35	< 10	< 6	< 0.10	4,970	< 0.1	< 1	< 100	-	< 4	< 1	20	
	DUP-A-20120626	Duplicate	< 50a	324	1,030	173	480	20	1,590	< 2	10	10	< 0.4	< 40	< 0.1	< 4	0.8	< 10a	< 1	10	-	36	< 10	6	< 0.10	5,230	< 0.1	< 1	< 100	-	< 4	1	< 10	
	QA/QC RPD%		*	3	16	2	4	5	3	*	11	0	*	*	*	*	29	*	*	0	-	3	*	*	*	5	*	*	*	*	-	*	*	*
	GL18-2-20121205	2012 12 05	53	286	2,330	161	180	17.2	1,380	< 2.0	9.4	10	< 0.40	40	< 0.10	< 4.0	2.85	< 10a	< 1	10	-	38.6	< 10	6.4	< 0.10	4,890	< 0.10	< 1.0	< 1,000	-	< 4.0	< 1.0	< 10	
	GL18-2-20130627	2013 06 27	< 30a	288	1,600	166	466	17.9	1,620	< 1.0	6.7	< 20	< 10a	< 200	< 0.50a	< 5.0	< 1.0	< 5.0a	< 1.0	< 50	< 0.20	37.4	< 5.0	< 10	< 0.10	4,230	< 1.0	< 60	< 50	-	< 0.20	< 60	< 10	
	GL18-2-20131114	2013 11 14	< 15a	284	1,560	162	467	17.4	1,550	< 0.50	7.3	< 20	< 10a	< 200	< 0.25	< 2.5	< 0.50	< 2.5a	< 1.0	< 50	< 0.20	41.8	< 5.0	< 5.0	< 0.050	4,120	< 0.50	< 60	< 50	-	0.26	< 60	< 10	
	GL18-2-20140609	2014 06 09	< 30a	280	1,640	164	472	17.7	1,540	< 1.0	7.3	< 20	< 10a	< 200	< 0.50a	< 5.0	< 1.0	< 5.0a	< 1.0	< 50	< 0.20	40.5	< 5.0	< 10	< 0.10	4,160	< 1.0	< 60	< 50	-	< 0.20	< 60	< 10	
	GL18-2-20141126	2014 11 26	< 15a	283	1,550	163	465	17.6	1,540	< 0.50	6.5	< 20	< 10a	< 200	< 0.25	< 2.5	< 0.50	< 2.5a	< 1.0	< 50	< 0.20	39.3	< 5.0	< 5.0	< 0.050	4,230	< 0.50	< 60	< 50	-	< 0.20	< 60	< 10	
	DUP3-20141126	Duplicate	< 30a	287	1,560	164	470	17.7	1,540	< 1.0	7.1	< 20	< 10a	< 200	< 0.50a	< 5.0	< 1.0	< 5.0a	< 1.0	< 50	< 0.20	39.7	< 5.0	< 10	< 0.10	4,230	< 1.0	< 60	< 50	-	< 0.20	< 60	< 10	
	QA/QC RPD%		*	1	1	1	1	1	0	*	9	*	*	*	*	*	*	*	*	*	*	1	*	*	*	0	*	*	*	*	-	*	*	*
	GL18-2-20150615	2015 06 15	< 10	284	1,410	154	425	17.3	1,550	< 1.0	6.6	< 20	< 10a	< 200	< 0.050	< 1.0	< 1.0	< 2.0a	< 1.0	< 50	< 0.20	37.4	< 5.0	< 1.0	< 0.10	4,200	< 0.10	< 60	< 50	-	< 0.20	< 60	< 10	
	GL18-2-20170529	2017 05 29	< 10	282	1,390	161	476	16.9	1,460	< 1.0	7.1	< 30	< 15a	< 300	< 0.050	< 1.0	< 1.0	2.4	< 1.0	< 50	< 0.20	41.1	< 5.0	< 1.0	< 0.10	4,260	< 0.10	< 90	< 50	-	2.23	< 90	< 15	
	GL18-2-180604	2018 06 04	< 5.0	306	1,610	158	524	17.7	1,450	< 0.20	6.92	9.7	< 0.10	32.6	0.018	< 0.50	< 0.10	< 0.40a	< 0.20	11.6	< 0.010	41.5	< 0.40	< 0.50	< 0.050	4,630	< 0.020	< 0.20	< 5.0	< 1.0	0.134	< 1.0	< 4.0	
	DUP-180604	Duplicate	< 5.0	311	1,600	158	521	17.9	1,450	< 0.20	6.95	9.5	< 0.10	31.5	0.027	< 0.50	< 0.10	< 0.40a	< 0.20	11	< 0.010	41.6	< 0.40	< 0.50	< 0.050	4,590	< 0.020	< 0.20	< 5.0	< 1.0	0.132	< 1.0	< 4.0	
	QA/QC RPD%		*	2	1	0	1	1	0	*	0	2	*	3	*	*	*	*	*	5	*	0	*	*	*	1	*	*	*	*	-	2	*	*
GL20-1	GL20-1-20091112	2009 11 12	124	145	10,400	154	452	390	1,780	< 2	27	290	< 0.4	6,230	< 0.1	35	30.3	< 10a	5	90	-	10	60	< 6	< 0.10	2,290	< 0.1	8	93	-	< 4	33	< 10	
	GL20-1-20100811	2010 08 11	209	132	17,400	162	471	490	1,730	< 2	34	410	< 0.4	6,190	< 0.1	44	35.7	< 10a	< 1	70	-	6	60	< 6	< 0.1	2,370	< 0.1	9	< 100	-	< 4	33	< 10	
	GL20-1-20110629	2011 06 29	13	14.5	923	18.6	34	400	201	< 0.2	11.2	31	< 0.04	531	< 0.01	5.3	3.47	7	< 0.1	8	-	1.2	7	24.6	< 0.01	263	< 0.01	0.8	< 10	-	< 0.4	3	8	
	GL20-1-20111217	2011 12 17	1,340	128	13,500	165	320	520	1,950	< 20	40	300	< 4a	6,300	< 1a	80	31	< 100a	< 10	< 100	-	< 10	< 100	< 60a	< 1.0	2,300	3.3	< 10	< 100	-	< 40a	20	< 100	
	DUPA-20111217	Duplicate	< 500a	127	8,430	163	310	510	1,820	< 20	40	200	< 4a	6,400	< 1a	80	33	< 100a	< 10	< 100	-	< 10	< 100	< 60a	< 1.0	2,300	2.8	< 10	< 100	-	< 40a	30	< 100	
	QA/QC RPD%		*	1	46	1	3	2	7	*	0	40	*	2	*	0	6	*	*	*	-	*	*	*	*	0	16	*	*	*	-	*	40	*
	GL20-1-20120625	2012 06 25	120	133	15,400	170	340	420	1,960	3	14	280	< 0.4	4,480	< 0.1	52	27	< 10a	< 1	70	-	1	60	< 6	< 0.10	2,260	< 0.1	8	< 100	-	4	21	10	
	GL20-1-20121203	2012 12 03	< 500a	102	13,400	150	261	547	1,860	< 20	< 20.0	300	< 4.0a	4,800	< 1.00a	92.1	43.3	< 100a	< 10	< 100	-	< 10	< 100	< 60a	< 1.00	2,270	< 1.00	< 10	< 100	-	< 40a	29.2	< 100	
	GL20-1-20130625	2013 06 25	116	87.4	4,040	221	1,120	390	2,640	2.5	23.3	250	< 25a	4,130	< 0.50a	35	28.4	5.9	3.5	69	< 0.20	10	76.4	< 10	< 0.10	2,890	< 1.0	< 150	104	-	2.79	< 150a	32	
	GL20-1-20140605	2014 06 05	74	65.4	2,750	181	494	229	2,430	3.9	19.4	117	< 25a	2,700	0.56	16.9	19.1	17.9	5	69	< 0.20	27.4	54.9	< 10	< 0.10	2,520	< 1.0	< 150	< 50	-	42.7	< 150a	< 25	
	DUP4-20140605	Duplicate	80	65.7	2,800	178	489	225	2,390	4.3	21.2	117	< 25a	2,620	0.57	19.1	21.3	20.1	5.3	65	< 0.20	28.1	60.5	< 10	0.11	2,500	< 1.0	< 150	< 50	-	43.5	< 150a	< 25	
	QA/QC RPD%		8	0	2	2	1	2	2	10	9	0	*	3	2	12	11	12	6	6	*	3	10	*	*	1	*	*	*	-	2	*	*	
	GL20-1-20141126	2014 11 26	173	93.8	6,170	173	310	275	2,090	1.6	20.6	374	< 15a	3,410	< 0.50a	34.2	22.6	< 5.0a	< 1.0	61	< 0.20	11.6	45.8	< 10	< 0.10	2,850	< 1.0	< 90	95	-	0.95	< 90	< 15	
	GL20-1-20150611	2015 06 11	74	64.3	2,08																													

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL23-1 (Cont'd)	GL23-1-20141124	2014 11 24	< 10a	87.1	39	240	208	17.5	249	< 0.50	< 1.0	75	< 5.0a	< 100	0.313	< 0.50	0.7	1.6	< 1.0	< 50	< 0.20	16.8	9.5	< 1.0	< 0.050	3,990	< 0.20	< 30	< 50	-	139	< 30	< 5.0	
	GL23-1-20150608	2015 06 08	< 10	82.6	< 30	224	19	15.3	211	< 0.50	< 1.0	72	< 5.0a	< 100	0.327	< 0.50	< 0.50	2.4	< 1.0	< 50	< 0.20	15.8	9	< 1.0	< 0.050	3,870	< 0.010	< 30	< 50	-	116	< 30	< 5.0	
	GL23-1-20151104	2015 11 04	< 10	79	< 30	208	642	14.8	194	< 0.50	< 1.0	67	< 5.0a	< 100	0.307	< 0.50	0.56	1.2	< 1.0	< 50	< 0.20	17.3	13.4	< 1.0	< 0.050	3,700	0.011	< 30	< 50	-	99.1	< 30	< 5.0	
	GL23-1-20160526	2016 05 26	< 10	78.4	< 30	215	77	14.9	203	< 0.50	< 1.0	70	< 5.0a	< 100	0.312	< 0.50	< 0.50	3	< 1.0	< 50	< 0.20	13.8	10.5	< 1.0	< 0.050	3,750	< 0.010	< 30	< 50	-	84.1	< 30	< 5.0	
	GL23-1-20160531	2016 05 31	< 50	84.8	< 100	228	25	-	205	< 1	< 5	70	< 1	40	0.4	< 5	< 0.5	< 2a	< 1	39	-	17	9	< 5	< 0.5	4,040	< 0.2	-	< 50	-	90	< 10	< 40	
	GL23-1-20170525	2017 05 25	< 10	82.6	< 30	229	33	14.9	191	< 0.50	< 1.0	72	< 5.0a	< 100	0.216	< 0.50	< 0.50	3.5	< 1.0	< 50	< 0.20	13.6	9.7	< 1.0	< 0.050	4,100	< 0.010	< 30	< 50	-	74.7	< 30	< 5.0	
	DUP3-20170525	Duplicate	< 10	85	< 30	228	43	15.8	203	< 0.50	< 1.0	78	< 5.0a	< 100	0.219	< 0.50	< 0.50	3.4	< 1.0	< 50	< 0.20	13.7	9.8	< 1.0	< 0.050	4,270	< 0.010	< 30	< 50	-	73.4	< 30	< 5.0	
	QA/QC RPD%			*	3	*	0	26	6	6	*	*	8	*	*	1	*	*	3	*	*	*	1	1	*	*	4	*	*	*	-	2	*	*
	GL23-1-180529	2018 05 29	< 5.0	86.2	< 10	254	19.3	15	201	< 0.20	< 0.50	63	< 0.10	29.9	0.1	< 0.50	0.35	20	0.6	38.9	< 0.010	12.4	10	< 0.50	< 0.050	4,000	< 0.020	0.82	< 5.0	< 1.0	77.7	< 1.0	< 4.0	
	GL23-1-190523	2019 05 23	< 5.0	87.3	< 10	231	5.34	15.7	199	< 0.20	0.56	71.7	< 0.10	34.4	0.076	0.8	0.35	1.95	< 0.20	42.5	< 0.010	13.6	10.6	< 0.50	< 0.050	4,940	< 0.020	< 0.20	< 5.0	< 1.0	80.5	< 1.0	< 4.0	
	GL23-1-190917	2019 09 17	< 5.0	85.2	< 10	222	455	14.5	191	< 0.20	0.52	72.8	< 0.10	31	0.409	1.23	0.42	2.72	< 0.20	39.8	-	16.7	13.5	< 0.50	< 0.050	4,780	< 0.020	< 0.20	< 5.0	< 1.0	75.6	1.1	< 4.0	
	GL23-1-200617	2020 06 17	< 1.0	85.7	< 2.0	192	316	13.7	178	< 0.050	0.581	64.8	< 0.010	30.4	0.0823	0.11	0.746	1.97	< 0.050	36.7	< 0.010	15	10.4	0.34	< 0.010	4,430	0.0073	< 0.050	< 0.20	< 0.20	68.9	0.97	1.2	
	GL23-1-200910	2020 09 10	1.2	101	< 2.0	213	870	14.9	189	< 0.050	0.561	69.6	< 0.010	29.5	0.321	0.15	0.69	3.02	< 0.050	41.7	-	17	13.3	0.26	< 0.010	4,640	0.0139	< 0.050	< 0.20	< 0.20	74.7	0.79	2.2	
	GL23-1-210513	2021 05 13	< 1.0	82.7	< 2.0	212	165	14.8	191	< 0.050	0.685	67.4	< 0.010	28.9	0.0358	0.33	0.574	1.68	< 0.050	36.7	< 0.010	13.8	9.61	0.29	< 0.010	3,980	< 0.0040	< 0.050	< 0.20	< 0.20	68.5	0.76	< 1.0	
	DUP 1-210513	Duplicate	< 1.0	90.1	< 2.0	210	146	14.7	189	< 0.050	0.672	65.9	< 0.010	31.3	0.0323	0.35	0.523	1.97	0.075	40.6	< 0.010	13.6	9.58	0.26	< 0.010	4,170	< 0.0040	< 0.050	< 0.20	< 0.20	74.6	0.6	< 1.0	
	QA/QC RPD%			*	9	*	1	12	1	1	*	2	2	*	8	10	*	9	16	*	10	*	1	0	*	*	5	*	*	*	-	9	*	*
GL24-1	GL23-1-220606	2022 06 06	2.9	86.3	4.5	232	309	16.3	197	<0.050	0.478	68.8	<0.010	37.9	0.0486	0.21	0.755	4.25	<0.050	39.6	< 0.010	14.4	8.48	0.2	0.022	4,770	<0.0040	0.065	0.29	<0.20	73.5	<1.00	<1.0	
	GL24-1-20100811	2010 08 11	94	93	190	242	1,400	15	254	< 2	2	80	< 0.4	90	0.19	< 4	1.4	< 10a	< 1	20	-	38	20	< 6	< 0.1	4,170	< 0.1	< 1	< 100	-	94	2	< 10	
	GL24-1-20160531	2016 05 31	< 50	73.6	< 100	203	7	-	210	< 1	< 5	70	< 1	100	< 0.1a	< 5	< 0.5	< 2a	< 1	25	-	11	3	9	< 0.5	2,470	< 0.2	-	< 50	-	75.9	< 10	< 40	
	GL24-1-180612	2018 06 12	< 5.0	91.6	< 10	260	342	12.6	391	< 0.20	1.6	61.7	< 0.10	78.6	0.342	< 0.50	1.95	5.47	< 0.20	43.1	< 0.010	24.9	15.1	2.39	< 0.050	3,760	< 0.020	< 0.20	< 5.0	< 1.0	154	2.8	< 4.0	
	GL24-1-20180927	2018 09 27	< 5.0	130	< 10	349	810	15.2	516	0.21	1.67	83.3	< 0.10	89.1	0.256	< 0.50	2.12	6.55	< 0.20	46.2	< 0.010	22.6	19.8	6.22	< 0.050	5,100	0.029	< 0.20	< 5.0	-	192	3.3	< 4.0	
	GL24-1-190917	2019 09 17	36.6	76.8	23	220	104	10.9	308	< 0.20	1.66	46.1	< 0.10	95.9	0.139	1.51	0.9	2.51	< 0.20	42.7	-	24.2	8.71	2.49	< 0.050	3,320	0.02	< 0.20	< 5.0	< 1.0	126	3	45.2	
	GL24-1-200910	2020 09 10	< 1.0	64.6	< 2.0	169	24.7	9.03	226	0.148	1.18	35.2	< 0.010	77.2	0.105	0.35	0.555	1.85	< 0.050	31.6	-	23.6	4.64	2.35	< 0.010	2,620	0.0154	0.053	0.88	< 0.20	101	0.84	1.1	
	GL25-1	GL25-1-20091117	2009 11 17	< 50a	246	< 100	223	3,030	13.3	242	< 2	2	80	< 0.4	< 40	0.2	< 4	6.7	< 10a	< 1	20	-	20	20	< 6	< 0.10	7,760	0.18	< 1	< 10	-	49	< 1	10
GL25-1	GL25-1-20100812	2010 08 12	221	209	< 100	233	2,330	12.5	234	< 2	< 2	50	< 0.4	< 40	0.1	10	5.3	< 10a	< 1	20	-	7	20	< 6	< 0.1	7,640	< 0.1	< 1	< 10	-	8	4	< 10	
	GL26-1-20091112	2009 11 12	< 50a	159	460	62.7	1,730	15.2	167	2	42	20	0.6	< 40	0.28	< 4	7	< 10a	< 1	180	-	275	30	< 6	< 0.10	1,670	< 0.1	< 1	< 10	-	52	< 1	< 10	
	GL26-1-20100812	2010 08 12	< 50a	128	850	50.5	1,800	13.9	135	< 2	33	20	0.7	< 40	< 0.1	6	0.8	< 10a	< 1	200	-	56	< 10	< 6	< 0.1	1,670	< 0.1	< 1	< 10	-	12	2	10	
	GL30-5-20100812	Duplicate	62	140	1,070	55.1	1,830	15.4	152	< 2	26	20	1.2	< 40	< 0.10	6	0.6	< 10a	< 1	190	-	51	< 10	< 6	< 0.1	1,670	< 0.1	< 1	< 10	-	11	2	10	
	QA/QC RPD%			*	9	23	9	2	10	12	*	24	0	53	*	0	29	*	5	-	9	*	*	*	*	0	*	*	*	-	9	0	0	
GL26-2	GL26-2-20091116	2009 11 16	< 50a	122	960	78.8	2,440	8.8	185	< 2	5	90	< 0.4	< 40	< 0.1	< 4	4	< 10a	< 1	60	-	25	< 10	< 6	< 0.10	1,550	< 0.1	< 1	< 10	-	27	1	< 10	
	GL26-2-20100812	2010																																

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																														
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L
GL27-1 (Cont'd)	GL27-1-20141118	2014 11 18	< 15a	13.4	882	12.9	117	13	619	< 0.50	28	419	< 5.0a	< 100	< 0.25a	< 2.5	< 0.50	< 2.5a	< 1.0	207	< 0.20	34.9	< 5.0	< 5.0	< 0.050	2,900	< 0.50	< 30	< 50	-	1.08	< 30	< 5.0
	GL27-1-20150610	2015 06 10	< 10	13.7	878	12.9	110	13.9	706	< 0.50	26.5	406	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	204	< 0.20	42.6	< 5.0	< 1.0	< 0.050	2,930	< 0.050	< 30	< 50	-	1.23	< 30	< 5.0
	GL27-1-20151104	2015 11 04	< 10	13.4	39	12.9	106	13.2	626	< 0.50	20.5	365	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	198	< 0.20	36.2	< 5.0	< 1.0	< 0.050	2,770	< 0.020	< 30	< 50	-	1.02	< 30	< 5.0
	GL27-1-20160526	2016 05 26	< 10	13.9	662	13.8	102	14.1	708	< 0.50	17.4	432	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	221	< 0.20	43.2	< 5.0	< 1.0	< 0.050	2,900	< 0.050	< 30	< 50	-	1.02	< 30	< 5.0
	DUP-1-20160526	Duplicate	< 10	13.1	637	12.9	99	13.4	684	< 0.50	17.9	412	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	212	< 0.20	43.5	< 1.0	< 1.0	< 0.050	2,810	< 0.050	< 30	< 50	-	1.02	< 30	< 5.0
QA/QC RPD%			*	6	4	7	3	5	3	*	3	5	*a	*	*	*	*	*	4	*	*	1	*	*	*	3	*	*	*	-	0	*	*
GL27-2	GL27-1-20160919	2016 09 19	< 10	14.2	695	13.5	104	13.5	633	< 0.50	17.8	433	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	204	< 0.20	37.2	< 5.0	< 1.0	< 0.050	2,970	< 0.050	< 30	< 50	-	0.9	< 30	< 5.0
	GL27-1-20170525	2017 05 25	< 10	14.5	713	14.3	101	14.2	710	< 0.50	33.1	451	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	233	< 0.20	79	< 5.0	< 1.0	< 0.050	3,120	< 0.050	< 30	< 50	-	0.94	< 30	< 5.0
	GL27-1-20170925	2017 09 25	< 10	14.1	690	13.8	95	13.7	645	< 0.50	17	438	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	220	< 0.20	44.9	< 5.0	< 1.0	< 0.050	2,960	< 0.020	< 30	< 50	-	0.82	< 30	< 5.0
	GL27-1-180815	2018 08 15	< 5.0	14.9	521	12.7	82.1	12.4	584	< 0.20	28.7	470	< 0.10	75	0.038	< 0.50	< 0.10	< 0.40a	< 0.20	217	< 0.010	51.2	< 0.40	< 0.50	< 0.050	3,200	< 0.020	< 0.20	< 5.0	< 1.0	1.4	< 1.0	< 4.0
	GL27-1-180919	2018 09 19	< 5.0	17.1	633	13.8	83.2	13	650	< 0.20	23.7	479	< 0.10	64.6	0.01	< 0.50	< 0.10	< 0.40a	< 0.20	228	< 0.010	29.2	< 0.40	< 0.50	< 0.050	3,180	< 0.020	< 0.20	< 5.0	1.2	0.965	< 1.0	< 4.0
	GL27-1-190527	2019 05 27	7.8	14.8	630	13	91.5	12.6	602	< 0.20	18	472	< 0.10	70	< 0.010	0.86	< 0.10	< 0.40a	< 0.20	216	< 0.010	20.9	< 0.40	< 0.50	< 0.050	3,220	< 0.020	< 0.20	< 5.0	1.4	0.983	< 1.0	< 4.0
	GL27-1-190919	2019 09 19	< 5.0	15.3	560	13.2	90.6	13.2	605	< 0.20	16.4	443	< 0.10	69.6	< 0.010	< 0.50	< 0.10	< 0.10	< 0.20	212	< 0.010	7.11	< 0.40	< 0.50	< 0.050	3,070	< 0.020	< 0.20	< 5.0	1.2	0.933	< 1.0	< 4.0
	GL27-1-200608	2020 06 08	2.8	16.7	636	12.5	90.8	13.5	712	< 0.050	17.7	474	0.025	60.4	0.0051	0.8	0.007	0.46	< 0.050	194	< 0.010	16.7	0.067	< 0.10	< 0.010	3,320	< 0.0040	< 0.050	0.24	1.35	0.666	0.31	1
	GL27-1-201022	2020 10 22	< 1.0	14.2	551	12.1	82.8	11	566	< 0.050	8.73	424	0.028	64.7	0.0099	< 0.10	0.007	< 0.10	< 0.050	200	< 0.010	13.4	< 0.040	< 0.10	< 0.010	2,880	< 0.0040	< 0.050	< 0.20	1.25	0.585	0.27	< 1.0
	GL27-1-210602	2021 06 02	< 1.0	17.4	112	14.4	116	13.4	672	< 0.050	14.9	458	0.015	68.2	0.0027	0.12	0.009	< 0.10	< 0.050	241	< 0.010	14.5	< 0.040	< 0.10	< 0.010	3,060	< 0.0040	< 0.050	< 0.20	1.28	0.741	< 0.20	< 1.0
	GL27-1-210924	2021 09 24	1.3	18.1	533	15	108	15	721	0.065	12.2	528	0.023	155	< 0.0020	0.27	0.015	0.19	< 0.050	231	< 0.010	9.23	0.08	< 0.10	< 0.010	2,900	< 0.0040	0.083	0.28	1.38	0.824	< 0.20	1
	GL27-1-220531	2022 05 31	<2.0	12.6	683	15.4	92.3	13.4	700	<0.100	10.1	459	0.033	67.4	<0.0080	<0.20	<0.010	<0.20	<0.100	211	< 0.010	29.9	0.144	<0.20	<0.020	2,980	<0.0080	<0.100	<0.40	1.36	0.566	<2.00	<2.0
	GL27-1-220927	2022 09 27	<2.0	15.1	625	12.8	82.9	13	611	<0.100	9.06	467	0.036	73.5	<0.0040	0.23	<0.010	<0.20	<0.100	216	< 0.010	34.4	<0.080	1.46	<0.020	3130	<0.0080	<0.100	<0.40	1.37	0.687	<2.00	<2.0
	GL27-1-20111217	2011 12 17	< 50a	13.6	1,140	12	178	11.2	604	2	59	410	< 0.4	70	0.13	8	< 0.2	< 10a	< 1	230	-	68	< 10	< 6	< 0.10	3,180	0.23	< 1	< 10	-	< 4	2	< 10
	GL27-2-20091116	2009 11 16	458	300	2,420	731	5,380	33	2,720	< 2	6	60	< 0.4	< 40	0.1	< 4	19.9	< 10a	< 1	50	-	59	30	< 6	< 0.10	15,000	0.28	< 1	15	-	90	3	< 10
	GL27-2-20100812	2010 08 12	410	298	690	679	1,940	40	2,900	< 2	7	40	< 0.4	60	< 0.1	8	9.2	< 10a	< 1	80	-	53	20	< 6	< 0.1	16,900	0.17	< 1	15	-	91	9	< 10
	GL27-3-20091112	2009 11 12	< 50a	354	1,440	1,200	996	26	3,300	< 2	9	20	< 0.4	< 40	0.17	< 4	7	< 10a	< 1	70	-	51	20	< 6	< 0.10	11,500	0.22	< 1	< 10	-	94	1	20
	GL27-3-20100812	2010 08 12	131	332	2,440	940	588	31	3,190	< 2	10	20	< 0.4	< 40	< 0.10	8	3.8	< 10a	< 1	80	-	53	10	6	< 0.1	11,500	< 0.1	< 1	< 10	-	70	3	10
	GL27-3-20110629	2011 06 29	32	370	1,690	1,030	374	25.6	3,070	< 0.2	1.7	14	< 0.04	15	0.1	4.8	4.04	6	< 0.1	71	-	64.4	10	41.6	< 0.01	11,000	0.02	< 0.1	< 10	-	66	1.8	5
	GL27-3-20111217	2011 12 17	< 50a	320	1,270	900	270	23.4	2,800	< 2	7	< 10	< 0.4	< 40	0.13	8	2.3	10	< 1	100	-	69	20	< 6	< 0.10	11,600	0.43	< 1	< 10	-	98	6	< 10
GL27-3-20120625	2012 06 25	< 50a	359	2,190	1,010	350	24	3,050	< 2	7	10	< 0.4	< 40	< 0.1	< 4	3.2	< 10a	< 1	70	-	58	10	< 6	< 0.10	11,400	< 0.1	< 1	< 100	-	75	1	20	
GL27-3-20121204	2012 12 04	< 50a	315	2,540	897	253	21.6	2,960	< 2.0	7.5	20	< 0.40	< 40	< 0.10	7.5	2.86	< 10a	< 1	70	-	62.3	10	6.2	< 0.10	9,440	< 0.10	< 1.0	< 100	-	97.4	2.16	< 10	
GL27-3-20130626	2013 06 26	< 60a	382	2,600	1,050	563	26	3,760	< 2.0	5.9	< 50	< 25a	< 500	< 1.0a	< 10a	2.6	< 10a	< 1.0	73	< 0.20	58.4	< 10	< 20	0.25	10,100	< 2.0	< 150	< 50	-	87.3	< 150a	< 25	
GL27-3-20131113	2013 11 13	< 60a	363	2,880	967	372	26	3,190	< 2.0	6.4	< 50	< 25a	< 500	< 1.0a	< 10a	< 2.0	< 10a	< 1.0	145	< 0.20	59.1	< 10	< 20	< 0.20	10,100	< 2.0	< 150	< 50	-	85.9	< 150a	< 25	
GL27-3-20140605	2014 06 05	< 60a	359	1,840	1,030	479	25	3,440	< 2.0	5.4	< 50	< 25a	< 500	< 1.0a	< 10a	< 2.0	< 10a	< 1.0	85	< 0.20	56.7	< 10	< 20	< 0.20	10,200	< 2.0	< 150	< 50	-	82.4	< 150a	< 25	
GL27-3-20141118	2014 11 18	< 30a	326	1,620	910	331	24	2,990	< 1.0	4.3	< 50	< 25a	< 500	< 1.0a	< 5.0	1.4	< 5.0a	< 1.0	73	< 0.20	58.6	< 5.0	< 10	< 0.10	9,270	< 1.0	< 150	< 50	-	84	< 150a	< 25	
GL27-3-20150610	2015 06 10	< 20	354	2,190	997	438	24	3,210	< 2.0	6	< 50	< 25a	< 500	< 0.10	< 2.0	< 2.0	< 4.0a	< 1.0	63	< 0.20	52.9	< 10	< 1.0	< 0.20	10,200	< 0.20	< 150	< 50	-	72.1	< 150a	< 25	
GL27-3-20151104	2015 11 04	< 10	316	1,190	873	298	22	2,780	< 1.0	3.3	< 50	< 25a	< 500	0.17	< 1.0	1.2	< 2.0a	< 1.0	72	< 0.20	57.6	< 5.0	< 1.0	< 0.10	9,000	< 0.10	< 150	< 50	-	79.4	< 150a	< 25	
GL27-3-20160524	2016 05 24	< 20	342	2,060	970	358	24	3,050	< 2.0	5	< 50	< 25a	< 500	0.12	< 2.0	< 2.0	< 4.0a	< 1.0	67	< 0.20	53.5	< 10	< 1.0	< 0.20	9,350	< 0.20	< 150	< 50	-	73.2	< 150a	< 25	
GL27-3-20170925	2017 09 25	< 10	361	2,630	1,010	435	25	3,400	< 1.0	5.8	< 50	< 25a	< 500	0.066	< 1.0	1.7	< 2.0a	< 1.0	69	< 0.20	49.8	< 5.0	< 1.0	< 0.10	9,860	< 0.10							

Associated CARO file(s): 8052631, 8052802, 8060237, 8060737, 8061100, 8081412, 8091680, 8092458, 8092618, 9052219, 9052399, 9052558, 9052754, 9052937, 9060273, 9091657, 9092001, 9092208, 9092404, 9120616.

Associated Exova file(s): 622178, 653600, 712940, 714233, 714243, 756693, 756810, 757047, 811364, 811710, 812030, 812741, 812985, 846260, 878316, 879073, 909346, 909448, 909654.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL28-1 (Cont'd)	GL28-1-20140603	2014 06 03	< 10a	188	1,420	274	209	9.4	537	< 0.50	3.4	< 20	< 5.0a	< 100	< 0.10	< 1.0	0.77	< 1.0a	< 1.0	99	< 0.20	13.4	< 5.0	< 2.0	< 0.050	5,370	< 0.20	< 30	< 50	-	116	< 30	< 5.0	
	GL28-1-20141117	2014 11 17	< 10a	197	1,540	292	212	9.9	559	< 0.50	3	< 20	< 5.0a	< 100	< 0.10	< 1.0	0.63	< 1.0a	< 1.0	91	< 0.20	13.2	< 5.0	< 2.0	< 0.050	5,700	< 0.20	< 30	< 50	-	118	< 30	< 5.0	
	GL28-1-20150611	2015 06 11	< 10	192	1,520	280	208	9.4	518	< 0.50	3.2	< 20	< 5.0a	< 100	< 0.050	< 0.50	0.6	< 1.0a	< 1.0	81	< 0.20	14	< 5.0	< 1.0	< 0.050	5,370	< 0.020	< 30	< 50	-	131	< 30	< 5.0	
	GL28-1-20151105	2015 11 05	< 10	190	1,600	274	214	9.6	553	< 0.50	3.1	< 20	< 5.0a	< 100	< 0.050	< 0.50	0.5	< 1.0a	< 1.0	88	< 0.20	13.9	< 5.0	< 1.0	< 0.050	5,850	< 0.020	< 30	< 50	-	122	< 30	< 5.0	
	GL28-1-20160524	2016 05 24	< 10	197	1,750	295	220	10.1	561	< 0.50	3.9	< 20	< 5.0a	< 100	< 0.050	< 0.50	0.58	< 1.0a	< 1.0	93	< 0.20	14.2	< 5.0	< 1.0	< 0.050	5,710	< 0.020	< 30	< 50	-	121	< 30	< 5.0	
	GL28-1-20160920	2016 09 20	< 10	194	1,800	305	260	10.4	557	< 0.50	3.5	< 20	< 5.0a	< 100	< 0.050	< 0.50	0.6	< 1.0a	< 1.0	87	< 0.20	12.5	< 5.0	< 1.0	< 0.050	5,790	< 0.020	< 30	< 50	-	123	< 30	< 5.0	
	GL28-1-20170711	2017 07 11	< 10	193	1,680	276	230	10	560	< 0.50	2.6	< 20	< 5.0a	< 100	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	90	< 0.20	12.2	< 5.0	< 1.0	< 0.050	5,500	< 0.020	< 30	< 50	-	109	< 30	< 5.0	
	GL28-1-20170926	2017 09 26	< 10	189	1,720	279	237	10.4	519	< 0.50	3.3	< 20	< 5.0a	< 100	< 0.050	< 0.50	0.55	< 1.0a	< 1.0	88	< 0.20	12.4	< 5.0	< 1.0	< 0.050	5,480	< 0.020	< 30	< 50	-	107	< 30	< 5.0	
	GL28-1-180528	2018 05 28	< 5.0	201	333	292	148	11.7	536	< 0.20	1.01	14.7	< 0.10	18.3	0.193	< 0.50	0.48	0.98	< 0.20	81.1	< 0.010	12.4	1.96	0.72	< 0.050	5,950	< 0.020	< 0.20	< 5.0	< 1.0	123	< 1.0	< 4.0	
	GL28-1-180925	2018 09 25	< 5.0	207	1,220	300	301	11.3	553	< 0.20	1.49	9.7	< 0.10	20.2	0.041	< 0.50	0.7	< 0.40a	< 0.20	85.9	< 0.010	12.9	1.85	< 0.50	< 0.050	6,000	< 0.020	< 0.20	< 5.0	< 1.0	115	< 1.0	< 4.0	
	DUP1-180925	Duplicate	< 5.0	207	1,280	295	313	11.9	544	< 0.20	1.75	10	< 0.10	10.1	0.039	< 0.50	0.71	1.15	< 0.20	69.3	< 0.010	13.1	1.93	< 0.50	< 0.050	5,910	< 0.020	< 0.20	< 5.0	< 1.0	114	< 1.0	< 4.0	
	QA/QC RPD%		*	0	5	2	4	5	2	*	16	3	*	67	*	*	1	*	*	21	*	2	*	*	*	2	*	*	*	*	*	1	*	*
	GL28-1-190528	2019 05 28	< 5.0	195	1,720	293	297	10.2	489	< 0.20	2.3	10.8	< 0.10	14.5	0.034	1.04	0.64	< 0.40a	< 0.20	91.1	< 0.010	13	1.66	< 0.50	< 0.050	6,420	< 0.020	< 0.20	< 5.0	< 1.0	119	< 1.0	< 4.0	
	GL28-1-190919	2019 09 19	< 5.0	193	1,710	284	300	9.94	448	< 0.20	2.36	10	< 0.10	18.8	0.021	< 0.50	0.6	< 0.10	< 0.20	80.7	< 0.010	12.4	1.71	< 0.50	< 0.050	6,190	< 0.020	< 0.20	< 5.0	< 1.0	120	< 1.0	< 4.0	
	GL28-1-200610	2020 06 10	< 1.0	214	1,720	300	287	10.7	461	< 0.050	3.37	10.1	0.014	18.6	0.0107	0.14	0.536	0.21	< 0.050	83	< 0.010	12.6	0.871	< 0.10	< 0.010	6,210	0.0044	< 0.050	< 0.20	< 0.20	112	0.3	1.3	
	DUPB-200610	Duplicate	< 1.0	208	1,760	269	276	10.3	415	< 0.050	3.67	10.9	0.019	11.1	0.012	0.17	0.541	0.22	< 0.050	62.6	< 0.010	13.1	0.906	< 0.10	< 0.010	6,270	0.005	< 0.050	< 0.20	< 0.20	112	0.24	1.4	
QA/QC RPD%		*	3	2	11	4	4	11	*	9	8	*	51	11	*	1	*	*	28	*	4	4	*	*	1	*	*	*	*	0	*	*		
GL28-1-201104	2020 11 04	< 1.0	237	1,770	306	320	11.5	454	< 0.050	2.9	9.69	0.022	16.4	0.0046	< 0.10	0.589	0.4	< 0.050	82.5	< 0.010	13.3	1.79	< 0.10	< 0.010	7,000	0.0045	< 0.050	< 0.20	< 0.20	118	< 0.20	1.4		
DUP3-201104	Duplicate	< 1.0	236	1,760	307	316	11.5	451	< 0.050	2.86	9.59	0.072	16.4	0.0059	< 0.10	0.577	2.83	< 0.050	84.1	< 0.010	13.1	1.76	< 0.10	< 0.010	7,000	0.0043	< 0.050	< 0.20	< 0.20	119	< 0.20	< 1.0		
QA/QC RPD%		*	0	1	0	1	0	1	*	1	1	*	0	*	2	*	*	2	*	2	2	*	*	0	*	*	*	*	*	1	*	*		
GL28-1-210609	2021 06 09	2.2	220	1,670	283	314	10.6	407	< 0.050	2.44	10	0.013	17	0.0057	0.15	0.565	0.34	< 0.050	82.9	< 0.010	12.1	1.76	< 0.10	< 0.010	5,950	0.0041	< 0.050	< 0.20	< 0.20	110	< 0.20	1.2		
GL28-1-211007	2021 10 07	6.7	195	1,830	333	341	11.7	442	< 0.050	2.68	10.6	0.014	12.3	0.0093	0.19	0.598	0.36	< 0.050	61.1	< 0.010	14.5	1.98	< 0.10	< 0.010	5,590	< 0.0040	< 0.050	< 0.20	< 0.20	123	< 0.20	< 1.0		
DUP 3-211007	Duplicate	13.7	192	1,880	330	334	12	454	< 0.050	2.96	10.9	< 0.010	12.1	0.0099	0.23	0.58	0.58	< 0.050	56.8	< 0.010	14.4	1.94	< 0.10	< 0.010	6,200	0.0043	< 0.050	< 0.20	< 0.20	121	< 0.20	< 1.0		
QA/QC RPD%		69	2	3	1	2	3	3	*	10	3	*	2	*	*	3	*	*	7	*	1	2	*	*	10	*	*	*	*	2	*	*		
GL28-2	GL28-1-220602	2022 06 02	1.3	193	6.8	289	154	10.4	392	0.382	1.08	18.3	< 0.010	15.1	0.207	0.2	0.633	1.83	< 0.050	78.6	< 0.010	12.3	3.49	0.37	0.015	5,540	0.0243	< 0.050	< 0.20	< 0.20	122	1.5	1.8	
	GL28-1-221006	2022 10 06	< 6.0	221	190	316	279	10.5	386	0.148	0.865	11.4	< 0.020	17.9	0.0613	< 0.20	0.984	1	< 0.100	73.2	< 0.010	12.3	2.61	< 0.20	< 0.020	6,100	0.013	< 0.100	< 0.40	< 0.40	133	< 2.00	< 2.0	
	GL28-2-20091116	2009 11 16	< 50a	245	< 100	224	62	12	561	< 2	< 2	< 20	< 0.4	< 40	0.1	< 4	0.5	< 10a	< 1	40	-	4	< 10	< 6	< 0.10	4,940	< 0.1	< 1	< 10	-	130	1	< 10	
	GL28-2-20160524	2016 05 24	< 10	308	< 30	261	33	11.4	698	< 0.50	< 1.0	< 20	< 5.0a	< 100	0.065	< 0.50	< 0.50	< 1.0a	< 1.0	< 50	< 0.20	5.5	< 5.0	1.6	< 0.050	5,890	< 0.050	< 30	< 50	-	183	< 30	< 5.0	
	GL28-2-20160920	2016 09 20																																

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL28-3	GL28-3-200610	2020 06 10	< 1.0	395	< 2.0	462	130	12.7	1,190	0.11	0.893	19.9	0.012	6	0.18	0.35	0.356	1.45	< 0.050	40.5	< 0.010	13.1	8.14	0.23	< 0.010	9,460	0.03	< 0.050	0.22	< 0.20	273	1.68	1.8	
	GL28-3-201105	2020 11 05	< 1.0	408	4.2	448	281	12.3	1,170	0.142	0.815	19.2	< 0.010	5	0.227	0.28	0.484	1.69	< 0.050	46.5	< 0.010	16.5	11.6	0.17	< 0.010	8,710	0.0416	0.087	0.34	< 0.20	269	2.02	3	
	GL28-3-210609	2021 06 09	1.7	339	< 2.0	479	27	12.6	1,170	0.157	0.684	18.5	< 0.010	6.6	0.0836	0.34	0.118	1.62	< 0.050	51.5	< 0.010	12.9	4.96	0.13	< 0.010	8,070	0.0194	< 0.050	< 0.20	< 0.20	255	1.22	4.3	
	GL28-3-211007	2021 10 07	1.2	351	2.2	537	186	15.2	1,230	0.139	0.82	21.5	< 0.010	4.5	0.208	0.34	0.191	1.42	< 0.050	32.7	< 0.010	17.3	9.09	0.29	< 0.010	8,300	0.0408	< 0.050	< 0.20	< 0.20	306	1.46	2	
	GL28-3-210602	2022 06 02	<100	613	<200	9520	364	212	22800	<5.00	13	349	<1.00	221	1.83	<10.0	2.26	116	<5.00	1,010	< 0.010	246	90.9	<10.0	<1.00	160000	<0.400	6.26	<20.0	<20.0	4950	<100	<100	
	GL28-3-221006	2022 10 06	<5.0	330	<10.0	505	120	11.7	1170	<0.250	0.721	15.8	<0.050	<10.0	0.194	<0.50	0.15	2.05	<0.250	40.9	< 0.010	13.2	8.5	<0.50	<0.050	8610	0.0324	<0.250	<1.00	<1.00	278	<5.00	<5.0	
GL29-1	GL29-1-20130708	2013 07 08	< 10a	82.5	217	57.8	658	10.5	272	< 0.50	3	60	< 5.0a	< 100	< 0.050	< 0.50	1.25	< 1.0a	< 1.0	114	< 0.20	8.8	< 5.0	< 1.0	< 0.050	2,530	< 0.20	< 30	< 50	-	12.1	< 30	< 5.0	
	GL29-1-20131113	2013 11 13	< 10a	83.7	597	69	1,130	9.8	315	< 0.50	5.1	98	< 5.0a	< 100	< 0.050	< 0.50	2.91	< 1.0a	< 1.0	82	< 0.20	15.8	8.3	< 1.0	< 0.050	2,580	< 0.20	< 30	< 50	-	23.7	< 30	< 5.0	
	DUP3-20131113	Duplicate	< 10a	84	593	69.3	1,130	9.7	311	< 0.50	5.1	96	< 5.0a	< 100	< 0.10	< 1.0	2.97	< 1.0a	< 1.0	79	< 0.20	15.8	8.5	< 2.0	< 0.050	2,570	< 0.20	< 30	< 50	-	22.8	< 30	< 5.0	
	QA/QC RPD%		*	0	1	0	0	1	1	*	0	2	*	*	*	2	*	*	4	*	0	2	*	*	*	0	*	*	*	*	-	4	*	*
	GL29-1-20140603	2014 06 03	< 10a	84.6	438	73.9	946	8.6	320	< 0.50	3.8	108	< 5.0a	< 100	< 0.050	< 0.50	7.65	< 1.0a	< 1.0	63	< 0.20	16.5	8.2	< 1.0	< 0.050	2,520	< 0.20	< 30	< 50	-	27.9	< 30	< 5.0	
	GL29-1-20141118	2014 11 18	< 10a	106	1,980	105	1,530	9.8	411	< 0.50	6.5	134	< 5.0a	< 100	< 0.10	< 1.0	14.4	< 1.0a	< 1.0	61	< 0.20	21	8.8	< 2.0	< 0.050	3,460	< 0.20	< 30	< 50	-	30.4	< 30	< 5.0	
	GL29-1-20150609	2015 06 09	< 10	99.5	823	92.4	1,250	9.3	391	< 0.50	4.5	111	< 5.0a	< 100	< 0.050	< 0.50	8.07	< 1.0a	< 1.0	51	< 0.20	20.2	8.8	< 1.0	< 0.050	3,370	< 0.020	< 30	< 50	-	31.6	< 30	< 5.0	
	GL29-1-20151105	2015 11 05	< 10	116	176	92.5	1,070	9.6	347	< 0.50	1.9	93	< 5.0a	< 100	0.057	< 0.50	12.6	5.3	< 1.0	< 50	< 0.20	23.3	18.7	< 1.0	< 0.050	3,100	< 0.020	< 30	< 50	-	36	< 30	< 5.0	
	GL29-1-20160524	2016 05 24	< 10	128	94	87.9	861	10.2	306	< 0.50	2.4	83	< 5.0a	240	0.097	0.58	5.88	13.5	< 1.0	< 50	< 0.20	29.9	30.1	< 1.0	< 0.050	2,880	< 0.020	< 30	< 50	-	46.9	< 30	< 5.0	
	GL29-1-20160921	2016 09 21	< 10	118	47	83.6	885	9.7	312	0.5	2.3	86	< 5.0a	190	0.2	< 0.50	14.5	13.5	< 1.0	< 50	< 0.20	28.9	30.1	< 1.0	< 0.050	3,050	< 0.020	< 30	< 50	-	49.9	< 30	< 5.0	
	GL29-1-20170529	2017 05 29	< 10	115	< 30	72.8	< 10	10.2	272	0.54	2.1	68	< 5.0a	210	0.07	< 0.50	1.64	13.4	< 1.0	51	< 0.20	23.8	19.8	< 1.0	< 0.050	2,770	< 0.010	< 30	< 50	-	41.1	< 30	< 5.0	
	GL29-1-20170926	2017 09 26	< 10	101	< 30	70.2	312	9.8	262	0.52	2.1	69	< 5.0a	170	0.297	< 0.50	12.6	8.8	< 1.0	52	< 0.20	21.4	21.2	< 1.0	< 0.050	2,730	< 0.010	< 30	< 50	-	38.2	< 30	< 5.0	
	DUP1-20170926	Duplicate	< 10	99.6	< 30	70.6	307	9.8	258	0.53	2.2	68	< 5.0a	170	0.305	< 0.50	13	9.1	< 1.0	53	< 0.20	21.6	22.3	< 1.0	< 0.050	2,690	< 0.010	< 30	< 50	-	38.6	< 30	< 5.0	
	QA/QC RPD%		*	1	*	1	2	0	2	*	5	1	*	0	3	*	3	3	*	2	*	1	5	*	*	*	*	*	*	*	-	1	*	*
	GL29-1-180604	2018 06 04	6.1	191	73	43.7	39.8	16	70.9	1.3	3.64	51.9	< 0.10	512	0.267	2.08	2.15	84	< 0.20	16.4	< 0.010	40.1	30.8	0.69	< 0.050	1,570	0.039	< 0.20	< 5.0	1.7	21.5	5.5	6.1	
	GL29-1-180919	2018 09 19	< 5.0	192	78	49.2	637	15.8	83.2	1.7	3.88	63.4	< 0.10	518	0.371	1.97	53	84.5	< 0.20	18.6	< 0.010	45	39.2	0.79	< 0.050	1,720	0.054	< 0.20	< 5.0	5.1	27.3	5.2	7.7	
	GL29-1-190603	2019 06 03	38.8	87.4	65	60.3	557	11.1	284	0.8	1.67	52.4	0.2	92	0.053	< 0.50	20.1	1.92	< 0.20	118	< 0.010	9.71	6.47	0.6	< 0.050	3,190	< 0.020	< 0.20	< 5.0	1	19	< 1.0	< 4.0	
	GL29-1-190924	2019 09 24	8.3	79.6	584	60.6	704	9.74	267	0.33	2.08	68.5	< 0.10	75.2	< 0.010	0.71	3.33	< 0.10	< 0.20	89.8	< 0.010	1.67	2.82	0.66	< 0.050	2,860	< 0.020	< 0.20	< 5.0	5.2	31.4	1.2	< 4.0	
	GL29-1-200612	2020 06 12	1.9	74.4	1,030	57	674	9.32	263	0.478	4.78	68.4	0.089	59.8	0.0043	0.19	33	< 0.10	< 0.050	99.1	< 0.010	8.96	2.52	0.11	< 0.010	2,880	< 0.0040	0.051	0.29	4.51	25.2	0.3	< 1.0	
	GL29-1-201120	2020 11 20	1.1	84.5	898	56.1	532	10.3	276	< 0.050	3.99	56	0.122	43.4	< 0.0020	0.15	47.6	< 0.10	< 0.050	95	< 0.010	8.94	1.39	< 0.10	< 0.010	3,000	< 0.0040	< 0.050	< 0.20	3.08	21.1	< 0.20	< 1.0	
	GL29-1-210611	2021 06 11	2.6	84.1	1,170	60.7	717	11.9	285	< 0.050	4.8	64.2	0.124	48.4	< 0.0020	0.16	124	< 0.10	< 0.050	101	< 0.010	9.2	1.84	< 0.10	< 0.010	2,940	< 0.0040	< 0.050	< 0.20	6.33	16.3	< 0.20	< 1.0	
	GL29-1-211006	2021 1																																

Table H2: Historical Summary of Analytical Results For Groundwater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Dissolved Metals																															
			Dissolved Aluminum µg/L	Dissolved Calcium mg/L	Dissolved Iron µg/L	Dissolved Magnesium mg/L	Dissolved Manganese µg/L	Dissolved Potassium mg/L	Dissolved Sodium mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Lead µg/L	Lithium µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Selenium µg/L	Silver µg/L	Strontium µg/L	Thallium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	
GL35-3 (Cont'd)	GL35-3-20170926	2017 09 26	< 10	196	25,000	369	374	32.9	2,110	< 0.50	< 1.0	< 30	< 15a	< 300	< 0.050	< 0.50	< 0.50	< 1.0a	< 1.0	368	< 0.20	< 1.0	< 5.0	< 1.0	< 0.050	8,380	< 0.050	< 90	< 50	-	3.75	< 90	< 15	
	GL35-3-180815	2018 08 15	< 5.0	211	24,800	374	443	34.1	1,980	< 0.20	0.67	17.2	< 0.10	87	< 0.010	0.52	< 0.10	< 0.40a	< 0.20	413	< 0.010	0.21	< 0.40	< 0.50	< 0.050	8,860	< 0.020	< 0.20	< 5.0	< 1.0	4.17	1.2	< 4.0	
	GL35-3-190530	2019 05 30	5.1	194	23,200	368	348	32	1,980	0.21	0.61	16.3	< 0.10	76.9	< 0.010	1.28	< 0.10	< 0.40a	< 0.20	421	< 0.010	0.27	0.46	< 0.50	< 0.050	9,410	< 0.020	< 0.20	< 5.0	< 1.0	7.01	1.3	< 4.0	
	GL35-3-200608	2020 06 08	3	228	16,700	392	377	37.1	2,040	< 0.050	0.842	15.9	0.066	55.4	0.0077	1.73	0.03	0.9	< 0.050	350	< 0.010	2.34	0.361	0.1	< 0.010	9,340	< 0.0040	< 0.050	1.16	< 0.20	21.9	1.25	< 1.0	
	DUPA-200608	Duplicate	2.9	213	15,900	376	363	36.2	2,090	< 0.050	0.82	15.8	0.059	50.2	0.0067	1.62	0.03	0.97	< 0.050	316	< 0.010	2.29	0.35	0.11	< 0.010	9,410	< 0.0040	< 0.050	1.19	< 0.20	21	1.23	< 1.0	
	QA/QC RPD%		*	7	5	4	4	2	2	*	3	1	11	10	*	7	0	7	*	10	*	2	3	*	*	1	*	*	*	3	*	4	2	*
	GL35-3-210610	2021 06 10	2.5	213	463	322	347	26.9	1,670	< 0.050	0.162	16.3	0.038	64.2	< 0.0020	< 0.10	0.015	0.19	< 0.050	408	< 0.010	2.14	0.427	< 0.10	< 0.010	7,440	< 0.0040	< 0.050	< 0.20	< 0.20	20.7	< 0.20	< 1.0	
	DUP3-210610	Duplicate	1.7	212	35.9	325	351	27.2	1,720	< 0.050	0.151	16.3	0.037	63.2	0.0022	< 0.10	0.017	0.16	< 0.050	413	< 0.010	2.16	0.403	< 0.10	< 0.010	7,470	< 0.0040	< 0.050	< 0.20	< 0.20	21.4	< 0.20	< 1.0	
	QA/QC RPD%		*	0	171	1	1	1	3	*	*	0	*	2	*	*	*	*	*	*	1	*	1	6	*	*	0	*	*	*	*	3	*	*
GL37	GL35-3-220531	2022 05 31	5.7	165	12.6	371	325	26.6	1,850	< 0.250	0.698	15.2	0.09	58.8	0.0183	< 0.50	< 0.0250	< 0.50	< 0.250	337	< 0.010	2.46	0.54	< 0.50	0.051	7,720	< 0.0200	< 0.250	< 1.00	< 1.00	20.3	< 5.00	< 5.0	
	GL37-20130708	2013 07 08	< 150a	285	6,850	1,250	1,160	200	6,650	< 5.0	15.2	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	176	< 2.5	< 100	< 0.20	104	57	< 50a	< 0.50	7,660	< 5.0a	< 300	< 100	-	251	< 300a	< 50	
	GL37-20131114	2013 11 14	< 150a	298	7,060	1,270	1,150	210	7,010	< 5.0	16.1	< 100	< 50a	< 1,000a	< 2.5a	< 25a	< 5.0	< 25a	< 2.5	< 100	< 0.20	103	< 25	< 50a	< 0.50	8,160	< 5.0a	< 300	< 100	-	236	< 300a	< 50	
GL39-1	GL39-1-191205	2019 12 05	< 5.0	180	< 10	326	161	12.4	406	< 0.20	< 0.50	14.8	< 0.10	20.4	0.07	< 0.50	1.4	0.89	< 0.20	61.6	< 0.010	21.5	1.89	4.89	< 0.050	5,690	0.034	< 0.20	< 5.0	< 1.0	191	< 1.0	< 4.0	
	GL39-1-200609	2020 06 09	1.1	229	< 2.0	376	31.8	14.2	476	< 0.050	0.333	13.5	< 0.010	15.9	0.0609	0.5	0.286	1.19	< 0.050	67.4	< 0.010	22.4	1.07	10.6	< 0.010	45.5	0.0157	< 0.050	< 0.20	< 0.20	219	0.42	1.4	
	GL39-1-201019	2020 10 19	1.7	253	3.9	324	10.2	13.5	380	< 0.050	0.472	12.4	< 0.010	8.4	0.0459	0.35	0.207	1.16	< 0.050	59.5	< 0.010	22.4	1.02	5.58	< 0.010	6,840	0.0144	< 0.050	0.24	< 0.20	219	0.23	1.4	
	GL39-1-210526	2021 05 26	2.2	325	< 2.0	605	18	16.5	566	< 0.050	0.372	14.1	< 0.010	20.9	0.0578	0.21	0.22	1.58	< 0.050	96	< 0.010	22.1	1	14.6	< 0.010	8,270	0.0184	< 0.050	< 0.20	< 0.20	310	< 0.20	1.2	
	GL39-1-210914	2021 09 14	2.5	284	9.1	466	16.1	16	578	0.059	0.619	14.3	< 0.010	33.6	0.0629	0.34	0.256	2.32	< 0.050	74.5	< 0.010	26.2	1.33	2.69	< 0.010	6,770	0.0189	< 0.050	< 0.20	< 0.20	276	< 0.20	1.9	
	GL39-1-220531	2022 05 31	2	237	< 4.0	492	13.4	13.9	571	< 0.100	0.328	11.9	< 0.020	13.7	0.0597	0.24	0.173	1.88	< 0.100	76.4	< 0.010	20.3	1.05	4.69	0.036	7,110	0.0149	< 0.100	< 0.40	< 0.40	244	< 2.00	< 2.0	
	GL39-1-220923	2022 09 23	6.8	235	< 4.0	399	11.4	14.7	483	< 0.100	0.275	10.4	0.021	14.3	0.0635	0.29	0.14	1.56	< 0.100	66.5	< 0.010	21.2	0.739	5.09	< 0.020	6,780	0.0237	< 0.100	< 0.40	< 0.40	240	< 2.00	< 2.0	
	GL39-2-191205	2019 12 05	5.7	183	< 10	360	13.3	11.3	741	< 0.20	0.51	16.2	< 0.10	15.2	0.05	12.9	0.16	1.75	< 0.20	28.6	< 0.010	21.5	2.18	12.2	< 0.050	4,940	< 0.020	< 0.20	< 5.0	< 1.0	131	< 1.0	< 4.0	
	GL39-2-200609	2020 06 09	4.5	188	8.8	349	6.72	9.71	1.27	0.059	0.419	12.3	< 0.010	9.7	0.048	7.3	0.137	1.74	< 0.050	23.6	< 0.010	23.2	1.33	4.73	< 0.010	27.6	0.0111	< 0.050	0.31	< 0.20	120	0.79	< 1.0	
GL39-2-201016	2020 10 16	1.6	117	< 2.0	230	4.88	7.93	531	0.082	0.422	12.9	< 0.010	10.9	0.0236	3.31	0.109	1.63	< 0.050	22.2	< 0.010	26.8	1.02	5.17	< 0.010	2,870	0.0089	0.132	< 0.20	< 0.20	89.8	0.61	< 1.0		
DUP1-201016	Duplicate	1.6	121	< 2.0	233	4.86	7.9	545	0.085	0.421	12.8	< 0.010	10.3	0.0213	3.29	0.105	1.48	< 0.050	22	< 0.010	26.9	1.02	5.22	< 0.010	2,840	0.0084	0.217	< 0.20	< 0.20	91.1	0.6	< 1.0		
QA/QC RPD%		*	3	*	1	0	0	3	*	0	1	*	6	10	1	4	10	*	1	*	0	0	1	*	*	1	*	*	*	*	*	1	*	*
GL39-2	GL39-2-210526	2021 05 26	1.4	106	< 2.0	201	5.71	7.24	430	< 0.050	0.404	10.9	< 0.010	11.8	0.0176	1.15	0.079	1.43	< 0.050	20.4	< 0.010	26.6	0.932	0.92	< 0.010	2,400	0.0067	0.055	0.22	< 0.20	80.6	0.38	< 1.0	
	DUP 2-210526	Duplicate	1.1	106	< 2.0	203	5.38	7.32	434	0.059	0.354	10.6	< 0.010	11.2	0.0176	1.13	0.083	1.67	< 0.050	20.7	< 0.010	26.5	0.906	0.95	< 0.010	2,440	0.0064	0.062	< 0.20	< 0.20	82.6	0.44	< 1.0	
	QA/QC RPD%		*	0	*	1	6	1	1	*	13	3	*	5	0	2	5	15	*	1	*	0	3	3	*	2	*	*	*	*	2	*	*	
	GL39-2-210914	2021 09 14	97.7	182	167	327																												

Table H3: Historical Summary of Analytical Results For Surface Water - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters															Dissolved Inorganics																
			pH	Hardness	pH (field)	Temperature	Conductivity	Field Conductivity	Total Dissolved Solids	Total Suspended Solids	Dissolved Organic Carbon	Total Nitrogen-N	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Nitrate+Nitrite Nitrogen	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bicarbonate	Kjeldahl Nitrogen-N	Bromide	Chemical Oxygen Demand	Phosphate	Ortho-Phosphate	Total Organic Carbon	Total Phosphorous as P		
BREDIN POND	Bredin Pond-20010611	2001 06 11	-	-	-	-	-	-	1,180	-	-	-	-	-	-	-	-	320	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	
	Bredin Pond-20010815	2001 08 15	-	-	-	-	-	-	1,360	-	-	-	-	-	-	-	-	375	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	
	Bredin Pond-20010920	2001 09 20	-	-	-	-	-	-	1,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.3	-	
	Bredin Pond-20080506	2008 05 06	8.46	-	-	-	-	1,470	-	1,000	-	-	140	< 20	-	-	79.8	-	198	546	-	-	-	-	-	0.75	-	14	-	< 0.01	11.2	-	-	
	Bredin Pond-20080507	2008 05 07	-	-	-	-	-	-	-	-	< 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20080520	2008 05 20	8.39	728	-	-	-	1,470	-	994	< 1	-	-	120	189	-	-	94	-	216	542	-	-	-	-	-	1.16	-	20	-	< 0.01	11.8	-	-
	Bredin Pond-20090521	2009 05 21	-	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20091119	2009 11 19	-	716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20130429	2013 04 29	8.82	757	-	-	-	1,860	-	1,170	< 3.0	-	-	28.9	< 100	-	-	128	1,530	285	-	-	-	-	-	-	< 1.0	42	-	0.0099	11.5	-	-	
	Bredin Pond-20130528	2013 05 28	8.56	745	-	-	-	1,910	-	1,050	< 3.0	-	-	90.8	< 100	-	-	135	1,150	286	-	-	-	-	-	-	< 1.0	35	-	0.105	9.4	-	-	
	Bredin Pond-20130718	2013 07 18	8.76	789	-	-	-	1,990	-	1,230	10.3	-	-	< 5.0	< 100	-	-	133	1,540	309	736	611	124	< 1.0	-	-	1.82	< 1.0	43	-	0.176	16.2	-	-
	Bredin Pond-20131016	2013 10 16	8.9	766	-	-	-	1,930	-	1,310	6.3	-	-	22.4	< 100	-	-	140	1,010	308	739	581	158	< 1.0	-	-	1.46	< 1.0	43	-	0.0011	11.2	-	-
	Bredin Pond-20140331	2014 03 31	8.66	759	-	-	-	1,950	-	1,240	< 3.0	-	-	96.8	460	-	-	129	1,170	307	724	617	107	< 1.0	-	-	1.09	< 1.0	34	-	0.056	9.83	-	-
	Bredin Pond-20140528	2014 05 28	8.86	754	-	-	-	1,960	-	1,280	3.1	-	-	12.3	< 100	-	-	134	1,480	315	628	494	134	< 1.0	-	-	1	< 1.0	34	-	0.0479	10.4	-	-
	Bredin Pond-20140828	2014 08 28	9.01	673	-	-	-	1,830	-	1,180	13.5	-	-	14.5	< 100	-	-	131	1,820	273	661	477	184	< 1.0	-	-	2.32	< 1.0	64	-	0.0016	15.2	-	-
	Bredin Pond-20150311	2015 03 11	-	721	-	-	-	1,790	-	1,110	< 3.0	-	-	80	1,080	-	-	120	1,190	257	638	542	96.2	< 1.0	-	-	0.97	< 0.50	22	-	0.0697	8.52	-	-
	Bredin Pond-20150616	2015 06 16	-	623	-	-	-	1,520	-	1,040	3.2	-	-	11.7	< 50	-	-	113	1,170	238	639	478	162	< 1.0	-	-	0.92	< 0.50	30	-	0.0045	9.01	-	-
	Bredin Pond-20151029	2015 10 29	9.27	553	-	-	-	1,560	-	980	< 3.0	-	-	34.1	356	-	-	107	1,100	216	574	390	184	< 1.0	-	-	0.94	< 0.50	32	-	0.0184	8.55	-	-
	BREDIN POND-20160518	2016 05 18	-	506	-	-	-	1,380	-	838	< 3.0	-	-	18.3	< 25	-	-	98.4	1,030	200	520	183	337	< 1.0	-	-	0.73	< 0.25	24	-	0.0048	8.31	-	-
	BREDIN POND-20160914	2016 09 14	-	597	-	-	-	1,540	-	980	< 3.0	-	-	8.5	< 50	-	-	112	1,190	222	592	421	171	< 1.0	-	-	0.87	< 0.50	38	-	< 0.0010	11.1	-	-
	BREDIN POND-20161116	2016 11 16	8.52	611	-	-	-	1,670	-	1,080	< 3.0	-	-	75.3	419	-	-	110	1,160	252	611	572	38.8	< 1.0	-	-	0.9	< 0.50	36	-	0.008	9.28	-	-
	BREDIN POND-20170418	2017 04 18	8.63	684	-	-	-	1,770	-	1,180	< 3.0	-	-	61.8	192	-	-	113	1,060	271	659	597	61.8	< 1.0	-	-	1.34	< 0.50	35	-	0.0033	11	-	-
	BREDIN POND-20170607	2017 06 07	8.72	732	-	-	-	1,880	-	1,170	4.9	-	-	73.6	< 50	-	-	125	1,250	306	705	619	86.4	< 1.0	-	-	0.98	< 0.50	28	-	0.0213	10.6	-	-
	BREDIN POND-20170907	2017 09 07	8.73	685	-	-	-	1,810	-	1,190	22.4	-	-	308	< 50	-	-	145	1,150	252	654	570	83.8	< 1.0	-	-	3.61	< 0.50	71	-	< 0.0010	19	-	-
	BREDIN POND-20171101	2017 11 01	8.41	649	-	-	-	1,720	-	1,030	3	-	-	215	939	-	-	145	1,220	223	617	591	26.6	< 1.0	-	-	1.19	< 0.50	21	-	0.0284	7	-	-
	BREDIN POND-180404	2018 04 04	8.77	580	9.08	9.4	1,450	1,235	918	65.3	-	3.27	176	897	< 10	897	128	870	144	477	389	88.2	< 1.0	44.1	-	2.37	0.17	76	0.0108	-	9.18	1	-	
	BREDIN POND-180523	2018 05 23	8.36	604	8.7	21.6	1,710	1,764	1,070	< 3.3	-	2.69	449	1,360	48	1,410	153	450	211	519	504	14.7	< 1.0	7.4	-	1.28	< 0.10	< 20	0.1	-	7.65	0.257	-	
	BREDIN POND-180906	2018 09 06	8.87	581	9.03	19.4	1,560	1,580	1,020	3.4	-	1.9	439	556	39	595	129	870	206	471	471	< 1.0	< 1.0	< 1.0	-	1.3	< 0.10	58	< 0.0050	-	10.8	0.159	-	
	BREDIN POND-181107	2018 11 07	8.31	586	8.24	8	1,600	1,389	964	2.6	-	2.6	880	1,110	82	1,190	149	760	207	509	501	7.3	< 1.0	3.6	-	1.42	< 1.00	29	0.0653	-	7.15	0.172	-	
	BREDIN POND-190329	2019 03 29	8.24	640	8.16	8.8	1,680	1,418	986	2.3	-	2.98	128	2,150	18	2,170	142	830	197	556	-	< 1.0	< 1.0	< 1.0	556	0.81	0.15	21	0.108	-	6.38	0.253	-	
	BREDIN POND-190605	2019 06 05	8.84	750	8.62	21.7	1,880	1,671	1,330	3	-	0.88	54	33	16	48.6	160	880	296	653	451	202	< 1.0	101	-	0.83	< 0.10	< 20	< 0.0050	-	8.11	0.288	-	
	BREDIN POND-190904	2019 09 04	9.17	721	9.63	21.6	1,870	1,715	1,220	5	9.45	1.04	135	< 10	< 10	< 10.0	178	980	281	624	328	296	< 1.0	148	-	1.04	< 0.10	27	-	0.0068	10.5	0.112	-	
	BREDIN POND-191023	2019 10 23	8.6	663	9.43	9.6	1,790	1,788	1,120	7.7	6.89	1.53	42	562	15	577	169	840	224	557	557	< 1.0	< 1.0	< 1.0	-	0.95	< 0.10	22	-	< 0.0050	7.25	0.08	-	
	BREDINPOND-200407	2020 04 07	8.44	627	9.05	8.8	1,630	1,470	1,040	7.2	5.93	1.92	206	664	21	685	166	680	184	481	452	29.3	< 1.0	14.6	-	1.24	< 0.10	< 20	-	< 0.0050	6.84	0.092	-	
	BREDINPOND-200605	2020 06 05	8.8	565	8.76	19.4	1,460	1,344	935	2	6.99	0.62	< 50	< 10	< 10	< 10.0	159	600	155	493	356	137	< 1.0	68.5	-	0.62	0.12	< 20	-	< 0.0050	7.04	0.059	-	
	BREDINPOND-200917	2020 09 17	8.89	736	8.98	21.6	1																											

Table H3: Historical Summary of Analytical Results For Surface Water - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters															Dissolved Inorganics														
			pH	Hardness	pH (field)	Temperature	Conductivity	Field Conductivity	Total Dissolved Solids	Total Suspended Solids	Dissolved Organic Carbon	Total Nitrogen-N	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Nitrate+Nitrite Nitrogen	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bicarbonate	Kjeldahl Nitrogen-N	Bromide	Chemical Oxygen Demand	Phosphate	Ortho-Phosphate	Total Organic Carbon	Total Phosphorous as P
NORTHEAST POND (Cont'd)	NE Pond-20150311	2015 03 11	-	810	-	-	2,240	-	1,510	8.8	-	-	180	< 100	-	-	143	1,390	413	791	660	131	< 1.0	-	-	1.59	< 1.0	44	-	0.199	12.8	-
	NE Pond-20150616	2015 06 16	-	870	-	-	2,240	-	1,670	3.4	-	-	15.1	< 100	-	-	155	1,540	486	888	727	161	< 1.0	-	-	1.28	< 1.0	49	-	0.307	14.1	-
	NE Pond-20151029	2015 10 29	9.08	941	-	-	2,780	-	2,060	3.6	-	-	50.3	< 100	-	-	183	1,540	551	949	690	258	< 1.0	-	-	1.58	< 1.0	55	-	0.146	16.9	-
	NE POND-20160914	2016 09 14	-	1,060	-	-	3,160	-	2,310	14.1	-	-	26.4	< 100	-	-	212	1,820	744	1,090	871	217	< 1.0	-	-	2.71	< 1.0	74	-	0.125	20.6	-
	NE POND-20161116	2016 11 16	8.47	1,010	-	-	2,960	-	2,130	4.5	-	-	2,090	< 100	-	-	185	1,560	644	992	939	53	< 1.0	-	-	3.17	< 1.0	52	-	0.357	15.9	-
	NE POND-20170418	2017 04 18	8.62	944	-	-	2,460	-	1,630	3.6	-	-	73.4	< 100	-	-	146	1,320	539	852	766	85.4	< 1.0	-	-	1.11	< 1.0	33	-	0.085	13	-
	NE POND-20170607	2017 06 07	8.86	967	-	-	2,500	-	1,730	6.9	-	-	11.2	< 100	-	-	155	1,560	586	876	719	157	< 1.0	-	-	1.05	< 1.0	35	-	0.3	15	-
	NE POND-20170907	2017 09 07	9.31	1,050	-	-	2,790	-	2,070	4.2	-	-	71.8	< 100	-	-	192	1,570	685	933	530	403	< 1.0	-	-	2.13	< 1.0	57	-	0.15	20.7	-
	NE POND-20171101	2017 11 01	9.11	1,060	-	-	2,740	-	1,980	3.6	-	-	122	< 100	-	-	207	1,790	676	945	651	294	< 1.0	-	-	1.32	< 1.0	53	-	0.226	15.8	-
	NE SAMPLE-20160518	2016 05 18	-	913	-	-	2,760	-	1,950	< 3.0	-	-	21.9	< 100	-	-	167	1,440	598	943	747	196	< 1.0	-	-	1.29	< 1.0	47	-	0.172	17.2	-
	NORTHEAST POND-180404	2018 04 04	8.81	961	8.95	8.8	2,400	1,965	1,670	6.4	-	0.96	40	17	< 10	16.8	13.2	1,210	483	757	568	189	< 1.0	94.3	-	0.94	0.48	59	0.133	-	12.8	0.48
	NORTHEAST POND-180523	2018 05 23	8.8	937	8.72	24.1	2,440	2,436	1,740	< 2.5	-	0.99	67	< 10	< 10	< 10.0	133	920	431	717	542	175	< 1.0	87.6	-	0.99	< 0.10	< 20	0.0154	-	13.8	0.081
	NORTHEAST POND-180906	2018 09 06	8.52	1,180	8.84	17.9	3,100	385	2,210	106	-	3.4	154	< 100	< 100	< 100	176	2,260	518	1,120	1,020	99.6	< 1.0	49.8	-	3.4	< 1.00	116	0.066	-	20.8	1.24
	NORTHEAST POND-181107	2018 11 07	8.45	1,030	8.61	7.7	2,170	2,050	1,570	41.5	-	2.37	133	< 10	< 10	< 10.0	164	1,360	456	787	725	61.8	< 1.0	30.9	-	2.37	< 1.00	67	0.0951	-	18.3	0.452
	Northeast Pond	2019 03 29	8.49	724	8.72	10.9	1,910	1,577	1,080	28.5	-	1.36	24	< 10	< 10	< 10.0	113	1,010	349	603	-	46.7	< 1.0	23.4	556	1.36	0.23	49	0.109	-	8.16	0.383
	Northeast Pond	2019 06 05	8.6	1,010	8.33	22.4	2,570	2,267	1,800	7.2	-	1.33	195	< 10	< 10	< 10.0	161	1,260	506	858	712	146	< 1.0	72.9	-	1.33	< 0.10	32	< 0.0050	-	12.1	0.31
	Northeast Pond	2019 09 04	8.98	1,040	9.62	19.8	2,620	2,484	1,710	8.7	14	1.22	60	< 10	< 10	< 10.0	180	1,670	546	907	584	323	< 1.0	161	-	1.22	< 0.10	40	-	< 0.0050	14.5	0.144
	NE Pond	2019 10 23	8.52	1,040	9.04	9	2,710	2,659	1,850	3.8	11.2	1.25	225	224	< 10	224	194	1,600	523	987	987	< 1.0	< 1.0	< 1.0	-	1.02	< 0.10	35	-	< 0.0050	11.5	0.347
	NEPOND-200407	2020 04 07	8.46	1,000	9	9.3	2,470	2,264	1,810	2.4	11	0.86	< 50	< 10	< 10	< 10.0	167	1,370	543	821	753	68.3	< 1.0	34.2	-	0.86	< 0.10	34	-	< 0.0050	11	0.314
	NEPOND-200605	2020 06 05	8.72	1,050	8.67	20.2	2,460	2,311	1,820	3.2	14.5	1.33	199	< 10	< 10	< 10.0	160	1,310	488	870	662	208	< 1.0	104	-	1.33	< 0.10	48	-	0.104	15.2	0.357
	NEPOND-200918	2020 09 18	8.82	1,030	8.85	18.4	2,750	2,914	2,380	10.2	25.8	3.66	422	< 10	< 10	-	194	1,660	541	992	703	289	< 1.0	144	-	3.66	0.26	93	-	0.0212	26.3	0.457
	NEPOND-201028	2020 10 28	8.5	1,030	8.69	4.5	2,660	2,758	1,580	12.4	18.4	2.33	180	31	< 10	31.1	139	1,220	397	907	798	109	< 1.0	54.5	-	2.3	< 0.10	69	-	< 0.0050	19	0.322
	NE POND-210323	2021 03 23	8.42	963	8.5	6.5	2,200	2,392.00	1,640	6	12.4	0.97	< 50	< 10	< 10	< 10.0	143	1,380	424	851	801	50	< 1.0	25	-	0.97	< 1.00	42	-	< 0.0050	14.1	0.243
	NE POND-210616	2021 06 16	8.89	1,080	8.83	23.6	2,420	2,729	1,800	9.2	13.4	1.43	112	< 10	< 10	< 10.0	186	1,660	541	990	724	266	< 1.0	133	-	1.43	< 0.10	45	-	< 0.0050	13.8	0.227
	NE POND-211019	2021 10 19	8.6	1,220	8.7	10.8	2,960	2,980.80	2,040	-	14.8	1.95	735	< 10	25	25	201	1,840	569	1,020	846	172	< 1.0	86.2	-	1.92	< 1.00	41	-	< 0.0050	17	0.218
	NE POND-220322	2022 03 22	8.43	977	-	-	2,630	2,640	1,740	-	11.1	1.21	< 50	< 10	< 10	< 10	173	1,440	513	907	847	60.7	< 1.0	30.3	-	1.21	0.31	126	< 0.0050	-	-	0.36
	NE POND-220621	2022 06 21	8.72	942	-	-	2,660	2,833	1,950	-	26	1.66	59	< 100	< 10	< 100	184	1,130	545	944	714	230	< 1.0	115	-	1.66	< 1.00	50	0.128	-	-	0.512
	NE POND-220912	2022 09 12	9.42	1,140	-	-	2,850	2,915	1,840	-	19.4	1.79	266	< 10	< 10	< 10	220	2,000	655	1020	430	590	< 1.0	295	-	1.79	< 0.10	65	< 0.0050	-	-	0.179
	NE POND-221019	2022 10 19	8.97	1,250	-	-	2,890	2,900	1,870	-	18.2	1.4	< 50	20	< 10	20.3	210	1,900	624	928	593	334	< 1.0	167	-	1.38	< 0.10	46	< 0.0050	-	-	0.123
SLOUGH	Alki Lake-20080506	2008 05 06	9.49	-	-	-	20,000	-	17,500	-	-	-	490	23	-	-	1,050	-	4,680	7,420	-	-	-	-	-	13.1	-	556	-	< 1.00	285	-
	Alki Lake-20080507	2008 05 07	-	-	-	-	-	-	-	242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Alki Lake-20080520	2008 05 20	9.43	1,070	-	-	22,000	-	18,400	88	-	-	1,770	25	-	-	1,130	-	4,980	8,220	-	-	-	-	-	20.8	-	440	-	< 1.00	307	-
	Alki Lake-20091119	2009 11 19	-	1,120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Slough-20010619	2001 06 19	-	-	-	-	-	-	24,200	-	-	-	-	-	-	-	-	-	6,850	-	-	-	-	-	-	-	-	-	-	-	260	-
	Slough-20Sl																															

Table H3: Historical Summary of Analytical Results For Surface Water - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters																	Dissolved Inorganics													
			pH	Hardness	pH (field)	Temperature	Conductivity	Field Conductivity	Total Dissolved Solids	Total Suspended Solids	Dissolved Organic Carbon	Total Nitrogen-N	Ammonia, Total (as N)	Nitrate (as N)	Nitrite (as N)	Nitrate+Nitrite Nitrogen	Chloride	Fluoride	Sulfate	Total Alkalinity	Alkalinity, Bicarbonate (as CaCO3)	Alkalinity, Carbonate (as CaCO3)	Alkalinity, Hydroxide (as CaCO3)	Alkalinity, Phenolphthalein (as CaCO3)	Bicarbonate	Kjeldahl Nitrogen-N	Bromide	Chemical Oxygen Demand	Phosphate	Ortho-Phosphate	Total Organic Carbon	Total Phosphorous as P	
SLOUGH (Cont'd)	SLOUGH-20170607	2017 06 07	9.04	738	-	-	7,660	-	5,880	11.3	-	-	574	< 250	-	-	504	< 1,000	2,010	2,160	1,650	505	< 1.0	-	-	6.85	4.1	245	-	2.54	89	-	
	SLOUGH-20170907	2017 09 07	9.03	1,070	-	-	13,500	-	11,000	15.8	-	-	1,090	< 500	-	-	944	< 2,000a	3,580	4,700	3,410	1,300	< 1.0	-	-	17.2	5.6	644	-	5.6	232	-	
	SLOUGH-20171101	2017 11 01	9.1	1,210	-	-	15,000	-	12,000	39.6	-	-	701	< 500	-	-	1,060	< 2,000a	3,980	4,050	2,820	1,220	< 1.0	-	-	19.4	6.8	630	-	5.68	261	-	
	SLOUGH-180404	2018 04 04	8.94	744	8.85	10.5	3,660	2,328	2,440	41	-	9.47	168	1,080	108	1,190	274	660	791	902	656	246	< 1.0	123	-	8.28	1.09	250	1	-	65.1	2.78	
	SLOUGH-180523	2018 05 23	8.82	840	8.63	26.3	6,050	6,029	4,440	11.5	-	10.5	1,330	< 250	< 10	< 250	391	590	1,310	1,540	1,220	322	< 1.0	161	-	10.5	< 2.50	299	2.57	-	117	3.46	
	SLOUGH-180906	2018 09 06	9.02	1,170	9.16	18.9	12,100	11,069	10,200	26.2	-	20	516	< 100	< 100	< 100	695	1,230	2,480	3,480	3,480	< 1.0	< 1.0	< 1.0	-	20	3.9	627	2.28	-	306	6.33	
	SLOUGH-181107	2018 11 07	9.04	1,120	8.97	7.4	6,930	6,117	5,520	41.2	-	12.5	926	101	< 100	101	544	< 1,000	1,910	1,830	1,270	552	< 1.0	276	-	12.4	1.14	355	1.94	-	193	2.67	
	Slough	2019 03 29	8.94	662	9.11	9.8	3,670	3,169	2,470	20	-	6.49	138	< 100	< 100	< 100	257	< 1,000	766	946	-	245	< 1.0	122	701	6.49	< 1.00	176	0.797	-	53	1.44	
	Slough	2019 06 05	8.92	879	8.69	21	6,270	5,270	4,620	14.8	-	8.16	627	< 100	< 100	< 100	438	< 1,000	1,470	1,660	1,230	435	< 1.0	217	-	8.16	< 1.00	241	0.814	-	89.2	2.34	
	Slough	2019 09 04	9.11	1,010	9.21	21.3	10,200	9,072	7,930	43.7	135	13.5	281	< 100	< 100	< 100	748	< 1,000	2,460	2,590	1,740	848	< 1.0	424	-	13.5	2.95	399	-	1.12	139	2.65	
	Slough	2019 10 23	9.14	1,090	9.44	11	10,200	9,820	8,030	97.7	132	13.7	408	< 100	< 100	< 100	759	< 1,000	2,560	2,430	2,430	< 1.0	< 1.0	< 1.0	-	13.7	3.5	525	-	0.825	142	3.61	
	SLOUGH-200407	2020 04 07	9.03	778	9.41	9.9	5,070	4,428	3,770	37.5	74.6	9.78	192	< 10	< 10	< 10.0	365	500	1,210	1,170	810	365	< 1.0	182	-	9.78	1.44	281	-	0.36	84.3	1.67	
	SLOUGH-200605	2020 06 05	9.02	867	9.01	20.6	5,220	5,012	4,260	18.4	78.6	6.93	382	< 10	34	33.8	385	530	1,280	1,430	973	457	-	229	-	6.89	1.62	199	-	0.864	80	1.77	
	SLOUGH-200918	2020 09 18	9.61	893	9.63	18.6	8,600	9,004	7,100	13.8	117	7.88	211	< 10	< 10	-	699	710	2,280	2,100	821	1,280	-	642	-	7.88	< 2.50	291	-	< 0.0050	119	0.196	
	SLOUGH-201028	2020 10 28	9.29	895	9.56	3.6	8,480	8,543	6,200	39.7	121	10.7	115	< 250	< 10	< 250	648	590	2,080	2,010	1,140	864	-	432	-	10.7	< 2.50	291	-	< 0.0050	137	1.19	
	SLOUGH-210323	2021 03 23	8.78	918	9.03	8.5	3,900	4,350	3,190	30.4	50.2	4.5	559	< 100	< 100a	< 100	322	< 1,000	941	1,070	827	247	-	124	-	4.5	1.07	154	-	0.205	53.2	0.83	
	Slough	2021 06 17	8.74	1,170	8.73	19.4	5,850	6,399.00	4,980	34.4	66.5	8.12	2,460	< 100	< 100a	< 100	439	< 1,000	1,590	1,590	1,270	317	-	158	-	8.12	1.44	214	-	1.21	72.4	1.37	
	SLOUGH-210921	2021 09 21	9.25	2,050	9.23	17.5	12,500	12,713.00	9,900	-	125	16.2	331	< 100	< 100a	< 100	1,040	< 1,000	3,840	2,910	1,630	1,280	-	642	-	16.2	3.7	455	-	0.221	127	1.83	
	SLOUGH-211020	2021 10 20	9.33	1,650	9.52	8.7	13,200	12,068	8,700	-	132	17.2	255	< 100	< 100a	< 100	911	< 1,000	3,380	2,890	1,550	1,340	-	672	-	17.2	3.45	489	-	0.11	134	2.18	
	SLOUGH-220322	2022 03 22	9.28	837	-	-	5,210	2,695	3,760	-	54.5	7.5	148	<100	<100	<100	397	<1,000	1,340	1,170	605	566	<1.0	283	-	7.5	1.29	258	0.199	-	-	1.35	
	SLOUGH-220621	2022 06 21	8.66	970	-	-	6,020	6,174	4,690	-	66.3	9.28	4,120	<100	110	110	487	<1,000	1,640	1,390	1,130	259	<1.0	129	-	9.18	<1.00	196	0.92	-	-	2.05	
	SLOUGH-220909	2022 09 09	9.17	1,290	-	-	10,100	10,445	8,110	-	138	13.4	425	<100	<100	<100	880	<1,000	3,030	2,240	1,470	775	<1.0	388	-	13.4	<1.00	463	0.244	-	-	1.34	
	SLOUGH-221019	2022 10 19	9.16	1,690	-	-	10,900	11,216	8,760	-	125	14.3	273	<100	<100	<100	1000	<1,000	3,530	2,210	1,400	814	<1.0	407	-	14.3	3.38	417	0.19	-	-	1.73	
TUTT POND	Tutt Pond-20010611	2001 06 11	-	-	-	-	-	-	630	-	-	-	-	-	-	-	-	-	89	-	-	-	-	-	-	-	-	-	-	-	31.7	-	
	Tutt Pond-20010815	2001 08 15	-	-	-	-	-	-	4,140	-	-	-	-	-	-	-	-	-	1,200	-	-	-	-	-	-	-	-	-	-	-	-	44	-
	Tutt Pond-20010920	2001 09 20	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.8	-
	Tutt Pond-20080506	2008 05 06	8.35	-	-	-	2,130	-	1,320	-	-	-	240	65	-	-	123	-	318	605	-	-	-	-	-	1.07	-	28	-	0.15	18.1	-	-
	Tutt Pond-20080507	2008 05 07	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tutt Pond-20080520	2008 05 20	8.3	850	-	-	2,000	-	1,420	2	-	-	230	60	-	-	142	-	371	636	-	-	-	-	-	1.58	-	31	-	0.3	20	-	-
	Tutt Pond-20090521	2009 05 21	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tutt Pond-20091119	2009 11 19	-	967	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tutt Pond-20130429	2013 04 29	8.65	831	-	-	2,340	-	1,620	7.1	-	-	335	< 100	-	-	176	1,300	529	-	-	-	-	-	-	-	< 1.0	35	-	0.355	12.6	-	-
	Tutt Pond-20130528	2013 05 28	8.71	894	-	-	2,460	-	1,670	3.3	-	-	81.6	< 100	-	-	182	900	540	-	-	-	-	-	-	-	< 1.0	37	-	0.33	11.6	-	-
	Tutt Pond-20130718	2013 07 18	8.82	869	-	-	2,430	-	1,560	3	-	-	20	< 100	-	-	184	1,300	542	665	535	130	< 1.0	-	-	1.26	< 1.0	36	-	0.273	12.3	-	-
	Tutt Pond-20130819	2013 08 19	8.69	874	-	-	2,540	-	1,720	3.9	-	-	52	< 100	-	-	191	1,430	566	699	5												

Table H3: Historical Summary of Analytical Results For Surface Water - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters																	Dissolved Inorganics																
			pH	Hardness mg/L	pH (field)	Temperature C	Conductivity µS/cm	Field Conductivity µS/cm	Total Dissolved Solids mg/L	Total Suspended Solids mg/L	Dissolved Organic Carbon mg/L	Total Nitrogen-N mg/L	Ammonia, Total (as N) µg/L	Nitrate (as N) µg/L	Nitrite (as N) µg/L	Nitrate+Nitrite Nitrogen µg/L	Chloride mg/L	Fluoride µg/L	Sulfate mg/L	Total Alkalinity mg/L	Alkalinity, Bicarbonate (as CaCO3) mg/L	Alkalinity, Carbonate (as CaCO3) mg/L	Alkalinity, Hydroxide (as CaCO3) mg/L	Alkalinity, Phenolphthalein (as CaCO3) mg/L	Bicarbonate mg/L	Kjeldahl Nitrogen-N mg/L	Bromide mg/L	Chemical Oxygen Demand mg/L	Phosphate mg/L	Ortho-Phosphate mg/L	Total Organic Carbon mg/L	Total Phosphorous as P mg/L				
TUTT POND (Cont'd)	TUTT POND-20171101	2017 11 01	8.39	1,100	-	-	2,930	-	2,100	6	-	-	973	150	-	216	990	852	780	749	31.4	< 1.0	-	-	2.2	< 1.0	36	-	-	0.502	12.8	-				
	TUTT POND-180404	2018 04 04	8.68	792	8	6.6	1,970	2,158	1,390	63.3	-	1.93	135	11	< 10	11.2	141	720	409	476	401	74.8	< 1.0	37.4	-	1.92	0.24	73	0.0069	-	14.3	0.388				
	TUTT POND-180417	2018 04 17	8.64	799	8.66	9.3	2,080	2,184	1,470	22.7	-	12.6	39	4,930	< 10	4,930	145	570	443	510	449	61.2	< 1.0	30.6	-	7.67	0.18	34	< 0.0050	-	11	0.065				
	TUTT POND-180503	2018 05 03	8.62	681	8.02	6.1	1,740	1,539	1,110	< 5.0	-	3.13	442	584	22	606	157	650	225	475	413	61.2	< 1.0	30.6	-	2.52	< 0.10	24	0.024	-	10.6	0.087				
	TUTT POND-180523	2018 05 23	8.46	708	8.49	22.4	1,930	1,987	1,210	< 2.0	-	2.11	161	803	65	868	182	540	276	530	500	30.3	< 1.0	15.2	-	1.24	< 0.10	< 20	0.0578	-	9.64	0.227				
	TUTT POND-180615	2018 06 15	8.46	831	8.83	17.9	2,140	1,821	1,420	7.3	-	2.15	78	225	32	256	174	930	364	573	539	33.7	< 1.0	16.9	-	1.89	0.21	44	0.018	-	10.6	0.232				
	TUTT POND-180712	2018 07 12	8.82	748	9.04	23.7	2,050	1,902	1,410	3	-	1.01	46	< 100	< 10	< 100	160	830	354	586	433	152	< 1.0	76.2	-	1.01	< 1.00	32	0.0821	-	11.6	0.197				
	TUTT POND-180906	2018 09 06	8.64	857	8.9	18.7	2,300	228.3	1,620	15.2	-	1.46	337	157	< 100	157	177	1,280	507	527	441	85.9	< 1.0	42.9	-	1.3	< 1.00	49	< 0.0500	-	14.2	0.362				
	TUTT POND-181107	2018 11 07	8.39	909	8.37	7.9	2,150	1,882	1,400	8.4	-	1.71	297	500	53	552	175	790	504	586	562	23.9	< 1.0	11.9	-	1.16	< 1.00	39	0.132	-	11.1	0.322				
	Tutt Pond	2019 03 29	8.22	792	8.33	9	1,940	1,618	1,230	12.3	-	2.5	248	1,180	23	1,200	136	600	396	498	-	< 1.0	< 1.0	< 1.0	498	1.3	0.13	28	0.23	-	7.49	0.472				
	Tutt Pond	2019 05 06	8.47	975	8.5	17.3	2,400	2,076	1,660	5.4	-	1.02	191	64	12	75.3	192	650	636	628	582	46.6	< 1.0	23.3	-	0.94	0.16	45	0.0646	-	9.54	0.233				
	Tutt Pond	2019 06 05	8.69	865	8.67	21.6	2,260	2,031	1,690	4.6	-	1.27	94	174	14	188	182	740	484	664	525	139	< 1.0	69.6	-	1.08	< 0.10	31	0.0075	-	9.46	0.33				
	Tutt Pond	2019 09 04	8.76	912	8.84	21.3	2,500	2,312	1,660	10.7	12.1	1.37	181	< 10	< 10	< 10.0	202	870	565	680	510	170	< 1.0	85.1	-	1.37	< 0.10	52	-	0.0082	13	0.343				
	Tutt Pond	2019 10 23	8.48	1,040	8.76	9.3	2,860	2,818	2,080	3	11.3	1.74	669	44	42	86.6	211	820	723	688	688	< 1.0	< 1.0	< 1.0	-	1.65	< 0.10	32	-	0.0988	11.3	0.494				
	TUTTPOND-200407	2020 04 07	8.4	842	8.95	8	2,330	2,032	1,630	4.4	8.99	1.02	132	15	< 10	14.8	199	690	536	551	523	28.4	< 1.0	14.2	-	1	< 0.10	29	-	0.0128	9.2	0.124				
	TUTTPOND-200605	2020 06 05	8.68	819	8.72	19.1	2,140	1,981	1,560	3.4	10.5	0.95	< 50	< 10	< 10	< 10.0	189	640	442	608	468	140	< 1.0	70.1	-	0.95	0.16	35	-	0.0982	11	0.312				
	TUTTPOND-200918	2020 09 18	8.58	917	8.7	19.1	2,520	2,688	2,050	3	16.2	1.38	226	< 10	< 10	-	212	840	591	665	558	108	< 1.0	53.8	-	1.38	< 1.00	53	-	0.0431	16.4	0.306				
	TUTTPOND-201028	2020 10 28	8.12	1,130	8.07	6.1	3,050	3,131	2,040	9.3	19.4	3.16	1,590	10	< 10	10.2	227	790	788	748	748	< 1.0	< 1.0	< 1.0	-	3.14	0.26	48	-	< 0.0050	19.4	0.935				
	TUTT POND-210323	2021 03 23	8.42	990	8.63	7.7	2,250	2,541	1,780	9.2	7.67	1.32	< 50	< 10	< 10	< 10.0	185	670	573	624	589	35.2	< 1.0	17.6	-	1.32	< 1.00	46	-	< 0.0050	11.7	0.164				
	TUTT POND-210616	2021 06 16	8.53	1,140	8.49	20	2,670	2,976.00	2,180	3.6	15.7	1.49	169	< 10	< 10	< 10.0	240	780	752	771	654	117	< 1.0	58.4	-	1.49	< 0.10	46	-	< 0.0050	15.8	0.371				
	TUTT POND-210921	2021 09 21	8.62	1,250	8.56	15.9	3,180	3,201.00	2,340	-	12.6	1.43	153	< 10	< 10	< 10.0	258	800	926	698	568	130	< 1.0	65	-	1.43	< 0.10	< 20	-	0.0127	12.7	0.231				
	TUTT POND-211020	2021 10 20	8.49	1,270	8.54	10.1	3,330	2,967.00	2,370	-	14.2	1.12	244	< 100	< 100a	< 100	272	< 1,000	818	721	651	69.9	< 1.0	34.9	-	1.12	< 1.00	37	-	< 0.0500	14.6	0.453				
	TUTT POND-220322	2022 03 22	8.5	948	-	-	2,660	2,695	1,870	-	10.3	1.33	< 50	< 100	< 100	< 100	219	< 1,000	656	661	594	66.8	< 1.0	33.4	-	1.33	< 1.00	28	< 0.0500	-	-	0.199				
	TUTT POND-220621	2022 06 21	8.62	869	-	-	2,500	2,597	1,880	-	11.5	1.6	< 50	< 100	< 100	< 100	218	< 1,000	605	652	539	113	< 1.0	56.6	-	1.6	< 1.00	46	0.073	-	-	0.305				
	TUTT POND-220909	2022 09 09	8.56	1,050	-	-	3,170	3,305	2,380	-	15.7	1.62	137	< 100	< 100	< 100	284	< 1,000	886	745	635	110	< 1.0	55	-	1.62	< 1.00	42	< 0.100	-	-	0.453				
	TUTT POND-221019	2022 10 19	8.42	1,270	-	-	3,380	3,393	2,630	-	15	1.72	332	< 100	110	108	268	< 1,000	997	707	655	52.5	< 1.0	26.3	-	1.61	< 1.00	47	0.059	-	-	0.541				
	BUBNA SLOUGH	Bubna Slough-20150616	2015 06 16	-	1,280	-	-	4,340	-	3,250	12.8	-	-	26.2	< 250	-	-	1,000	< 1,000	623	857	693	165	< 1.0	-	-	2.52	< 2.5	145	-	< 0.0010	43.9	-			
		BUBNA DISCHARGE-180420	2018 04 20	8.29	858	-	-	2,810	-	1,900	3.5	-	1.33	30	< 10	< 10	< 10.0	555	320	214	548	548	< 1.0	< 1.0	< 1.0	-	1.33	< 0.10	75	< 0.0050	-	20.6	0.046			
		BUBNA DISCHARGE-180503	2018 05 03	8.56	963	8.08	15.6	2,920	2,584	1,850	5.7	-	1.41	56	< 1,000	< 10	< 1,000	476	360	170	561	495	65.7	< 1.0	32.9	-	1.41	< 0.10	69	< 0.0050	-	24.1	0.017			
		BUBNA DISCHARGE-180615	2018 06 15	8.91	940	9.06	15.7	2,950	2,484	5,980	3.8	-	1.97	23	< 10	< 10	< 10.0	542	410	201	516	355	161	< 1.0	80.3	-	1.97	0.19	87	< 0.0050	-	27.6	0.033			

Table H3: Historical Summary of Analytical Results For Surface Water - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical Parameters																	Dissolved Inorganics													
			pH	Hardness mg/L	pH (field)	Temperature C	Conductivity µS/cm	Field Conductivity µS/cm	Total Dissolved Solids mg/L	Total Suspended Solids mg/L	Dissolved Organic Carbon mg/L	Total Nitrogen-N mg/L	Ammonia, Total (as N) µg/L	Nitrate (as N) µg/L	Nitrite (as N) µg/L	Nitrate-Nitrite Nitrogen µg/L	Chloride mg/L	Fluoride µg/L	Sulfate mg/L	Total Alkalinity mg/L	Alkalinity, Bicarbonate (as CaCO3) mg/L	Alkalinity, Carbonate (as CaCO3) mg/L	Alkalinity, Hydroxide (as CaCO3) mg/L	Alkalinity, Phenolphthalein (as CaCO3) mg/L	Bicarbonate mg/L	Kjeldahl Nitrogen-N mg/L	Bromide mg/L	Chemical Oxygen Demand mg/L	Phosphate mg/L	Ortho-Phosphate mg/L	Total Organic Carbon mg/L	Total Phosphorous as P mg/L	
LITTLE ROBERT LK Cont'	Little Robert Lk	2019 06 05	9.02	987	8.84	22.3	2,690	2,335	2,010	3.8	-	1.32	84	< 100	< 100	< 100	181	< 1,000	749	637	384	253	< 1.0	127	-	1.32	< 1.00	36	0.209	-	12.7	0.787	
	Little Robert Lk	2019 09 04	8.98	1,110	8.19	25	3,100	3,090	2,160	4.4	23.7	1.82	45	< 100	< 100	< 100	165	< 1,000	972	745	478	267	< 1.0	133	-	1.82	< 1.00	49	-	0.387	25.5	1.16	
	LITTLE ROBERT LAKE-200928	2020 09 28	8.72	1,330	8.76	14.2	4,350	4,285	3,490	153	24	2.85	211	< 100	< 100	-	115	< 1,000	1,720	675	520	155	< 1.0	77.7	-	2.85	< 1.00	93	-	0.564	27.2	1.5	
	LITTLE ROBERT LAKE-201029	2020 10 29	8.5	1,300	8.71	5	4,150	4,187	3,210	6.4	19.5	2.65	440	309	< 100	309	103	< 1,000	1,540	697	621	75.8	< 1.0	37.9	-	2.34	< 1.00	52	-	0.618	23.3	1.58	
	LTTLE ROBERT LAKE-200605	2020 06 05	8.86	1,240	8.97	20.5	3,520	3,393	3,040	8.8	23.5	1.78	< 50	< 10	< 10	< 10.0	116	430	1,630	648	414	234	< 1.0	117	-	1.78	< 1.00	50	-	0.604	25.7	0.592	
	LITTLE ROBERT LAKE-210412	2021 04 12	8.42	1,560	8.59	10.8	4,200	4,486	3,740	29	24.4	1.58	110	< 100	< 100a	< 100	100	< 1,000	1,840	749	701	47.4	< 1.0	23.7	-	1.58	< 1.00	51	-	0.953	28.3	1.67	
	Little Robert Lake	2021 06 17	9.08	1,620	9.29	20.6	4,220	4,945	4,320	30.4	16.6	1.9	< 50	< 100	< 100a	< 100	110	< 1,000	2,210	661	349	312	< 1.0	156	-	1.9	< 1.00	67	-	0.6	22.7	1.09	
	LITTLE ROBERT LAKE-210922	2021 09 22	8.61	1,630	8.61	15	5,370	5,225	4,310	-	24.1	1.96	340	< 100	< 100a	< 100	123	< 1,000	2,500	772	629	142	< 1.0	71.1	-	1.96	< 1.00	66	-	0.44	24.7	1.44	
	LITTLE ROBERT LAKE-211021	2021 10 21	8.47	1,520	8.47	8.3	5,020	4,527	4,110	-	22.1	2.45	486	< 100	< 100a	< 100	110	< 1,000	2,320	770	699	70.9	< 1.0	35.5	-	2.45	< 1.00	58	-	0.442	24.4	1.35	
	LITTLE ROBERT LAKE-220323	2022 03 23	8.65	1,350	-	-	4,370	4,227	3,190	-	15.6	2.08	54	< 100	< 100	< 100	82.2	< 1,000	1,810	656	521	135	< 1.0	67.5	-	2.08	< 1.00	68	0.445	-	-	1.54	
LITTLE ROBERT LAKE-220621	2022 06 21	8.82	1,260	-	-	4,460	4,580	3,860	-	17.8	1.85	< 50	< 100	< 100	< 100	90.3	< 1,000	2,200	701	493	208	< 1.0	104	-	1.85	< 1.00	61	0.59	-	-	1.67		
LITTLE ROBERT LAKE-220912	2022 09 12	8.94	1,660	-	-	5,400	5,528	4,520	-	23.8	2.4	146	< 100	< 100	< 100	120	< 1,000	2,930	719	448	271	< 1.0	135	-	2.4	< 1.00	98	0.085	-	-	1.45		
LITTLE ROBERT LAKE-221019	2022 10 19	8.63	1,830	-	-	5,480	5,482	4,600	-	23.1	2.8	197	< 100	< 100	< 100	119	< 1,000	2,850	703	554	149	< 1.0	74.6	-	2.8	< 1.00	80	0.201	-	-	1.68		
ROBERT LK	Robert Lake-20150616	2015 06 16	-	1,150	-	-	12,500	-	13,700	31.1	-	-	82	< 500	-	-	346	< 2,000a	8,420	1,760	1,230	530	< 1.0	-	-	5.85	< 5.0	233	-	4.85	82.3	-	
	ROBERT'S LAKE 1-20160921	2016 09 21	9.67	1,450	-	-	21,800	-	21,300	19.7	-	-	-	< 500	-	-	524	< 2,000a	12,800	2,010	-	-	-	-	-	-	< 5.0	-	-	-	110	-	
	ROBERT LAKE - NORTH-20161117	2016 11 17	-	1,150	-	-	15,600	-	13,300	188	-	-	510	< 500	-	-	358	< 2,000a	8,640	1,410	821	592	< 1.0	-	-	7.85	< 5.0	252	-	2.94	81.7	-	
	ROBERT LAKE - SOUTH-20161117	2016 11 17	-	1,070	-	-	16,300	-	13,700	67.3	-	-	83.9	< 500	-	-	387	< 2,000a	9,250	1,440	783	661	< 1.0	-	-	8.09	< 5.0	258	-	2.6	82.1	-	
	ROBERT LK-180417	2018 04 17	8.98	1,040	8.92	11	9,100	3,334	7,730	18	-	3.59	47	< 10	< 10	< 10.0	161	450	3,840	1,010	714	297	< 1.0	148	-	3.59	0.8	127	1.79	-	74	2.21	
	ROBERT LK-180503	2018 05 03	8.98	1,090	8.58	19.3	8,740	7,684	7,330	17	-	4.71	119	1,350	< 10	1,350	145	520	3,850	1,010	713	296	< 1.0	148	-	3.36	< 10.0	109	1.61	-	39.7	2.45	
	ROBERT LK-180614	2018 06 14	8.97	1,200	9.19	19.1	8,000	6,915	6,690	12.8	-	3.56	98	< 100	< 100	< 100	198	< 1,000	3,490	1,020	706	316	< 1.0	158	-	3.56	< 1.00	113	1.24	-	39.9	1.99	
	ROBERT LK-180712	2018 07 12	9.02	1,120	9.22	27.2	8,110	7,162	6,820	12.6	-	3.98	66	< 10	< 10	< 10.0	205	710	3,280	1,110	766	347	< 1.0	173	-	3.98	< 0.10	115	1.02	-	49.9	2.14	
	Robert Lk	2019 03 29	9.02	685	9.25	8	5,660	636.7	3,900	17.7	-	3.72	105	< 100	< 100	< 100	140	< 1,000	2,280	763	-	231	< 1.0	115	532	3.72	< 1.00	110	0.735	-	29.2	1.44	
	Robert Lk	2019 05 06	8.92	1,060	8.6	20.9	7,900	6,464	6,200	34.7	-	5.44	139	< 10	< 10	< 10.0	209	660	3,310	1,180	859	321	< 1.0	160	-	5.44	0.94	165	1.59	-	48.4	2.22	
	Robert Lk	2019 06 05	8.85	1,130	8.62	22	8,000	6,741	6,520	27.4	-	5.64	733	< 100	< 100	< 100	212	< 1,000	3,160	1,210	898	313	< 1.0	156	-	5.64	< 1.00	143	0.988	-	45.3	2.55	
	Robert Lk	2019 09 04	8.91	1,490	8.61	26.6	10,300	10,048	8,440	42.3	53.4	5.52	372	< 100	127	127	279	< 1,000	4,350	1,660	1,210	459	< 1.0	229	-	5.4	1.14	154	-	1.61	59.8	3.71	
	ROBERTLAKE-200407	2020 04 07	8.87	1,190	9.4	14	7,620	6,679	6,240	21.7	38.2	3.64	68	< 10	< 10	< 10.0	203	590	3,350	1,170	873	294	< 1.0	147	-	3.64	< 0.10	117	-	1.26	39.3	2.95	
	ROBERTLAKE-200605	2020 06 05	8.81	1,220	8.86	21.1	7,520	735.8	7,100	147	53.3	7.34	438	< 1,000	< 10	< 1,000	193	630	3,560	1,440	1,090	349	< 1.0	175	-	7.34	< 10.0	245	-	2.7	57.5	4.96	
	ROBERTLAKE-200928	2020 09 28	8.97	1,450	8.92	15.4	10,400	10,282	8,580	32	60.3	6.66	1,160	< 100	107	-	262	< 1,000	4,160	1,560	1,050	516	< 1.0	258	-	6.56	< 1.00	179	-	1.88	64.1	3.47	
	ROBERTLAKE-201028	2020 10 28	8.94	1,380	9.18	4	9,880	9,840	7,960	44.7	58.4	6.8	129	< 250	79	< 250	245	630	4,160	1,580	1,100	477	< 1.0	239	-	6.72	0.98	153	-	0.869	68.3	3.47	
	ROBERT LAKE-210412	2021 04 12	8.73	1,330	9.12	11	7,810	8,577	7,290	60	38.4	6.14	204	< 100	< 100a	< 100	190	< 1,000	3,200	1,440	1,050	393	< 1.0	196									

Table H4: Historical Summary of Analytical Results For Surfacewater - Metals

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Total Metals																																							
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorous	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulphur	Tellurium	Thallium	Thorium	Tin	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium		
BREDIN POND	Bredin Pond-20010611	2001 06 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Bredin Pond-20010711	2001 07 11	13	< 5	< 10	81	< 0.5a	10	18	< 0.5a	7,300	< 0.8	1.7	4	38	7	48	183,000	7.6	-	10	6	< 30	25,800	< 4a	2,840	< 1a	214,000	218	123,000	-	-	< 4a	-	< 3	2.7	-	-	8	0.8	-	
	Bredin Pond-20010815	2001 08 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Bredin Pond-20010816	2001 08 16	61	< 20a	< 50	12.5	< 3a	130	40	< 3a	7,700	< 4a	< 3	< 5a	448	34	37	170,000	7.5	-	< 5	27	< 100	20,600	< 20a	12,700	< 5a	192,000	233	115,000	-	-	< 20a	-	< 20	12	-	-	10	< 3	-	
	Bredin Pond-20010920	2001 09 20	28	< 5	< 10	13.1	< 0.5a	11	< 2	< 0.5a	10,600	< 0.8	1.5	2	13	< 2	43	174,000	4	-	16	10	30	23,100	8	18,900	< 1a	209,000	371	128,000	-	-	< 4a	-	< 3	< 0.4	-	-	4	1	-	
	Bredin Pond-20080506	2008 05 06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20080507	2008 05 07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20080520	2008 05 20	-	-	-	-	-	-	-	-	29,100	-	-	-	-	-	-	159,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bredin Pond-20090521	2009 05 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Bredin Pond-20091119	2009 11 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bredin Pond-20130429	2013 04 29	11	< 0.50	1	65	< 5.0a	-	< 100	< 0.050	41,200	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	159,000	21	< 0.20a	11	< 5.0	-	-	1.2	-	< 0.050	203,000	-	-	-	< 0.20	-	-	< 50	-	27.7	< 30	< 5.0	-	-	
	Bredin Pond-20130528	2013 05 28	< 10	< 0.50	1.1	68	< 5.0a	-	< 100	< 0.050	32,700	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	161,000	60	< 0.20a	11	< 5.0	-	-	1	-	< 0.050	196,000	-	-	-	< 0.20	-	-	< 50	-	23.2	< 30	< 5.0	-	-	
	Bredin Pond-20130718	2013 07 18	< 10	< 0.50	1.5	62	< 5.0a	-	< 100	< 0.050	40,600	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	169,000	72	< 0.20a	13	< 5.0	-	-	< 1.0	-	< 0.050	197,000	-	-	-	< 0.20	-	-	< 50	-	24.6	< 30	< 5.0	-	-	
	Bredin Pond-20131016	2013 10 16	< 10	< 0.50	1.4	67	< 5.0a	-	< 100	< 0.050	26,700	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	170,000	< 10	< 0.20a	10.9	< 5.0	-	-	< 1.0	-	< 0.050	223,000	-	-	-	< 0.20	-	-	< 50	-	20.1	< 30	< 5.0	-	-	
	Bredin Pond-20140331	2014 03 31	14	< 0.50	1.6	65	< 5.0a	-	< 100	< 0.050	38,600	0.51	< 0.50	< 1.0a	< 30	< 1.0	< 50	161,000	30	< 0.20a	15	< 5.0	-	-	1.2	-	< 0.050	195,000	-	-	-	< 0.20	-	-	< 50	-	29.5	< 30	< 5.0	-	-	
	Bredin Pond-20140528	2014 05 28	108	< 0.50	1.6	< 20	< 5.0a	-	< 100	< 0.050	36,500	< 0.50	< 0.50	< 1.0a	125	< 1.0	< 50	161,000	57	< 0.20a	17.8	< 5.0	-	-	1.1	-	< 0.050	211,000	-	-	-	< 0.20	-	-	< 50	-	31.6	< 30	< 5.0	-	-	
	Bredin Pond-20140828	2014 08 28	13	< 0.50	1.6	74	< 5.0a	-	< 100	< 0.050	22,600	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	150,000	25	< 0.20a	15.5	< 5.0	-	-	1.5	-	< 0.050	184,000	-	-	-	< 0.20	-	-	< 50	-	25.8	< 30	< 5.0	-	-	
	Bredin Pond-20150311	2015 03 11	11	< 0.50	1.3	78	< 5.0a	-	< 100	< 0.050	42,400	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	149,000	11	< 0.20a	15.7	< 5.0	-	-	1.6	-	< 0.050	191,000	-	-	-	< 0.20	-	-	< 50	-	28.3	< 30	< 5.0	-	-	
	Bredin Pond-20150616	2015 06 16	12	< 0.50	1.3	38	< 5.0a	< 200	< 100	< 0.050	20,400	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	139,000	11	< 0.20a	15	< 5.0	< 300	11,000	1.2	7,460	< 0.050	174,000	2,620	75,600	0.41	< 0.20	< 0.10	< 30	< 50	-	24.2	< 30	33.5	-	-	
	Bredin Pond-20151029	2015 10 29	22	< 0.50	1.5	60	< 5.0a	< 200	< 100	< 0.050	17,100	0.7	< 0.50	< 1.0a	< 30	< 1.0	< 50	124,000	< 10	< 0.20a	17	< 5.0	< 300	10,100	1.3	9,500	< 0.050	163,000	2,570	72,900	0.35	< 0.20	< 0.10	< 30	< 50	-	23.7	< 30	15.6	< 0.30	-	
	BREDIN POND-20160518	2016 05 18	< 10	< 0.50	< 1.0	63	< 5.0a	-	< 100	< 0.050	10,400	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	117,000	< 10	< 0.20a	13.8	< 5.0	-	-	1.6	-	< 0.050	155,000	-	-	-	< 0.20	-	-	< 50	-	22	< 30	< 5.0	-	-	
	BREDIN POND-20160914	2016 09 14	13	< 0.50	< 1.0	< 20	< 5.0a	< 200	< 100	< 0.050	18,300	< 0.50	< 0.50	1.1	< 30	< 1.0	< 50	134,000	< 10	< 0.20a	15	< 5.0	< 300	13,500	1.4	7,430	< 0.050	181,000	3,050	-	-	< 0.20	-	< 30	< 50	-	22.3	< 30	< 5.0	-	-	
	BREDIN POND-20161116	2016 11 16	14	< 0.50	1.4	46	< 5.0a	< 200	< 100	< 0.050	30,400	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	130,000	< 10	< 0.20a	14.1	< 5.0	< 300	13,600	1.2	7,020	< 0.050	180,000	2,900	-	0.39	< 0.20	-	< 30	< 50	-	20.6	< 30	< 5.0	< 0.30	-	
	BREDIN POND-20170418	2017 04 18	12	< 0.50	1.3	79	< 5.0a	< 200	< 100	< 0.050	46,000	0.53	< 0.50	1.7	< 30	< 1.0	< 50	138,000	19	< 0.20a	11	< 5.0	< 300	13,500	1.3	4,970	< 0.050	186,000	2,870	-	0.25	< 0.20	< 0.10	< 30	< 50	-	21.5	< 30	12.2	< 0.30	-	
	BREDIN POND-20170607	2017 06 07	16	< 0.50	1.6	44	< 5.0a	< 200	< 100	< 0.050	47,400	< 0.50	< 0.50	< 1.0a	< 30	< 1.0	< 50	149,000	35	< 0.20a	13.8	< 5.0	< 300	13,100	1.1	2,290	< 0.050	203,000	2,920	-	0.47	< 0.20	< 0.10	< 30	< 50	-	23.4	< 30	< 5.0	< 0.30	-	
	BREDIN POND-20170907	2017 09 07	29	< 0.50	1.4	87	< 5.0a	< 200	< 100	< 0.050	33,300	< 0.50	< 0.50	< 1.0a	41	< 1.0	< 50	146,000	74	< 0.20a	12.5	< 5.0	< 300	14,800	1.3	13,900	< 0.050	177,000	2,900	-	0.41	< 0.20	< 0.10	< 30	< 50	-	20.9	< 30	8.1	< 0.30	-	
	BREDIN POND-20171101	2017 11 01	12	< 0.50	1.6	94	< 5.0a	< 200	< 100	< 0.050	41,400	< 0.50	< 0.50	1.3	< 30	< 1.0	< 50	133,000	< 10	< 0.20a	21.8	< 5.0	< 300	14,200	< 1.0	14,100	< 0.050	170,000	2,870	-	0.4	< 0.20	< 0.10	< 30	< 50	-	38.1	< 30	< 5.0	< 0.30	-	
	BREDIN POND-180404	2018 04 04																																								

Table H4: Historical Summary of Analytical Results For Surfacewater - Metals

			Total Metals																																							
Sample Location	Sample ID	Sample Date (yyyy mm dd)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Blomuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorous	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulphur	Tellurium	Thallium	Thorium	Tin	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium		
NORTHEAST POND (Cont'd)	NORTHEAST POND-181107	2018 11 07	588	0.21	3.25	117	< 0.10	< 0.10	102	0.019	67,000	1.6	0.93	5.35	942	0.58	40.3	211,000	183	< 0.010	23.3	3.78	575	19,200	< 0.50	13,200	< 0.050	288,000	3,880	169,000	< 0.50	< 0.020	< 0.10	< 0.20	33.9	< 1.0	36.6	3.6	4.4	0.66		
	Northeast Pond	2019 03 29	331	< 0.20	2.59	64.8	< 0.10	< 0.10	56.9	0.024	53,900	0.9	0.62	1.54	555	0.51	27.7	143,000	180	< 0.040a	11.9	3.11	345	11,500	< 0.50	8,100	< 0.050	192,000	2,780	135,000	< 0.50	< 0.020	< 0.10	< 0.20	18	< 1.0	25.1	2.7	4.2	0.52		
	Northeast Pond	2019 06 05	140	0.23	3.77	93.4	< 0.10	< 0.10	102	0.026	52,700	< 0.50	0.56	1.92	194	0.21	44.9	214,000	119	< 0.040a	27.3	3.54	325	16,000	< 0.50	2,300	< 0.050	317,000	3,840	197,000	< 0.50	< 0.020	< 0.10	< 0.20	7.8	< 1.0	4.1	4.6	< 4.0	0.55		
	Northeast Pond	2019 09 04	142	0.28	4.42	84.7	< 0.10	< 0.10	34.2	< 0.020	24,300	0.92	0.37	1.72	202	< 0.20	53.9	237,000	81.1	< 0.010	30	0.87	149	15,800	< 0.50	2,000	< 0.050	329,000	4,120	206,000	< 0.50	< 0.020	< 0.10	< 0.20	7.8	< 1.0	40.8	2.2	< 4.0	0.23		
	NE Pond	2019 10 23	35.1	0.2	3.48	64.8	< 0.10	< 0.10	48.7	0.013	33,200	< 0.50	0.53	0.48	62	< 0.20	45.4	232,000	122	< 0.010	32.9	4.34	246	16,100	< 0.50	3,000	< 0.050	4,160	202,000	4,160	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	54.4	1.6	< 4.0	0.3		
	NEPOND-200407	2020 04 07	27.2	0.178	3.37	39.2	< 0.010	< 0.010	61	0.058	53,000	< 0.50	0.34	0.87	58	0.06	44.1	211,000	175	< 0.010	22.2	2.94	350	15,900	< 0.50	3,880	< 0.050	298,000	3,880	198,000	< 0.050	< 0.040	< 0.10	< 0.050	2.04	< 0.20	40.9	2.12	< 1.0	0.572		
	NEPOND-200605	2020 06 05	17.6	0.219	3.95	15.4	< 0.010	< 0.010	87.1	0.0069	52,600	0.14	0.245	0.32	36.8	< 0.050	40.2	233,000	130	< 0.010	38.6	2.45	343	17,600	< 0.50	2,760	< 0.010	328,000	4,210	211,000	< 0.050	< 0.040	< 0.010	< 0.050	1.32	< 0.20	33.6	2.5	< 1.0	0.345		
	NEPOND-200918	2020 09 18	73.4	0.345	6.45	115	< 0.010	< 0.010	78	0.0061	39,400	0.36	0.545	0.66	149	0.117	34.8	226,000	318	< 0.010	18.6	3.01	555	22,100	< 0.50	10,400	< 0.010	322,000	3,670	176,000	< 0.050	< 0.040	0.016	< 0.050	5.71	< 0.20	26.6	4.09	3	0.716		
	NEPOND-201028	2020 10 28	77.9	0.22	3.76	105	< 0.196	< 0.010	89.7	0.0084	40,500	0.27	0.621	1.06	151	0.157	48.2	225,000	261	< 0.010	22	3.28	344	17,600	< 0.50	10,000	< 0.010	323,000	4,230	194,000	< 0.050	< 0.040	0.026	< 0.050	6.83	< 0.20	32.6	3.1	2.4	0.944		
	NE POND-210323	2021 03 23	117	0.201	2.53	60.5	< 0.010	< 0.010	92.7	0.0067	57,300	0.49	0.492	1.15	187	0.122	33.8	199,000	112	< 0.010	24.3	3.41	297	15,100	0.26	5,270	< 0.010	278,000	7,730	165,000	< 0.050	< 0.040	0.013	0.097	6.88	< 0.20	35.8	2.9	1.7	0.782		
NE POND-210616	2021 06 16	198	0.214	3.31	55.1	< 0.010	< 0.010	65.5	0.0087	38,300	0.62	0.495	0.96	329	0.222	47.7	239,000	105	< 0.010	31.9	3.81	262	15,700	0.21	6,120	< 0.010	321,000	4,020	198,000	< 0.050	< 0.040	0.024	< 0.050	13.2	0.26	40.1	3.12	2.3	0.382			
SLOUGH	NE POND-211019	2021 10 19	79.9	0.187	2.65	129	< 0.010	< 0.010	48.8	0.0117	40,400	0.36	0.392	0.48	160	0.084	54.6	272,000	118	< 0.010	45.7	3.69	260	19,700	0.26	4,040	0.021	379,000	4,770	220,000	< 0.050	< 0.040	0.01	0.055	5.75	0.25	51	1.1	1.4	0.84		
	NE POND-220322	2022 03 22	114	< 0.250	2	86.3	< 0.050	< 0.050	49	0.0147	47,200	< 0.50	0.455	< 1.00	151	< 0.250	36.1	209,000	214	< 0.010	25.7	3.41	455	14,100	< 0.50	6200	< 0.050	294,000	3,410	177,000	< 0.250	< 0.0200	< 0.050	< 0.250	5.56	< 1.00	34	3.73	< 5.0	0.724		
	NE POND-220621	2022 06 21	58.2	0.172	3.71	94.6	< 0.010	< 0.010	70.7	< 0.0080	52,500	0.27	0.368	0.9	65.5	0.121	33.3	197,000	113	< 0.010	26	2.9	509	16,500	0.32	940	0.011	279,000	3,680	187,000	< 0.050	< 0.040	0.013	< 0.050	2.89	0.29	34.8	2.77	1.3	0.684		
	NE POND-220912	2022 09 12	210	0.236	4.11	119	< 0.010	< 0.010	57.3	< 0.0080	16,600	0.66	0.415	0.66	296	0.19	57.4	266,000	54.2	< 0.010	24.4	3.18	157	17,300	0.31	2600	< 0.010	355,000	4,050	216,000	< 0.050	< 0.040	0.028	< 0.050	10.6	0.21	32.1	2.6	1.8	0.259		
	NE POND-221019	2022 10 19	198	0.199	3.49	123	< 0.010	0.015	49	0.0102	19,400	0.65	0.397	0.85	292	0.196	42	292,000	46.1	< 0.010	31.3	3.64	164	17,900	0.29	3060	0.02	403,000	3,890	229,000	< 0.050	< 0.040	0.03	< 0.050	11.4	0.28	40.3	2.92	1.4	0.484		
	Slough-20010619	2001 06 19	190	< 50a	140	430	< 10a	< 70	2,470	< 5a	2,700	< 8a	32	10	240	22	106	139,000	8	-	37	59	1,700	447,000	< 40a	1,720	< 10a	8,930,000	532	2,600,000	-	< 40a	-	< 30	5	-	< 10	< 6	-			
	Slough-20010711	2001 07 11	260	< 100a	< 200a	108	< 10a	< 200	3,840	< 10a	< 5,000	< 20a	65	30	400	63	210	124,000	7.5	-	60	70	1,600	725,000	< 100a	4,340	< 30a	12,700,000	535	5,040,000	-	< 100a	-	< 80	63	-	53	< 20a	-			
	Slough-20010815	2001 08 15	-	< 200a	< 500a	95	< 30a	< 400	5,480	< 30a	< 10,000	< 40a	< 30a	< 50a	310	140	320	135,000	< 10	-	85	320	3,200	1,000,000	< 200a	4,050	< 50a	19,100,000	595	5,760,000	-	< 200a	-	< 200	70	-	< 50	< 30a	-			
	Slough-20010816	2001 08 16	-	< 200a	< 500a	98	< 30a	< 400	8,110	< 30a	< 10,000	< 40a	< 30a	< 50a	420	< 100a	310	194,000	20	-	55	220	8,600	1,570,000	< 200a	2,860	< 50a	29,700,000	845	9,400,000	-	< 200a	-	< 200	205	-	90	85	-			
	Slough-20010920	2001 09 20	460580	< 200a	530	255	< 30a	< 400	8,110	< 30a	< 10,000	< 40a	< 30a	< 50a	420	< 100a	310	194,000	20	-	55	220	8,600	1,570,000	< 200a	2,860	< 50a	29,700,000	845	9,400,000	-	< 200a	-	< 200	205	-	90	85	-			
	Alki Lake-20080506	2008 05 06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Alki Lake-20080507	2008 05 07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Alki Lake-20080520	2008 05 20	-	-	-	-	-	-	-	-	-	18,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Slough-20090521	2009 05 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Alki Lake-20091119	2009 11 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Slough-20130429	2013 04 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Slough-20130528	2013 05 28	2,530	13.5	91.7	< 100	< 50a	-	1,400	< 2.5a	14,200	< 25a	< 5.0a	< 25a	3,580	4.8	< 100	183,000	68	< 0.20a	60.3	34	-	-	-	< 50a	-	0.56	6,780,000	-	-	-	< 5.0a	-	-	140	-	195	< 300a	< 50	-	
	Slough-20130718	2013 07 18	1,530	12.9	106	< 100	< 50a	-	1,700	< 2.5a	9,300	< 25a	< 5.0a	< 25a	2,160	< 2.5	< 100	188,000	< 50	< 0.20a	78.1	30	-	-	-	< 50a	-	< 0.50	8,690,000	-	-	-	< 5.0a	-	< 100	-	255	< 300a	< 50	-		
	Slough-20131016	2013 10 16	< 150	20.9	162	< 200	< 100a	-	2,100	< 2.5a	6,400	< 25a	< 5.0a	< 25a	< 600	< 2.5	< 200	134,000	< 100	< 0.20a	86.3	37	-	-	-	< 50a	-	0.87	12,100,000	-	-	-	< 5.0a	-	< 200	-	< 600a	< 100	-			
	Slough-20140331	2014 03 31	1,750	4.5	35.5	< 50	< 25a	-	520	< 0.50a	24,700	6.5	2.8	9.2	2,360	1.2	< 50	114,000	73	< 0.20a	27.6	13.8	-	-	-	< 10a	-	0.12	2,480,000	-	-	-	< 1.0a	-	104	-	81.8	< 150a	< 25	-		
	Slough-20140528	2014 05 28	3,080	11.3	80.4	< 100	< 50a	-	1,000	< 1.0a	12,500	< 10a	4.3	10	4,520	1.7	< 100	154,000	84	< 0.20a	41	27	-	-	-	< 20a	-	0.3	5,520,000	-	-	-	< 10a	-	160	-	158	< 300a	< 50	-		
	Slough-20140828	2014 08 28	2,390	22	< 100	< 100a	< 50a	-	3,100	< 100a	< 200	< 2.5a	< 5.0a	< 25a	4,400	1.2																										

Associated CARO file(s): 8040426, 8041402, 8041784, 8050436, 8052167, 8061543, 8071280, 8090442, 8110640, 8110821, 9032473, 9050543, 9060474, 9090312, N000861, 0040546, 0060737, 0091922, 20J3095

Associated Exova file(s): 107524, 115040, 417280, 438503, 47748, 593413, 610415, 653618, 683622, 714220, 714240, 95223.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H4: Historical Summary of Analytical Results For Surfacewater - Metals

			Total Metals																																					
Sample Location	Sample ID	Sample Date (yyyy mm dd)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorous	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulphur	Tellurium	Thallium	Thorium	Tin	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium
TUTT POND (Cont'd)	Tutt Pond-20140331	2014 03 31	84	< 0.50	2.7	75	< 5.0a	-	< 100	< 0.050	81,100	< 0.50	0.53	< 1.0a	119	< 1.0	< 50	175,000	157	< 0.20a	9.3	< 5.0	-	-	-	< 1.0	-	< 0.050	284,000	-	-	< 0.20	-	-	< 50	-	33.4	< 30	< 5.0	-
	Tutt Pond-20140528	2014 05 28	119	< 0.50	3.8	66	< 5.0a	-	< 100	< 0.10	85,400	< 1.0	0.61	1.4	146	< 1.0	< 50	187,000	41	< 0.20a	9.6	< 5.0	-	-	-	< 2.0	-	< 0.050	329,000	-	-	< 0.20	-	-	< 50	-	38	< 30	< 5.0	-
	Tutt Pond-20140731	2014 07 31	26	< 0.50	4.7	< 20	< 5.0a	-	< 100	< 0.10	52,300	< 1.0	< 0.50	< 1.0a	32	< 1.0	< 50	202,000	55	< 0.20a	8.6	< 5.0	-	-	< 2.0	-	< 0.050	364,000	-	-	< 0.20	-	-	< 50	-	29.3	< 30	< 5.0	-	
	Tutt Pond-20140828	2014 08 28	372	< 0.50	5.3	39	< 5.0a	-	< 100	< 0.10	64,700	< 1.0	0.62	1.2	461	< 1.0	< 50	195,000	156	< 0.20a	8.6	< 5.0	-	-	< 2.0	-	< 0.050	337,000	-	-	< 0.20	-	-	< 50	-	31.1	< 30	< 5.0	-	
	Tutt Pond-20140930	2014 09 30	198	< 0.50	5.6	66	< 5.0a	-	< 100	< 0.10	77,600	< 1.0	0.64	1.1	253	< 1.0	< 50	195,000	320	< 0.20a	8.8	< 5.0	-	-	< 2.0	-	< 0.050	338,000	-	-	< 0.20	-	-	< 50	-	30.2	< 30	< 5.0	-	
	Tutt Pond-20150311	2015 03 11	65	< 0.50	2.5	71	< 5.0a	-	< 100	< 0.050	70,600	< 0.50	< 0.50	1.3	90	< 1.0	< 50	157,000	51	< 0.20a	12.1	< 5.0	-	-	< 2.0	-	< 0.050	247,000	-	-	< 0.20	-	-	< 50	-	31.6	< 30	< 5.0	-	
	Tutt Pond-20150616	2015 06 16	22	< 0.50	3.2	58	< 5.0a	< 200	< 100	< 0.050	47,300	< 0.50	< 0.50	1.1	< 30	< 1.0	< 50	181,000	13	< 0.20a	11	< 5.0	< 300	13,100	< 1.0	16.10	< 0.050	286,000	4,130	188,000	0.61	< 0.20	< 30	< 50	-	31	< 30	< 5.0	-	
	Tutt Pond-20150902	2015 09 02	305	< 0.50	5.9	85	< 5.0a	< 200	< 100	< 0.050	91,600	0.64	0.79	< 1.0a	383	< 1.0	< 50	202,000	279	< 0.20a	10.3	< 5.0	660	15,900	< 1.0	9.670	< 0.050	359,000	5,280	269,000	0.54	< 0.20	< 0.20	< 30	< 50	-	40.6	< 30	6.4	0.7
	Tutt Pond-20151029	2015 10 29	131	< 0.50	4.6	75	< 5.0a	< 200	< 100	< 0.050	89,300	< 0.50	0.72	< 1.0a	149	< 1.0	< 50	179,000	251	< 0.20a	13.2	< 5.0	500	12,700	< 1.0	9.270	< 0.050	302,000	4,950	239,000	0.71	< 0.20	< 0.20	< 30	< 50	-	41.8	< 30	< 5.0	0.63
	TUTT POND-20160518	2016 05 18	35	< 0.50	2.5	62	< 5.0a	-	< 100	< 0.050	78,600	< 0.50	< 0.50	2	44	< 1.0	< 50	157,000	20	< 0.20a	13.6	< 5.0	-	-	-	1	-	< 0.050	281,000	-	-	< 0.20	-	-	< 50	-	43.4	< 30	< 5.0	-
TUTT POND-20160914	2016 09 14	117	< 0.50	3.9	72	< 5.0a	< 200	< 100	< 0.050	79,300	< 0.50	< 0.50	< 1.0a	139	< 1.0	< 50	185,000	102	< 0.20a	12.1	< 5.0	390	14,800	< 1.0	7.550	< 0.050	333,000	4,990	-	-	< 0.20	-	< 30	< 50	-	40.1	< 30	< 5.0	-	
TUTT POND-20161116	2016 11 16	199	< 0.50	3.6	63	< 5.0a	< 200	< 100	< 0.050	72,400	< 0.50	0.66	1.4	220	< 1.0	< 50	155,000	164	< 0.20a	12.6	< 5.0	410	14,000	< 1.0	8.100	< 0.050	267,000	3,990	-	< 0.40	< 0.20	-	< 30	< 50	-	36.9	< 30	< 5.0	< 0.6	
TUTT POND-20170418	2017 04 18	73	< 0.50	2	72	< 5.0a	< 200	< 100	< 0.050	76,500	< 0.50	< 0.50	1.3	87	< 1.0	< 50	142,000	55	< 0.20a	10.7	< 5.0	< 300	12,400	< 1.0	6.190	< 0.050	234,000	3,650	-	0.35	< 0.20	< 0.10	< 30	< 50	-	31.9	< 30	< 5.0	0.69	
TUTT POND-20170607	2017 06 07	26	< 0.50	2.2	80	< 5.0a	< 200	< 100	< 0.050	79,100	< 0.50	< 0.50	1.3	32	< 1.0	< 50	161,000	20	< 0.20a	11.1	< 5.0	< 300	13,300	1	470	< 0.050	265,000	3,850	-	0.59	< 0.20	< 0.10	< 30	< 50	-	32.2	< 30	< 5.0	< 0.30	
TUTT POND-20170907	2017 09 07	42	< 0.50	3.6	56	< 5.0a	< 200	< 100	< 0.050	90,900	< 0.50	< 0.50	1.1	50	< 1.0	< 50	190,000	70	< 0.20a	10.9	< 5.0	300	14,800	< 1.0	5.170	< 0.050	304,000	4,790	-	0.48	< 0.20	< 0.20	< 30	< 50	-	43	< 30	< 5.0	0.38	
TUTT POND-20171101	2017 11 01	45	< 0.50	4.1	74	< 5.0a	< 200	< 100	< 0.050	120,000	< 0.50	0.56	< 1.0a	71	< 1.0	< 50	194,000	314	< 0.20a	10.5	< 5.0	610	15,300	< 1.0	10.400	< 0.050	329,000	5,790	-	0.55	< 0.20	< 0.20	< 30	< 50	-	49.4	< 30	< 6.0	0.58	
TUTT POND-180404	2018 04 04	291	< 0.20	2.05	56.5	< 0.10	< 0.10	39.8	0.011	70,600	1.02	0.57	4.76	419	< 0.20	25.5	149,000	61.5	< 0.10	14.8	2.31	226	13,600	1.38	< 1,000	< 0.050	249,000	3,690	162,000	< 0.50	< 0.020	< 0.10	< 0.20	18.3	< 1.0	38.7	4	6.5	0.46	
TUTT POND-180417	2018 04 17	181	< 0.20	1.82	60.1	< 0.10	< 0.10	47.6	< 0.010	67,200	1.12	0.53	1.89	269	< 0.20	25.3	153,000	61	< 0.010	14.6	2.41	115	13,000	1.1	< 1,000	< 0.050	248,000	3,590	183,000	< 0.50	< 0.020	< 0.10	< 0.20	10.6	< 1.0	38	3.6	5.2	0.36	
TUTT POND-180503	2018 05 03	22.8	0.22	1.95	69.3	< 0.10	< 0.10	46.6	0.017	56,900	0.68	0.29	2.5	37	< 0.20	30.1	131,000	23.4	-	15.6	1.55	82	14,800	1.48	2,000	< 0.050	200,000	3,090	98,500	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	26.4	4.4	7.2	0.24	
TUTT POND-180523	2018 05 23	1,170	< 0.20	2.28	83.2	< 0.10	< 0.10	34.9	< 0.010	68,200	10.2	0.38	2.14	104	< 0.20	27.7	131,000	53.1	< 0.010	14.3	8.73	219	14,700	1.23	3,500	< 0.050	206,000	3,610	114,000	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	26.9	4.3	8	0.16	
TUTT POND-180615	2018 06 15	34.7	< 0.20	2.7	84.5	< 0.10	< 0.10	37.9	0.011	73,800	< 0.50	0.34	1.8	59	< 0.20	34.9	157,000	45.6	< 0.010	14.9	1.93	244	13,900	1.05	3,300	< 0.050	246,000	3,820	149,000	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	31.2	3.7	5.3	0.16	
TUTT POND-180712	2018 07 12	57.3	< 0.20	2.81	80.7	< 0.10	< 0.10	41.1	0.014	53,000	< 0.50	0.32	2.28	80	< 0.20	31.1	150,000	26.8	< 0.010	13.7	1.87	221	13,100	0.86	4,400	< 0.050	230,000	3,410	137,000	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	28.1	3.2	< 4.0	0.14	
TUTT POND-180906	2018 09 06	472	0.24	3.26</																																				

Table H4: Historical Summary of Analytical Results For Surfacewater - Metals

			Total Metals																																					
Sample Location	Sample ID	Sample Date (yyyy mm dd)	Aluminum µg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Bismuth µg/L	Boron µg/L	Cadmium µg/L	Calcium µg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Iron µg/L	Lead µg/L	Lithium µg/L	Magnesium µg/L	Manganese µg/L	Mercury µg/L	Molybdenum µg/L	Nickel µg/L	Phosphorous µg/L	Potassium µg/L	Selenium µg/L	Silicon µg/L	Silver µg/L	Sodium µg/L	Strontium µg/L	Sulphur µg/L	Tellurium µg/L	Thallium µg/L	Thorium µg/L	Tin µg/L	Titanium µg/L	Tungsten µg/L	Uranium µg/L	Vanadium µg/L	Zinc µg/L	Zirconium µg/L
ROBERT LK (Cont'd)	ROBERT LAKE - SOUTH-20161117	2016 11 17	2,750	< 2.0	11	< 50	< 25a	< 1,000	< 500	< 0.10	33,100	5.3	2.2	< 10a	3,410	1.6	< 50	241,000	123	< 0.20a	90.3	< 10	3,300	90,000	< 1.0	9,480	< 0.20	4,500,000	3,630	-	-	< 0.20	-	< 150	147	-	131	< 150a	< 25	-
	ROBERT LK-180417	2018 04 17	150	0.91	9.89	31	< 0.10	< 0.10	22.3	0.025	55,600	1.19	0.82	2.2	198	0.2	8.81	220,000	345	< 0.010	61.1	4.42	2,750	58,600	0.59	7,000	< 0.050	2,710,000	3,190	1,780,000	< 0.50	< 0.020	< 0.10	< 0.20	10.8	1.4	89.9	6	< 4.0	2.31
	ROBERT LK-180503	2018 05 03	58.8	0.65	10.2	32.8	< 0.10	< 0.10	31.7	0.033	63,000	< 0.50	0.74	1.83	77	< 0.20	12.3	225,000	242	-	55.5	4.05	2,610	57,100	0.58	5,800	< 0.050	2,460,000	3,540	1,700,000	< 0.50	< 0.020	< 0.10	< 0.20	5	1	82.2	6.2	4.8	1.86
	ROBERT LK-180614	2018 06 14	47	0.8	11.1	33.6	< 0.10	< 0.10	29.3	0.033	79,500	< 0.50	0.39	1.06	70	< 0.20	21	244,000	238	< 0.010	45.2	2.85	2,390	57,500	< 0.50	3,400	< 0.050	2,020,000	4,080	1,570,000	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	74.3	3.1	4.3	1.19
	ROBERT LK-180712	2018 07 12	110	0.57	9.51	23.8	< 0.10	< 0.10	44.8	0.029	71,300	0.52	0.31	1.18	101	< 0.20	19.8	229,000	95.7	< 0.010	47.5	2.92	2,270	51,700	< 0.50	1,700	< 0.050	1,840,000	4,050	1,310,000	< 0.50	< 0.020	< 0.10	< 0.20	5.5	< 1.0	73.3	2.4	< 4.0	0.85
	Robert Lk	2019 03 29	118	0.29	5.21	25.9	< 0.10	< 0.10	17.2	0.021	36,000	< 0.50	0.5	1.56	165	0.23	10.7	144,000	206	< 0.040a	36.8	2.7	1,530	31,100	< 0.50	4,600	< 0.050	1,240,000	2,170	890,000	< 0.50	< 0.020	< 0.10	< 0.20	7.5	< 1.0	54.1	3.1	< 4.0	1.3
	Robert Lk	2019 05 06	691	0.53	7.39	42.8	< 0.10	< 0.10	32	0.061	59,300	1.49	0.88	2.42	777	0.59	17	221,000	172	< 0.040a	47.5	4.42	2,400	46,600	0.51	8,200	< 0.050	1,960,000	3,530	1,300,000	< 0.50	< 0.020	< 0.10	< 0.20	40.7	< 1.0	76.8	5	7.1	2.33
	Robert Lk	2019 06 05	631	0.58	8.52	51.9	< 0.10	< 0.10	49.1	0.03	68,200	1.37	0.8	1.95	731	0.53	20.9	234,000	236	< 0.040a	39.2	4.41	2,700	47,700	0.71	6,900	< 0.050	2,020,000	3,750	1,290,000	< 0.50	< 0.020	< 0.10	< 0.20	34.2	< 1.0	71.7	5	7.1	1.64
	Robert Lk	2019 09 04	1,040	0.76	13.8	55.8	< 0.10	< 0.10	81.9	0.027	92,800	2.51	1.15	3	1,230	0.81	25.5	306,000	153	< 0.010	45.2	5.87	4,280	68,500	0.85	8,500	0.072	2,630,000	5,420	1,750,000	< 0.50	< 0.020	0.15	< 0.20	61.5	1.2	90.9	8.1	6.7	2.93
	ROBERTLAKE-200407	2020 04 07	420	0.436	8.04	42.6	0.016	< 0.010	51.1	0.0189	63,900	0.98	1.02	2.84	515	0.399	19.4	250,000	192	< 0.010	53.2	4.56	3,000	48,700	0.56	8,020	< 0.010	1,740,000	3,380	1,350,000	< 0.050	< 0.040	0.08	< 0.050	26.5	0.85	91.5	10.2	3.2	3.68
	ROBERTLAKE-200605	2020 06 05	850	0.558	8.9	56.7	0.038	0.014	43.1	0.0434	96,800	2.19	1.64	2.84	1,150	0.66	15.1	239,000	373	< 0.010	56.6	5.8	4,250	51,100	0.49	4,780	< 0.010	1,800,000	4,530	1,230,000	0.052	0.008	0.124	0.075	71.6	1	94.6	10	5.3	4.69
	ROBERTLAKE-200928	2020 09 28	1,430	0.611	11.9	58.8	0.046	0.019	63.4	0.0379	93,200	2.7	1.23	3.38	1,330	0.864	24	296,000	168	< 0.010	52.9	6.02	3,770	63,200	0.79	9,630	< 0.010	2,410,000	4,650	1,740,000	0.054	0.0113	0.212	0.066	77.4	1.29	90.7	7.73	7.7	3.46
	ROBERTLAKE-201028	2020 10 28	1,790	0.621	12.1	61.6	0.077	0.021	65.9	0.0484	66,400	3.08	1.48	3.97	1,770	1.24	27.4	295,000	145	< 0.010	56.6	6.68	3,920	62,600	1.08	13,100	0.018	2,280,000	4,100	1,680,000	< 0.050	0.0165	0.228	0.071	104	1.48	90	11.3	9.2	3.72
	ROBERT LAKE-210412	2021 04 12	1,630	0.546	10.1	62.3	0.058	0.025	48.6	0.0478	62,200	3.28	1.85	4.79	1,950	1.33	22.6	286,000	261	< 0.010	66.3	7.22	3,620	54,100	0.61	15,100	0.012	2,070,000	3,700	1,410,000	< 0.050	0.0147	0.19	0.09	102	1.16	96.4	13.6	8.6	3.25
	ROBERT LAKE-210616	2021 06 16	1,450	0.485	9.71	69.5	0.053	0.027	64.5	0.0425	93,500	2.74	1.51	5.88	1,730	1.18	25.2	311,000	291	< 0.010	58	6.38	3,840	63,100	0.5	15,000	< 0.010	2,300,000	4,060	1,550,000	< 0.050	0.0149	0.184	0.053	80.5	1.08	105	7.59	7.7	3.1
	ROBERT LAKE-210922	2021 09 22	1,150	0.649	15.4	81.5	0.029	0.017	62.6	0.0383	44,500	2.47	1.29	3.63	1,210	1.2	22.6	453,000	127	< 0.010	76.2	7.53	4,120	90,200	1.25	13,500	< 0.010	3,460,000	4,990	2,270,000	< 0.050	0.0101	0.136	< 0.050	63.2	1.88	127	7.83	7.5	3.23
	ROBERT LAKE-211021	2021 10 21	1,250	< 5.00	12.7	58.5	< 1.00a	< 1.00	278	< 0.200	42,500	< 10.0a	1.13	< 10.0	1,450	< 5.00	26.9	345,000	105	< 0.010	60.1	4.95	4,110	66,200	< 10.0a	11,500	< 1.00	2,740,000	4,530	1,910,000	< 5.00	< 0.400	< 1.00	< 5.00	73.1	< 5.00	96.5	< 20.0	< 100	2.51
ROBERT LAKE-220323	2022 03 23	277	< 0.500	7.3	39.2	< 0.100	< 0.100	42.4	0.0319	44,400	1.01	0.854	2.55	399	< 0.500	15.6	248000	213	< 0.010	57.5	4.44	2,740	44200	< 1.00	6,600	< 0.100	1,900,000	3,200	1,360,000	< 0.500	< 0.0400	< 0.100	< 0.500	19	< 2.00	90.2	9.23	< 10.0	2.35	
ROBERT LAKE-220621	2022 06 21	449	0.5	8.61	51.7	< 0.050	< 0.050	69.8	< 0.0350	59,500	1.29	0.673	2.22	450	0.56	19.7	285,000	119	< 0.010	59.8	4.89	3,140	51,300	0.69	5,260	< 0.050	2,100,000	3,870	1,530,000	< 0.250	< 0.0200	0.079	< 0.250	21.1	1.14	88.2	< 5.00	< 5.0	2.45	
ROBERT LAKE-220912	2022 09 12	242	< 0.500	11	56	< 0.100	< 0.100	76.9	< 0.0300	59,400	< 1.00	0.428	< 2.00	260	< 0.500	24.1	388,000	64.4	< 0.010	64.7	4.17	3,290	68,100	< 1.00	6,610	< 0.100	2,780,000	4,810	1,930,000	< 0.500	< 0.0400	< 0.100	< 0.500	11.2	< 2.00	98.2	< 10.0	< 10.0	1.54	
ROBERT LAKE-221019	2022 10 19	848	< 0.500	12.1	63.2	< 0.100	< 0.100	73.2	0.0506	43,200	1.85	0.914	2.85	1060	0.991	24.2	417,000	103	< 0.010	73.3	6.12	3,890	76,600	< 1.00	8,010	< 0.100	3,320,000	5,230	2,110,000	< 0.500	< 0.0400	0.121	< 0.500	45.5	< 2.00	109	< 10.0	< 10.0	2.41	
DIFFUSER	DIFFUSER-180417	2018 04 17	176	0.59	10.1	31.2	< 0.10	< 0.10	20.6	0.017	57400	0.97	1.05	2.44	248	0.27	8.99	230,000	355	< 0.010	60.8	4.72	2,900	60,800	0.57	7,400	< 0.050	2,440,000	3,170	1,840,000	< 0.50	< 0.020	< 0.10	< 0.20	12.7	1.2	90.2	6.2	4.5	2.3
	DIFFUSER-180503	2018 05 03	51.5	0.67	10.5	33.2	< 0.10	< 0.10	30	0.033	64,700	< 0.50	0.74	1.64	69	< 0.20	12.5	230,000	250	-	56.4	4.08	2,710	58,700	0.57	5,900	< 0.050	2,540,000	3,610	1,740,000	< 0.50	< 0.020	< 0.10	< 0.20	< 5.0	< 1.0	83.9	6.4	6.5	1.9
	DIFFUSER-180615	2018 06 15	70.1	0.75	11.1	33.3	< 0.10	< 0.10	28.2	0.032	82,100	< 0.50	0.41	0.99	109	< 0.20	20.3	249,000	243	< 0.010	44.9	2.99	2,410	59,400	< 0.50	3,600	< 0.050	2,000,000	4,130	1,600,000	< 0.50	< 0.020	< 0.10	0.26	5.3	< 1.0	73	3.2	5.3	1.15
JH Outfall	JH OUTFALL-180417	2018 04 17	312	< 0.20	1.92	59.3	< 0.10	< 0.10	41.8	< 0.010	76,100	1.13	0.65	2.13	452	0.3	27.2																							

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		N Pumphouse MH											
Sample ID		LEACHATE- PUMPHOUSE MANHOLE- 20130312	N Pumphouse MH-20080205	N Pumphouse MH-20080219	N Pumphouse MH-20080304	N Pumphouse MH-20080325	N Pumphouse MH-20080408	N Pumphouse MH-20080424	N Pumphouse MH-20080507	N Pumphouse MH-20080521	N Pumphouse MH-20080617	N Pumphouse MH-20080626	N Pumphouse MH-20080708
Sample Date (yyyy mm dd)		2013 03 12	2008 02 05	2008 02 19	2008 03 04	2008 03 25	2008 04 08	2008 04 24	2008 05 07	2008 05 21	2008 06 17	2008 06 26	2008 07 08
Parameter	Units	Analytical Results											
Dissolved Inorganics													
Ammonia, Total (as N)	µg/L	118,000	-	-	-	-	-	-	-	-	-	-	-
Nitrate (as N)	µg/L	< 250	-	-	-	-	-	-	-	-	-	-	-
Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	490	-	-	-	-	-	-	-	-	-	-	-
Fluoride	µg/L	5,200	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	503	-	-	-	-	-	-	-	-	-	-	-
Total Alkalinity	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	3.3	-	-	-	-	-	-	-	-	-	-	-
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	454	-	-	-	-	-	-	-	-	-	-	-
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Ortho-Phosphate	mg/L	2.5	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	120	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals													
Dissolved Aluminum	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Iron	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Manganese	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Copper	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Monocyclic Aromatic Hydrocarbons													
Benzene	µg/L	3.13	16	11	14	13	11	7	9	8	11	12	8
Ethylbenzene	µg/L	19.3	63	46	64	60	56	47	56	44	49	49	38
Toluene	µg/L	1.03	2	2	3	3	2	2	2	2	2	3	2
Xylenes	µg/L	9.35	9	9	11	13	12	10	12	7	11	8	9
Styrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons													
Naphthalene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Methylnaphthalene, 1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Methylnaphthalene, 2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Acridine	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloronaphthalene, 2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Quinoline	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds													
Bromodichloromethane [BDCM]	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Bromoform	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon Tetrachloride	µg/L	< 0.50	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chlorobenzene	µg/L	3.8	3	2	2	3	3	3	3	3	2	3	2

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		N Pumphouse MH											
Sample ID		N Pumphouse MH-20131211	N Pumphouse MH-20140408	N Pumphouse MH-20140610	N Pumphouse MH-20150122	N Pumphouse MH-20150615	N Pumphouse MH-20150915	N Pumphouse MH-20151203	N PUMPHOUSE MH-20160315	N PUMPHOUSE MH-20160623	N PUMPHOUSE MH-20160915	N PUMPHOUSE MH-20161117	N PUMPHOUSE MH-20170914
Sample Date (yyyy mm dd)		2013 12 11	2014 04 08	2014 06 10	2015 01 22	2015 06 15	2015 09 15	2015 12 03	2016 03 15	2016 06 23	2016 09 15	2016 11 17	2017 09 14
Parameter	Units	Analytical Results											
Dissolved Inorganics													
Ammonia, Total (as N)	µg/L	108,000	64,800	65,300	40,600	95,000	99,700	111,000	76,800	11,400	99,000	140,000	87,000
Nitrate (as N)	µg/L	< 250	< 250	350	< 250	< 250	< 250	350	< 250	5,710	< 250	< 250	< 250
Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	380	506	553	368	377	416	441	420	217	502	671	503
Fluoride	µg/L	2,200	< 1,000	778	< 1,000	1,600	< 1,000	< 1,000	< 1,000	1,280	< 1,000	< 1,000	1,100
Sulfate	mg/L	376	1,130	860	299	545	548	698	573	347	893	996	954
Total Alkalinity	mg/L	-	3,440	4,930	2,100	3,470	3,640	3,640	3,190	934	3,920	4,680	3,760
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	-	2,100	-	3,640	3,640	3,190	-	-	-	-
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	-	-	-	-
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	-	-	-	-
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	2.6	4.2	4.7	< 2.5	2.6	3.3	2.9	2.8	< 1.0	3.7	5.3	3.4
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	381	626	660	205	357	421	415	518	46	482	681	508
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Ortho-Phosphate	mg/L	2.2	3.07	4.55	0.8	2.3	2.46	2.63	2.29	0.222	3.01	0.392	3.33
Total Organic Carbon	mg/L	106	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals													
Dissolved Aluminum	µg/L	-	94	82	20	36	42	46	59	< 10	49	58	70
Dissolved Calcium	mg/L	-	66.2	64.4	115	104	95	96.2	84.6	58.7	113	89.6	96.8
Dissolved Iron	µg/L	-	261	144	1,060	116	106	76	89	130	122	84	< 90
Dissolved Magnesium	mg/L	-	185	257	214	250	265	286	236	149	291	262	270
Dissolved Manganese	µg/L	-	283	299	841	423	377	395	494	90	493	355	411
Dissolved Potassium	mg/L	-	-	-	-	-	166	169	182	31.6	177	243	177
Dissolved Sodium	mg/L	-	1,770	2,260	686	1,140	1,370	1,520	1,580	308	1,760	2,020	1,700
Antimony	µg/L	-	3.8	11.8	< 0.50	3.3	7.69	8	7.85	0.73	12.3	9.3	8.5
Arsenic	µg/L	-	16.5	33.9	1.7	9.6	14.1	16	21.8	2.3	24.8	23.5	17.2
Barium	µg/L	-	100	148	201	238	247	256	151	97	303	234	233
Beryllium	µg/L	-	< 10	< 15	< 5.0	< 10	< 10	< 10	< 10	< 5.0	< 10	< 10	< 15
Boron	µg/L	-	1,590	1,640	890	1,390	1,490	1,520	1,650	230	1,680	2,060	1,520
Cadmium	µg/L	-	< 0.50	< 0.50	< 0.25	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chromium	µg/L	-	16.1	22.3	5.2	11.1	13.4	15	16.1	3.14	17	22.5	12.6
Cobalt	µg/L	-	6.6	6.1	3.27	7.03	6.92	7.7	6.57	0.84	8.5	11.5	5.2
Copper	µg/L	-	< 5.0	< 5.0	< 2.5	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Lead	µg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lithium	µg/L	-	< 50	59	< 50	< 50	< 50	< 50	< 50	< 50	52	< 50	52
Mercury	µg/L	-	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Molybdenum	µg/L	-	3	4.6	< 1.0	1.4	2.2	1.3	2.5	13.4	2	2	1.8
Nickel	µg/L	-	25.8	26	8.5	14.1	16.1	17.6	21.8	< 5.0	19.7	25.5	18
Selenium	µg/L	-	< 10	< 10	< 5.0	< 1.0	1.7	< 1.0	11.4	5	< 1.0	3.964	11.6
Silver	µg/L	-	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.10	< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Thallium	µg/L	-	< 1.0	< 1.0	< 0.50	< 0.050	< 0.20	< 0.10	< 0.050	< 0.010	< 0.10	< 0.10	< 0.10
Titanium	µg/L	-	59	73	< 50	< 50	55	55	< 50	< 50	58	67	59
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	22.5	16.2	3.61	5.43	5.09	4.55	8.59	33.3	5.43	4.77	9.1
Vanadium	µg/L	-	< 60	< 90	< 30	< 60	< 60	< 60	< 60	< 30	< 60	< 60	< 90
Zinc	µg/L	-	< 10	< 15	< 5.0	< 10	< 10	< 10	< 10	< 5.0	< 10	< 10	< 15
Bismuth	µg/L	-	-	-	-	-	< 400	< 400	< 400	< 200	< 400	< 400	< 600
Phosphorous	µg/L	-	-	-	-	-	2,640	3,180	3,180	< 300	3,190	4,140	3,410
Silicon	µg/L	-	-	-	-	-	15,700	15,400	12,700	10,100	16,700	16,200	14,500
Strontium	µg/L	-	-	-	-	-	3,610	3,440	2,660	2,670	3,960	3,100	3,400
Sulphur	µg/L	-	-	-	-	179,000	720,000	657,000	793,000	93,800	322,000	520,000	604,000
Tellurium	µg/L	-	-	-	-	< 1.0	< 1.0	< 2.0	< 1.0	< 0.20	-	-	< 2.0
Thorium	µg/L	-	-	-	-	< 0.50	< 0.50	< 1.0	< 0.50	< 0.10	-	-	< 1.0
Tin	µg/L	-	-	-	-	-	< 60	< 60	< 60	< 30	< 60	< 60	< 90
Zirconium	µg/L	-	-	-	-	17.8	19.2	22.3	17.5	2.64	-	-	19.6
Monocyclic Aromatic Hydrocarbons													
Benzene	µg/L	3.74	2.05	4.75	-	2.86	3.08	2.98	2.96	-	-	3.43	3.34
Ethylbenzene	µg/L	11.9	22.1	45.9	-	9.41	11	13.4	15.8	-	-	22.8	18.8
Toluene	µg/L	0.79	3.8	4.01	-	0.76	0.88	0.72	1.04	-	-	1.29	0.7
Xylenes	µg/L	9.62	19.8	40.5	-	5.25	5.45	7.9	9.68	-	-	14.3	13.4
Styrene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons													
Naphthalene	µg/L	-	3.19	3.09	0.36	1.45	2.11	2.76	2.94	0.19	1.57	3.55	1.53
Methylnaphthalene, 1-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Methylnaphthalene, 2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	µg/L	-	0.33	0.263	0.2	0.328	0.508	0.415	0.346	< 0.050	0.222	0.4	0.325
Fluorene	µg/L	-	0.229	0.159	0.142	0.229	0.362	0.298	0.201	< 0.050	0.176	0.238	0.259
Phenanthrene	µg/L	-	0.245	0.184	0.074	0.09	0.154	0.125	0.124	< 0.050	0.081	0.16	0.154
Anthracene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acridine	µg/L	-	< 0.050	< 0.060	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.070	< 0.050
Fluoranthene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benz(a)anthracene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(b)fluoranthene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-
Benzo(b+)fluoranthene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo(a)pyrene	µg/L	-	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0050	< 0.0050	< 0.0050
Indeno(1,2,3-cd)pyrene	µg/L	-	< 0.050.										

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		N Pumphouse MH											
Sample ID		N PUMPHOUSE MH-20171204	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH-20180524	N Pumphouse MH	N Pumphouse MH-20181108	N Pumphouse MH	N Pumphouse MH-20190315	N Pumphouse MH	N Pumphouse MH-20190603	N Pumphouse MH	N Pumphouse MH-20190903
Sample Date (yyyy mm dd)		2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 11 08	2018 11 08	2019 03 15	2019 03 15	2019 06 03	2019 06 03	2019 09 03	2019 09 03
Parameter	Units	Analytical Results											
Dissolved Inorganics													
Ammonia, Total (as N)	µg/L	65,600	171	52,900	52,900	50,200	50,200	14,600	14,600	39,500	39,500	33,800	33,800
Nitrate (as N)	µg/L	< 250	7,230	< 100	< 100	< 250	< 250	3,530	3,530	< 100	< 100	< 10	< 10
Nitrite (as N)	µg/L	-	< 100	< 100	-	< 250	-	390	-	< 100	-	< 10	-
Chloride	mg/L	554	131	437	437	936	936	501	501	410	410	89.9	89.9
Fluoride	µg/L	< 1,000	< 1,000	< 1,000	< 1,000	< 2,500	< 2,500	< 1,000	< 1,000	1,100	1,100	110	110
Sulfate	mg/L	1,160	236	1,010	1,010	2,660	2,660	1,340	1,340	1,120	1,120	240	240
Total Alkalinity	mg/L	5,390	575	2,740	2,740	6,350	6,350	2,890	2,890	3,310	3,310	6,780	6,780
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	575	2,740	2,740	6,350	6,350	2,790	2,790	3,310	3,310	6,780	6,780
Alkalinity, Carbonate (as CaCO3)	mg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	102	102	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	< 1.0	< 1.0	-	< 1.0	-	50.8	-	< 1.0	-	< 1.0	-
Bromide	mg/L	3.9	< 1.00	< 1.00	< 1.00	< 2.50	< 2.50	2.37	2.37	< 1.00	< 1.00	< 1.00	< 1.00
Sulfide	mg/L	-	< 0.020	31.7	-	102	-	26.7	-	46.1	-	129	-
Biochemical Oxygen Demand	mg/L	-	< 5.5	63.7	-	301	-	111	-	58.3	-	275	-
Chemical Oxygen Demand	mg/L	529	< 20	382	382	925	925	436	436	430	430	947	947
Phosphate	mg/L	-	0.086	3.02	-	6.51	-	-	-	2.9	-	-	-
Ortho-Phosphate	mg/L	4.5	-	-	3.02	-	6.51	3.27	3.27	-	2.9	0.865	0.865
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-	0.143	4	-	8.06	-	4.3	-	3.99	-	10.1	-
Dissolved Metals													
Dissolved Aluminum	µg/L	156	< 5.0	78.3	78.3	180	180	81.6	81.6	72.4	72.4	168	168
Dissolved Calcium	mg/L	66.2	69.3	83	83	54.6	54.6	57.9	57.9	83.1	83.1	50.6	50.6
Dissolved Iron	µg/L	53	11	97	97	68	68	48	48	52	52	62	62
Dissolved Magnesium	mg/L	305	136	205	205	257	257	204	204	232	232	215	215
Dissolved Manganese	µg/L	317	27.9	305	305	196	196	157	157	316	316	154	154
Dissolved Potassium	mg/L	253	16.7	151	151	307	307	134	134	158	158	251	251
Dissolved Sodium	mg/L	3,250	184	1,330	1,330	4,180	4,180	1,960	1,960	1,720	1,720	4,200	4,200
Antimony	µg/L	4.66	< 0.20	9.61	9.61	25.1	25.1	8.9	8.9	6.92	6.92	11.2	11.2
Arsenic	µg/L	15.8	1.15	25.8	25.8	89.9	89.9	20.8	20.8	19.8	19.8	34.5	34.5
Barium	µg/L	172	78.9	205	205	142	142	85.7	85.7	159	159	156	156
Beryllium	µg/L	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Boron	µg/L	1,930	28	1,350	1,350	1,740	1,740	978	978	1,240	1,240	2,260	2,260
Cadmium	µg/L	< 0.025	0.015	0.011	0.011	0.012	0.012	0.013	0.013	< 0.010	< 0.010	0.014	0.014
Chromium	µg/L	26.5	2.63	15.7	15.7	45.7	45.7	14.3	14.3	15.3	15.3	47.6	47.6
Cobalt	µg/L	5	0.12	3.88	3.88	5.46	5.46	2.14	2.14	4.59	4.59	5.77	5.77
Copper	µg/L	2	1.09	< 0.40	< 0.40	< 0.40	< 0.40	0.68	0.68	0.43	0.43	0.48	0.41
Lead	µg/L	< 0.25	< 0.20	< 0.20	< 0.20	0.22	0.22	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Lithium	µg/L	65.8	36.9	54.6	54.6	49.2	49.2	55.4	55.4	48.8	48.8	64.5	64.5
Mercury	µg/L	< 0.25	< 0.010	< 0.010	< 0.010	< 0.200	< 0.200	< 0.100	< 0.100	< 0.010	< 0.010	< 0.010	< 0.010
Molybdenum	µg/L	2.33	18.9	6.22	6.22	5.33	5.33	7.16	7.16	3.32	3.32	5.46	5.46
Nickel	µg/L	27.5	1.02	21.8	21.8	33.6	33.6	13.2	13.2	16.6	16.6	33.1	33.1
Selenium	µg/L	14.4	7.41	2.58	2.58	1.35	1.35	2.42	2.42	0.96	0.96	20.7	20.7
Silver	µg/L	0.078	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Thallium	µg/L	< 0.050	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Titanium	µg/L	60.1	< 5.0	40.4	40.4	116	116	30.4	30.4	45.2	45.2	118	118
Tungsten	µg/L	-	< 1.0	2.3	-	4.8	-	1.8	-	2.4	-	4.9	-
Uranium	µg/L	14.2	39.5	25	25	37.2	37.2	33.3	33.3	16.8	16.8	26.2	26.2
Vanadium	µg/L	19.1	3.3	13	13	27.6	27.6	8.5	8.5	11.6	11.6	24.1	24.1
Zinc	µg/L	< 5.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Bismuth	µg/L	< 0.25	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorous	µg/L	8,100	158	4,380	4,380	9,480	9,480	4,530	4,530	4,100	4,100	9,920	9,920
Silicon	µg/L	13,100	10,700	14,200	14,200	14,700	14,700	10,300	10,300	13,500	13,500	15,300	15,300
Strontium	µg/L	2,800	3,160	3,480	3,480	2,510	2,510	2,320	2,320	3,410	3,410	2,440	2,440
Sulphur	µg/L	1,180,000	100,000	431,000	-	1,420,000	-	581,000	-	473,000	-	2,810,000	-
Tellurium	µg/L	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Thorium	µg/L	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tin	µg/L	14.7	< 0.20	15.4	15.4	59.9	59.9	18.8	18.8	11.4	11.4	53.3	53.3
Zirconium	µg/L	32.7	0.18	21.5	21.5	51.1	51.1	15.1	15.1	18.7	18.7	50.6	50.6
Monocyclic Aromatic Hydrocarbons													
Benzene	µg/L	5.43	< 0.5	4.9	4.9	8.7	8.7	2.9	2.9	3	3	8.8	8.8
Ethylbenzene	µg/L	41.4	< 1.0	79.4	79.4	53.4	53.4	5.9	5.9	47	47	79.3	79.3
Toluene	µg/L	1.23	< 1.0	3.8	3.8	2.3	2.3	1.7	1.7	< 1.0	< 1.0	2.7	2.7
Xylenes	µg/L	31.1	< 2.0	59.6	59.6	86.4	86.4	7.3	7.3	26.8	26.8	99.6	99.6
Styrene	µg/L	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-
Polycyclic Aromatic Hydrocarbons													
Naphthalene	µg/L	2.06	< 0.200	2.08	2.08	3.52	3.52	5.93	5.93	3.41	3.41	6.98	6.98
Methylnaphthalene, 1-	µg/L	-	< 0.100	0.62	-	0.545	-	1.06	-	0.644	-	0.947	-
Methylnaphthalene, 2-	µg/L	-	< 0.100	0.721	-	0.407	-	1.1	-	0.568	-	0.886	-
Acenaphthylene	µg/L	< 0.010	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Acenaphthene	µg/L	0.312	< 0.050	0.233	0.233	0.293	0.293	0.386	0.386	0.518	0.518	0.41	0.41
Fluorene	µg/L	0.234	< 0.050	0.164	0.164	0.212	0.212	0.221	0.221	0.336	0.336	0.271	0.271
Phenanthrene	µg/L	0.213	< 0.100	0.19	0.19	0.341	0.341	0.242	0.242	0.419	0.419	0.395	0.395
Anthracene	µg/L	< 0.030	< 0.010	0.019	0.019	< 0.010	< 0.010	0.019	0.019	0.023	0.023	0.045	0.045
Acridine	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	µg/L	0.05	< 0.030	< 0.030	< 0.030	0.172	0.172	0.09	0.09	0.118	0.118	0.15	0.15
Pyrene	µg/L	0.043	< 0.020	0.033	0.033	0.091	0.091	0.064	0.064	0.025	0.025	0	

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		N Pumphouse MH														P1 Leachate MH							
		N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	Landfill Leachate-20061109	Landfill Leachate-20061116	Landfill Leachate-20061122	P1 LEACHATE MH-20130911	P1 LEACHATE MH-20140408	P1 LEACHATE MH-20140610	P1 LEACHATE MH-20150122	P1 LEACHATE MH-20150615	
Sample Date (yyyy mm dd)		2019 10 31	2019 10 31	2020 03 05	2020 06 03	2020 09 30	2020 11 16	2021 03 18	2021 06 17	2021 09 16	2021 10 22	2022 02 14	2022 06 23	2022 09 14	2022 10 20	2006 11 09	2006 11 16	2006 11 22	2013 09 11	2014 04 08	2014 06 10	2015 01 22	2015 06 15
Parameter		Units																					
Analytical Results																							
Dissolved Inorganics																							
Ammonia, Total (as N)	µg/L	52,300	52,300	55,100	35,000	101,000	29,800	37,300	56,500	70,600	32,000	40,800	44,200	52,900	23,300	-	-	-	102,000	82,000	73,700	23,900	78,300
Nitrate (as N)	µg/L	< 100	< 100	< 10	< 100	< 100	1,240	1,950	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-	< 250	< 250	< 250	< 100	< 250
Nitrite (as N)	µg/L	< 100	-	< 10	< 100	< 100	< 100	5,110	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-	-	-	-
Chloride	mg/L	401	401	337	530	605	369	548	518	704	362	779	540	792	439	-	-	-	445	391	319	304	355
Fluoride	µg/L	< 1,000	< 1,000	810	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	-	-	-	1,000	1,400	1,530	1,000	1,600
Sulfate	mg/L	1,160	1,160	859	1,350	1,200	813	1,430	1,360	1,620	834	1850	1330	1660	754	-	-	-	448	878	784	374	959
Total Alkalinity	mg/L	3,440	3,440	2,900	3,310	4,280	3,350	4,080	4,540	5,950	5,240	5,950	5,240	5,740	2,290	-	-	-	-	4,020	4,850	1,510	4,270
Alkalinity, Bicarbonate (as CaCO3)	mg/L	3,440	3,440	2,900	3,310	4,280	3,340	4,080	4,540	5,660	2,530	5,240	3,470	5,080	2,220	-	-	-	-	-	-	1,510	-
Alkalinity, Carbonate (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.7	< 1.0	< 1.0	292	< 1.0	< 1.0	< 1.0	660	70.4	-	-	-	-	-	-	< 1.0	-
Alkalinity, Hydroxide (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	< 1.0	-
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	< 1.0	-	< 1.0	< 1.0	< 1.0	4.3	< 1.0	< 1.0	146	< 1.0	< 1.0	< 1.0	330	35.2	-	-	-	-	-	-	-	-
Bromide	mg/L	2.6	2.6	1.88	2.59	< 10.0	2.56	< 10.0	1.16	< 10.0	< 10.0	< 10.0	1.1	3.67	1.75	-	-	-	2.8	3.4	3.1	< 1.0	2.8
Sulfide	mg/L	75.3	-	46.3	38.4	73.3	82.3	70.5	51.7	89.2	11.6	79.1	49.5	77.4	32.5	-	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	60.2	-	79.4	113	269	334	88	64	200	34	325	> 400	182	67.7	-	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	310	310	385	549	789	460	472	562	653	188	700	1680	667	240	-	-	-	413	433	353	117	336
Phosphate	mg/L	-	-	-	-	-	-	-	-	-	-	3.57	0.387	0.463	0.189	-	-	-	-	-	-	-	-
Ortho-Phosphate	mg/L	1	1	2.01	3.42	2.96	2.67	2.04	0.647	4	0.923	-	-	-	-	-	-	-	2.34	3.27	3.94	0.43	3.32
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	110	112	152	76.1	-	-	-	114	-	-	-	-
Total Phosphorous as P	mg/L	2.9	-	2.8	5.01	5.27	3.73	4.39	4.53	5.39	2.12	5.6	5.18	5.44	2.27	-	-	-	-	-	-	-	-
Dissolved Metals																							
Dissolved Aluminum	µg/L	40.7	40.7	32.7	105	60.7	116	70.1	160	68.1	61.3	341	72.2	95.3	53.7	-	-	-	-	41	22	13	29
Dissolved Calcium	mg/L	95.4	95.4	104	7.35	103	43.6	77.4	125	92.6	103	68.4	81.2	73.8	71.5	-	-	-	-	89.4	107	99.9	100
Dissolved Iron	µg/L	76.2	76.2	182	56.3	30.8	< 200	69.1	< 200	118	51.8	< 200	28	32.8	28.8	-	-	-	-	695	65	1,830	< 90
Dissolved Magnesium	mg/L	272	272	293	157	234	135	197	209	183	302	213	259	220	188	-	-	-	-	301	389	186	304
Dissolved Manganese	µg/L	369	369	580	250	490	101	211	253	313	273	120	311	130	106	-	-	-	-	442	475	636	440
Dissolved Potassium	mg/L	146	146	138	168	161	132	138	222	120	129	167	167	211	105	-	-	-	-	-	-	-	-
Dissolved Sodium	mg/L	1,690	1,690	1,410	1,750	1,810	1,950	1,860	2,170	1,680	1,620	2700	1770	2810	1490	-	-	-	-	1,580	1,730	541	1,520
Antimony	µg/L	9.63	9.63	7.65	10.8	11.1	17.3	14	12.8	15.8	16	26.8	10.1	26.7	16.6	-	-	-	-	2.43	1.35	< 0.50	1.4
Arsenic	µg/L	35.4	35.4	21.3	46.1	31.2	41.6	53.6	33.8	43.8	43.4	65.4	24.8	59.9	36.1	-	-	-	-	10.1	6.7	1.4	7
Barium	µg/L	232	232	228	98.6	204	79.5	111	127	134	176	97.1	156	130	128	-	-	-	-	316	401	130	261
Beryllium	µg/L	0.024	0.024	0.017	< 0.010	0.024	< 1.00	0.024	< 1.00	0.022	0.024	< 1.00	< 0.050	< 0.100	< 0.050	-	-	-	-	< 10	< 10	< 10	< 15
Boron	µg/L	1,160	1,160	1,290	135	1,510	1,140	1,300	1,990	1,230	1,290	1820	1650	1850	947	-	-	-	-	1,460	1,400	540	1,360
Cadmium	µg/L	0.0053	0.0053	0.0036	0.0088	0.0038	< 0.200	0.0056	< 0.200	0.0075	0.0068	< 0.200	< 0.0100	< 0.0200	< 0.0100	-	-	-	-	< 0.25	< 0.25	< 0.10	< 0.050
Chromium	µg/L	18	18	13.8	18.6	21.4	17.1	16.7	17.6	19	17.1	18.1	14.1	29.2	14.5	-	-	-	-	12.3	10.3	2.9	11.3
Cobalt	µg/L	6.6	6.6	7.21	3.56	6.72	2.56	2.82	4.39	3.35	5.49	3.19	4.64	4.74	2.32	-	-	-	-	6.52	6.66	1.54	6.2
Copper	µg/L	0.22	0.22	0.13	0.97	0.6	< 10.0	0.49	< 10.0	0.27	0.39	< 10.0	< 0.50	< 1.00	< 0.50	-	-	-	-	< 2.5	< 2.5	< 1.0	< 2.0
Lead	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 5.00	< 0.050	< 5.00	< 0.050	< 0.050	< 5.00	< 0.250	< 0.500	< 0.250	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
Lithium	µg/L	53.7	53.7	45.4	4.24	57.6	35.5	54.3	69.5	52.9	76.5	71.3	63.2	60.2	55.6	-	-	-	-	< 50	< 50	< 50	< 50
Mercury	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.060	< 0.010	< 0.040	< 0.040	< 0.020	< 0.020	< 0.040	< 0.040	< 0.010	-	-	-	-	< 0.20	< 0.20	< 0.20	< 0.20
Molybdenum	µg/L	4.49	4.49	1.82	3.68	3.24	5.48	8.35	2.68	10.4	6.88	5.72	2.96	6.48	11.4	-	-	-	-	2.7	2.1	< 1.0	1.6
Nickel	µg/L	18.7	18.7	19.3	16.1	20.2	15.9	15.4	21.2	14.1	16.8	17.1	16.3	21.7	10.7	-	-	-	-	15.6	10.3	6.9	12.7
Selenium	µg/L	0.83	0.83	0.66	1.29	1.63	< 10.0	2.12	< 10.0	2.12	2.61	34.4	1.91	< 1.00	2.4	-	-	-	-	< 5.0			

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		P1 Leachate MH											
Sample ID		P1 LEACHATE MH-20150915	P1 LEACHATE MH-20151203	P1 LEACHATE MH-20160315	P1 LEACHATE MH-20160623	P1 LEACHATE MH-20160915	P1 LEACHATE MH-20161117	P1 LEACHATE MH-20170914	P1 LEACHATE MH-20171204	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH-20180524	P1 Leachate MH
Sample Date (yyyy mm dd)		2015 09 15	2015 12 03	2016 03 15	2016 06 23	2016 09 15	2016 11 17	2017 09 14	2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 08 16
Parameter	Units	Analytical Results											
Dissolved Inorganics													
Ammonia, Total (as N)	µg/L	91,500	78,200	58,300	17,300	18,400	71,100	74,300	88,900	59,400	67,700	67,700	61,600
Nitrate (as N)	µg/L	< 250	< 250	< 250	4,060	170	< 250	< 250	< 250	< 250	< 1,000	< 1,000	< 100
Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	< 250	< 1,000	-	< 100
Chloride	mg/L	389	306	435	219	246	392	408	428	294	270	270	329
Fluoride	µg/L	1,200	1,200	< 1,000	1,100	1,230	1,400	< 4,000	1,100	< 2,500	1,140	1,140	1,600
Sulfate	mg/L	1,170	890	753	443	404	982	933	1,090	808	662	662	868
Total Alkalinity	mg/L	4,410	3,910	3,030	1,070	1,300	3,990	3,700	4,130	2,370	3,390	3,390	3,710
Alkalinity, Bicarbonate (as CaCO3)	mg/L	4,410	3,910	3,030	-	-	-	-	-	2,370	3,390	3,390	3,710
Alkalinity, Carbonate (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0
Bromide	mg/L	3.9	< 2.5	2.6	< 1.0	1	3.3	3.1	3.1	< 0.10	< 10.0	< 10.0	< 10.0
Sulfide	mg/L	-	-	-	-	-	-	-	-	28.9	29.5	-	36.5
Biochemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	49.8	40.8	-	42.5
Chemical Oxygen Demand	mg/L	405	288	411	71	100	319	374	444	294	212	212	243
Phosphate	mg/L	-	-	-	-	-	-	-	-	2.05	1.48	-	2.22
Ortho-Phosphate	mg/L	3.26	3.32	0.503	0.27	0.502	0.319	3.09	3.76	-	-	1.48	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-	-	-	-	-	-	-	-	2.53	2.44	-	3.38
Dissolved Metals													
Dissolved Aluminum	µg/L	659	32	55	< 10	< 10	16	47	49.7	40.3	31.9	31.9	24.7
Dissolved Calcium	mg/L	102	97.9	124	83.2	85	94.3	106	95	109	122	122	106
Dissolved Iron	µg/L	100	156	224	92	276	80	93	53	74	90	90	105
Dissolved Magnesium	mg/L	369	364	203	156	172	336	310	344	200	378	378	326
Dissolved Manganese	µg/L	419	505	860	215	650	473	560	455	562	705	705	717
Dissolved Potassium	mg/L	160	113	125	43.9	51.4	125	147	175	157	117	117	105
Dissolved Sodium	mg/L	1,880	1,500	1,090	419	409	1,670	1,590	1,960	1,440	1,230	1,230	1,270
Antimony	µg/L	< 0.50	1.52	2.64	0.76	< 0.50	1.9	5.2	2.53	4.88	2.25	2.25	2.57
Arsenic	µg/L	1.1	6.8	12.6	2.1	2.4	4.2	12.2	8.25	15.2	7.41	7.41	11.4
Barium	µg/L	304	330	145	92	108	254	251	258	128	382	382	344
Beryllium	µg/L	< 15	< 10	< 10	< 5.0	< 5.0	< 10	< 15	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10
Boron	µg/L	1,370	1,040	1,170	360	460	1,390	1,330	1,610	1,270	1,090	1,090	1,090
Cadmium	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.025	< 0.010	< 0.010	< 0.010	< 0.010
Chromium	µg/L	1.33	9.24	11.1	1.73	2.02	9.5	12.5	14.9	10.3	9.73	9.73	11
Cobalt	µg/L	1.31	4.68	4.62	1.5	1.98	6.6	5.6	5.7	4.06	5.62	5.62	5.61
Copper	µg/L	6	< 1.0	< 1.0	3.5	1.4	< 2.0	< 2.0	< 1.0	1.19	< 0.40	< 0.40	< 0.40
Lead	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.25	< 0.20	< 0.20	< 0.20	0.2
Lithium	µg/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	41.8	37	37.3	37.3	39.8
Mercury	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.25	< 0.010	< 0.010	< 0.010	< 0.020
Molybdenum	µg/L	11.1	1.5	1.8	15.3	3.6	2.1	1.4	1.27	1.76	1.81	1.81	1.67
Nickel	µg/L	< 5.0	11.7	14.8	9	12.8	11.3	13	14.3	11.1	11.5	11.5	11.7
Selenium	µg/L	< 1.0	4.4	6.6	3.3	< 1.0	< 0.50< 1.0	5.9	3.5	< 0.50	< 0.50	< 0.50	0.52
Silver	µg/L	< 0.050	0.096	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	0.086	< 0.050	< 0.050	< 0.050	< 0.050
Thallium	µg/L	< 0.20	< 0.050	< 0.050	< 0.020	< 0.020	< 0.10	< 0.10	< 0.050	< 0.020	< 0.020	< 0.020	< 0.020
Titanium	µg/L	58	< 50	< 50	< 50	< 50	< 50	62	55.1	49.1	38.5	38.5	42.7
Tungsten	µg/L	-	-	-	-	-	-	-	-	1.4	2.7	-	2.5
Uranium	µg/L	1.71	3.72	10.1	29.1	9.13	8.91	8.64	8.34	7.02	7.06	7.06	6.98
Vanadium	µg/L	< 90	< 60	< 60	< 30	< 30	< 60	< 90	18.9	10.8	18.3	18.3	18.3
Zinc	µg/L	< 15	< 10	< 10	< 5.0	< 5.0	< 10	25	< 5.0	< 4.0	< 4.0	< 4.0	< 4.0
Bismuth	µg/L	< 600	< 400	< 400	< 200	< 200	< 400	< 600	< 0.25	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorous	µg/L	3,770	3,610	2,050	< 300	590	3,570	3,170	4,580	2,850	2,810	2,810	3,530
Silicon	µg/L	17,500	16,800	13,800	13,000	14,200	18,400	16,600	18,200	17,800	23,000	23,000	21,000
Strontium	µg/L	4,220	3,900	2,930	2,640	2,550	4,050	3,910	3,690	2,980	5,410	5,410	4,250
Sulphur	µg/L	377,000	840,000	247,000	142,000	134,000	280,000	451,000	528,000	358,000	329,000	-	326,000
Tellurium	µg/L	< 0.20	< 1.0	< 1.0	< 0.40	-	-	< 2.0	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50
Thorium	µg/L	0.16	< 0.50	< 0.50	< 0.20	-	-	< 1.0	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10
Tin	µg/L	< 90	< 60	< 60	< 30	< 30	< 60	< 90	4.2	5.42	4.37	4.37	4.63
Zirconium	µg/L	3	38.9	13.1	4	-	-	31	34.5	16.2	45.1	45.1	42
Monocyclic Aromatic Hydrocarbons													
Benzene	µg/L	1.88	1.28	2.4	-	-	1.3	1.7	2.4	1.6	1	1	1.3
Ethylbenzene	µg/L	3.84	3.73	11.9	-	-	1.65	7.33	12.5	10.5	< 1.0	< 1.0	5.9
Toluene	µg/L	< 0.50	< 0.50	0.69	-	-	0.9	< 0.45	0.57	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	µg/L	2.95	3.1	7.26	-	-	2.89	5.19	8.59	6	< 2.0	< 2.0	4.5
Styrene	µg/L	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0
Polycyclic Aromatic Hydrocarbons													
Naphthalene	µg/L	0.894	0.675	1.28	0.106	< 0.050	0.66	0.545	0.806	1.04	1.05	1.05	0.607
Methylnaphthalene, 1-	µg/L	-	-	-	-	-	-	-	-	0.544	0.323	-	0.151
Methylnaphthalene, 2-	µg/L	-	-	-	-	-	-	-	-	0.687	0.496	-	< 0.100
Acenaphthylene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.200	< 0.200	< 0.200	< 0.200
Acenaphthene	µg/L	0.416	0.347	0.234	0.057	< 0.050	0.311	0.339	0.331	0.264	0.389	0.389	0.369
Fluorene	µg/L	0.33	0.324	0.144	< 0.050	< 0.050	0.227	0.26	0.237	0.166	0.263	0.263	0.279
Phenanthrene	µg/L	0.074	< 0.050	0.074	< 0.050	< 0.050	< 0.050	0.104	0.114	0.122	< 0.100	< 0.100	< 0.100
Anthracene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.021	< 0.010	0.019	0.019	0.017
Acridine	µg/L	< 0.050	0.05	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.027	< 0.030	< 0.030	< 0.030	0.043
Pyrene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.022	< 0.020	0.029	0.029	0.029
Benz(a)anthracene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050							

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		P1 Leachate MH							P1 Leachate MH 2							S Leachate Wet Well						
Sample ID		P1 Leachate MH-20180816	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH-20190315	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	S LEACHATE WET WELL-20131211	S LEACHATE WET WELL-20140408	S LEACHATE WET WELL-20140610	S LEACHATE WET WELL-20150615	S LEACHATE WET WELL-20150915	S LEACHATE WET WELL-20151203	S LEACHATE WET WELL-20160315	
Sample Date (yyyy mm dd)		2018 08 16	2018 11 08	2019 03 15	2019 03 15	2020 09 29	2020 11 16	2021 03 18	2021 06 18	2021 09 16	2021 10 22	2022 02 04	2022 06 23	2022 09 20	2022 10 20	2013 12 11	2014 04 08	2014 06 10	2015 06 15	2015 09 15	2015 12 03	2016 03 15
Parameter		Units	Analytical Results																			
Dissolved Inorganics																						
Ammonia, Total (as N)	µg/L	61,600	60,700	43,000	43,000	462,000	110,000	433,000	175,000	892,000	935,000	522,000	465,000	1,320,000	1,010,000	128,000	65,400	46,500	189,000	255,000	224,000	99,200
Nitrate (as N)	µg/L	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 500	< 250	< 250	< 500	< 500	< 500	< 250
Nitrite (as N)	µg/L	-	< 100	< 100	-	< 100	191	543	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-	-	-
Chloride	mg/L	329	244	238	238	976	849	831	430	1,950	2,010	1030	719	2050	1630	909	524	352	803	924	886	598
Fluoride	µg/L	1,600	1,770	1,590	1,590	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	1,000	< 1,000	< 1,000	2,200	< 1,000	668	< 2,000	< 2,000	< 2,000	< 1,000
Sulfate	mg/L	868	795	661	661	326	261	< 10.0	686	< 10.0	< 10.0	369	451	<10.0	382	1,860	1,190	533	2,370	2,310	1,620	857
Total Alkalinity	mg/L	3,710	3,360	2,500	2,500	5,110	4,600	6,580	2,920	10,100	10,600	6530	4330	10900	8340	-	3,250	2,990	7,730	8,640	6,960	4,450
Alkalinity, Bicarbonate (as CaCO3)	mg/L	3,710	3,360	2,500	2,500	5,110	4,600	6,580	2,920	10,100	10,600	6530	4330	10900	8340	-	-	-	-	8,640	6,960	4,450
Alkalinity, Carbonate (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	< 1.0	< 1.0	< 1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	< 1.0	< 1.0	< 1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-
Bromide	mg/L	< 10.0	< 10.0	1.39	1.39	< 1.00	32.2	23	1.85	< 10.0	< 10.0	<1.00	<1.00	<1.00	<1.00	9.1	4.6	3	7.1	8.3	6.9	4.7
Sulfide	mg/L	-	26.2	18.9	-	< 2.00	3.38	5.13	13.8	2.78	0.632	43.3	18.3	1.62	27.1	-	-	-	-	-	-	-
Biochemical Oxygen Demand	mg/L	-	36.1	38.7	-	8,120	2,770	1,550	< 354	2,130	1,280	642	406	421	212	-	-	-	-	-	-	-
Chemical Oxygen Demand	mg/L	243	223	184	184	13,600	3,910	3,840	1,180	4,560	3,990	2130	5700	2320	1900	1,090	676	398	982	1,130	996	705
Phosphate	mg/L	-	0.975	-	-	-	-	-	-	-	-	0.221	2.3	6.57	3.78	-	-	-	-	-	-	-
Ortho-Phosphate	mg/L	2.22	-	1.1	1.1	8.27	10.8	11	< 0.0500	3.95	2.91	-	-	-	-	7.66	3.37	3.05	6.68	8.29	7.03	3.71
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	< 0.0500	3.95	2.91	-	381	140	994	615	273	-	-	-	-	-
Total Phosphorous as P	mg/L	-	2.36	2.15	-	29.1	20.6	17.3	3.36	15.2	18.9	10.6	19.8	14.6	10.3	-	-	-	-	-	-	-
Dissolved Metals																						
Dissolved Aluminum	µg/L	24.7	22.9	14.6	14.6	67.4	101	169	24.1	191	149	352	112	233	225	-	96	103	82	77	66	62
Dissolved Calcium	mg/L	106	107	104	104	1,030	691	942	278	548	466	396	146	290	204	-	60.6	64.2	94.8	78.8	73.5	79.6
Dissolved Iron	µg/L	105	69	87	87	14,400	1,210	7,460	1,690	37,300	20,400	499	2720	4640	565	-	198	< 120	< 150	< 300	< 150	70
Dissolved Magnesium	mg/L	326	342	363	363	239	278	375	256	413	457	369	273	430	383	-	178	294	319	374	344	250
Dissolved Manganese	µg/L	717	593	661	661	14,300	8,140	13,500	2,920	7,660	7,450	4540	1530	1740	1260	-	251	335	320	297	308	460
Dissolved Potassium	mg/L	105	104	91.1	91.1	566	588	487	208	985	964	406	340	893	853	-	-	-	-	426	364	224
Dissolved Sodium	mg/L	1,270	1,210	1,080	1,080	1,190	972	896	834	1,770	1,810	1290	8200	1660	2210	-	1,850	3,100	3,590	4,490	3,530	1,820
Antimony	µg/L	2.57	2.08	0.53	0.53	17.2	10.9	13.1	4.3	20.3	23.1	13.5	6.4	21.1	25.8	-	3.9	15.5	19	27.4	16.1	7.8
Arsenic	µg/L	11.4	7.73	2.72	2.72	36.9	30.9	27.2	5.77	33.5	54.8	27.7	17.9	29.8	39	-	17.7	46.7	60.9	75.3	46.9	21.7
Barium	µg/L	344	288	268	268	80.1	72.7	366	138	316	219	213	193	202	276	-	80	166	247	270	224	125
Beryllium	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.01	< 1.00	0.025	0.015	0.052	0.059	<1.00	<0.050	<0.100	<0.100	-	< 10	< 20	< 25	< 50	< 25	< 10
Boron	µg/L	1,090	1,110	1,280	1,280	4,720	3,210	7,480	2,880	11,600	12,100	7000	3310	14800	11600	-	1,650	2,170	2,670	3,300	3,050	1,980
Cadmium	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	0.0254	< 0.200	0.0582	0.0119	0.0614	0.0318	<0.200	0.012	0.0343	0.0256	-	< 0.50	< 0.50	< 0.10	< 0.10	< 0.10	< 0.050
Chromium	µg/L	11	8.15	5.07	5.07	95.7	104	108	29.9	235	242	83.2	68.6	211	180	-	16.6	26.2	43.2	55.1	44.4	18.1
Cobalt	µg/L	5.61	5.13	4.95	4.95	51.5	16.2	18.6	5.85	37.2	47.2	14.1	13	45.7	30.9	-	6.4	7.2	13.8	15.5	14.9	7.6
Copper	µg/L	< 0.40	< 0.40	< 0.40	< 0.40	1.86	< 10.0	2.22	0.24	1.98	<10.0	0.78	1.65	<1.00	<1.00	-	< 5.0	< 5.0	< 4.0	< 4.0	< 4.0	< 2.0
Lead	µg/L	0.2	< 0.20	< 0.20	< 0.20	0.239	< 5.00	0.468	< 0.050	0.586	0.262	<5.00	<0.250	<0.500	<0.500	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lithium	µg/L	39.8	33.9	42	42	233	153	199	42	305	390	185	104	290	252	-	< 50	75	< 100	< 100	< 50	50
Mercury	µg/L	< 0.020	< 0.010	< 0.010	< 0.010	< 0.010																

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		S Leachate Wet Well											
Sample ID		S LEACHATE WET WELL-20160623	S LEACHATE WET WELL-20160915	S LEACHATE WET WELL-20161117	S LEACHATE WET WELL-20170914	S LEACHATE WET WELL-20171204	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well-20180524	S Leachate Wet Well	S Leachate Wet Well-20180816	S Leachate Wet Well	S Leachate Wet Well-20181108
Sample Date (yyyy mm dd)		2016 06 23	2016 09 15	2016 11 17	2017 09 14	2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 08 16	2018 08 16	2018 11 08	2018 11 08
Parameter	Units	Analytical Results											
Dissolved Inorganics													
Ammonia, Total (as N)	µg/L	119,000	192,000	142,000	90,800	71,800	71,600	54,500	54,500	56,200	56,200	48,800	48,800
Nitrate (as N)	µg/L	< 250	< 500	< 100	< 500	< 500	< 250	< 100	< 100	< 100	< 100	< 100	< 100
Nitrite (as N)	µg/L	-	-	-	-	-	< 250	< 100	-	< 100	-	< 100	-
Chloride	mg/L	613	890	168	888	903	815	523	523	871	871	980	980
Fluoride	µg/L	< 1,000	< 2,000	< 400	< 10,000	< 2,000	< 2,500	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	1,380	2,920	252	1,950	2,040	2,080	1,440	1,440	2,240	2,240	2,990	2,990
Total Alkalinity	mg/L	4,030	9,780	24,600	5,680	6,440	5,380	3,890	3,890	5,470	5,470	6,690	6,690
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	-	-	-	5,380	3,890	3,890	5,470	5,470	6,690	6,690
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-
Bromide	mg/L	4.5	8.1	1.3	7.5	7	< 2.50	< 1.00	< 1.00	< 10.0	< 10.0	< 10.0	< 10.0
Sulfide	mg/L	-	-	-	-	-	87.9	63	-	93.8	-	85.4	-
Biochemical Oxygen Demand	mg/L	-	-	-	-	-	201	174	-	227	-	329	-
Chemical Oxygen Demand	mg/L	686	1,110	967	1,110	1,020	784	711	711	826	826	988	988
Phosphate	mg/L	-	-	-	-	-	6.91	6.35	-	6.24	-	6.58	-
Ortho-Phosphate	mg/L	3.98	9.72	22	7.43	8.23	-	-	6.35	-	6.24	-	6.58
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorous as P	mg/L	-	-	-	-	-	7.35	7.43	-	9.07	-	8.24	-
Dissolved Metals													
Dissolved Aluminum	µg/L	91	99	100	199	170	172	154	154	187	187	177	177
Dissolved Calcium	mg/L	142	68.3	88.1	73.4	57.8	101	63.1	63.1	70.9	70.9	47.5	47.5
Dissolved Iron	µg/L	< 90	< 300	< 120	< 150	< 100	89	59	59	69	69	56	56
Dissolved Magnesium	mg/L	276	413	313	302	312	344	187	187	228	228	248	248
Dissolved Manganese	µg/L	538	207	364	433	300	581	451	451	273	273	180	180
Dissolved Potassium	mg/L	270	370	402	307	285	280	223	223	276	276	313	313
Dissolved Sodium	mg/L	2,250	5,330	2,970	3,560	3,680	3,530	2,100	2,100	3,130	3,130	4,450	4,450
Antimony	µg/L	10	34.7	12.4	18	8	25.9	14.8	14.8	26.8	26.8	26.5	26.5
Arsenic	µg/L	29.7	83.9	35.9	45.2	32.7	73.5	42.1	42.1	87.4	87.4	91.3	91.3
Barium	µg/L	181	250	212	193	152	196	132	132	179	179	133	133
Beryllium	µg/L	< 15	< 50	< 20	< 25	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Boron	µg/L	2,210	2,900	3,120	2,490	2,250	2,790	1,610	1,610	2,090	2,090	1,860	1,860
Cadmium	µg/L	< 0.050	< 0.10	< 0.050	< 0.050	< 0.050	0.014	0.011	0.011	0.015	0.015	0.013	0.013
Chromium	µg/L	21.2	58.3	30.1	28.5	29	36.6	21.3	21.3	40.1	40.1	44.3	44.3
Cobalt	µg/L	7.7	13.8	13.3	6.6	5.7	7.37	4.62	4.62	5.98	5.98	4.93	4.93
Copper	µg/L	< 2.0	< 4.0	< 2.0	< 2.0	3.4	1.27	< 0.40	< 0.40	1.1	1.1	0.48	0.48
Lead	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.26	0.26
Lithium	µg/L	55	< 100	58	75	71	96.5	63.6	63.6	69.7	69.7	55.8	55.8
Mercury	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.25	< 0.010	< 0.010	< 0.010	< 0.020	< 0.020	< 0.200	< 0.200
Molybdenum	µg/L	1.9	4.1	2.4	3.4	2.7	4.76	3.71	3.71	5.46	5.46	4.81	4.81
Nickel	µg/L	25	41	33.8	32.8	30.7	28.6	22.3	22.3	30.6	30.6	32.2	32.2
Selenium	µg/L	1.1	2.1	6.19	14.5	18.3	1.28	0.79	0.79	1.69	1.69	1.27	1.27
Silver	µg/L	< 0.10	< 0.20	< 0.10	< 0.10	0.14	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.053	0.053
Thallium	µg/L	< 0.10	< 0.20	< 0.10	< 0.10	< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Titanium	µg/L	55	210	103	77	61.4	130	67.6	67.6	119	119	101	101
Tungsten	µg/L	-	-	-	-	-	3.5	3.7	-	5.2	-	4.9	-
Uranium	µg/L	8.23	3.24	3.06	15.4	9.8	22	17.1	17.1	22.7	22.7	39.2	39.2
Vanadium	µg/L	< 90	< 300	< 120	< 150	20.1	24.1	19.3	19.3	28.1	28.1	25.5	25.5
Zinc	µg/L	< 15	< 50	< 20	< 25	< 10	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Bismuth	µg/L	< 600	< 2,000	< 800	< 1,000	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorous	µg/L	4,510	10,400	6,100	7,600	9,180	11,100	7,970	7,970	10,300	10,300	9,850	9,850
Silicon	µg/L	14,300	17,300	16,600	12,400	12,400	20,900	12,900	12,900	15,900	15,900	13,000	13,000
Strontium	µg/L	4,180	3,530	3,200	2,870	2,440	4,270	2,490	2,490	3,150	3,150	2,250	2,250
Sulphur	µg/L	496,000	3,380,000	752,000	1,590,000	1,460,000	1,270,000	666,000	-	995,000	-	1,420,000	-
Tellurium	µg/L	< 2.0	-	-	< 2.0	< 2.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Thorium	µg/L	< 1.0	-	-	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tin	µg/L	< 90	< 300	< 120	< 150	28.6	56.6	30.6	30.6	67	67	65.2	65.2
Zirconium	µg/L	20.5	-	-	37.3	37.3	52.2	27.4	27.4	51.3	51.3	52.3	52.3
Monocyclic Aromatic Hydrocarbons													
Benzene	µg/L	-	-	6.16	6.5	7.77	6.1	4.8	4.8	7.9	7.9	8.7	8.7
Ethylbenzene	µg/L	-	-	19.5	56.4	68	71.6	80.3	80.3	74.6	74.6	61.6	61.6
Toluene	µg/L	-	-	22.3	1.73	1.82	1.5	4	4	3.2	3.2	2.3	2.3
Xylenes	µg/L	-	-	24.6	40.7	50.9	47.9	60.1	60.1	61.4	61.4	95.9	95.9
Styrene	µg/L	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-
Polycyclic Aromatic Hydrocarbons													
Naphthalene	µg/L	2.99	9.37	5.82	3.36	3.22	3.56	3.37	3.37	5.02	5.02	3.44	3.44
Methylnaphthalene, 1-	µg/L	-	-	-	-	-	1.11	0.897	-	0.967	-	0.548	-
Methylnaphthalene, 2-	µg/L	-	-	-	-	-	0.946	0.8	-	0.476	-	0.43	-
Acenaphthylene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	0.011	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
Acenaphthene	µg/L	0.351	0.368	0.384	0.389	0.42	0.422	0.397	0.397	0.438	0.438	0.276	0.276
Fluorene	µg/L	0.261	0.218	0.196	0.299	0.29	0.245	0.242	0.242	0.312	0.312	0.205	0.205
Phenanthrene	µg/L	0.268	0.203	0.161	0.327	0.34	0.302	0.333	0.333	0.464	0.464	0.365	0.365
Anthracene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	0.028	0.023	0.031	0.031	< 0.010	< 0.010	< 0.010	< 0.010
Acridine	µg/L	< 0.070	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	µg/L	< 0.050	< 0.050	< 0.050	0.065	0.07	< 0.030	< 0.030	< 0.030	0.129	0.129	0.192	0.192
Pyrene	µg/L	< 0.050	< 0.050	< 0.050	0.064	0.065	0.032	0.039	0.039	0.104	0.104	0.089	0.089
Benz(a)anthracene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.020	< 0.010	< 0.010	< 0.010	0.019	0.019	0.021	0.021
Chrysene	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.020	< 0.050	< 0.050	< 0.050				

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		S Leachate Wet Well																			
Sample ID		S Leachate Wet Well	S Leachate Wet Well-20190315	S Leachate Wet Well	S Leachate Wet Well-20190603	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well
Sample Date (yyyy mm dd)		2019 03 15	2019 03 15	2019 06 03	2019 06 03	2019 09 03	2019 09 03	2019 10 31	2019 10 31	2020 03 05	2020 06 03	2020 09 29	2020 11 16	2021 03 18	2021 06 17	2021 09 15	2021 10 22	2022 02 04	2022 06 23	2022 09 20	2022 10 20
Parameter	Units	Analytical Results																			
Dissolved Inorganics																					
Ammonia, Total (as N)	µg/L	17,800	17,800	28,600	28,600	25,900	25,900	59,500	59,500	25,000	28,600	103,000	66,400	35,500	50,300	59,900	71,800	50,600	38,900	69,300	65,700
Nitrate (as N)	µg/L	< 100	< 100	< 1,000	< 1,000	< 1,000	< 1,000	< 100	< 100	< 10	< 100	< 100	< 100	3,260	16,600	21,400	< 100	< 100	< 100	< 100	142
Nitrite (as N)	µg/L	< 100	-	< 100	-	< 1,000	-	< 100	-	< 10	< 100	< 100	< 100	961	7,970	20,000	10,300	< 100	< 100	8,190	< 100
Chloride	mg/L	698	698	587	587	949	949	908	908	487	540	673	834	620	595	788	792	789	654	859	805
Fluoride	µg/L	< 1,000	< 1,000	< 1,000	< 1,000	< 10,000	< 10,000	< 1,000	< 1,000	490	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	1,950	1,950	1,570	1,570	2,500	2,500	2,370	2,370	1,200	1,350	1,260	1,900	1,540	1,410	1,730	1,710	1880	1620	1820	1770
Total Alkalinity	mg/L	3,870	3,870	3,390	3,390	7,300	7,300	7,670	7,670	2,570	2,630	4,400	5,940	4,230	4,680	6,670	7,290	5560	4110	6400	6170
Alkalinity, Bicarbonate (as CaCO3)	mg/L	3,650	3,650	3,260	3,260	7,300	7,300	7,190	7,190	2,550	2,610	4,400	5,680	3,910	4,380	5,770	6,070	5560	3980	5340	5590
Alkalinity, Carbonate (as CaCO3)	mg/L	222	222	123	123	< 1.0	< 1.0	484	484	17.4	22.7	< 1.0	263	321	306	893	1,220	<1.0	138	1060	580
Alkalinity, Hydroxide (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	111	-	61.6	-	< 1.0	-	242	-	8.7	11.4	< 1.0	131	161	153	446	612	<1.0	69.1	529	290
Bromide	mg/L	3.16	3.16	< 10.0	< 10.0	< 10.0	< 10.0	< 1.00	< 1.00	2.57	2.73	1.77	5.6	< 10.0	1.31	< 1.00	< 10.0	<10.0	2.18	2.24	2.67
Sulfide	mg/L	46.5	-	60.9	-	139	-	178	-	63.9	49.1	95.7	250	114	71.1	85.5	219	156	61.6	179	139
Biochemical Oxygen Demand	mg/L	195	-	114	-	323	-	354	-	111	174	-	469	178	123	351	605	291	161	295	313
Chemical Oxygen Demand	mg/L	646	646	617	617	935	935	865	865	512	585	890	859	564	642	856	794	752	658	844	887
Phosphate	mg/L	-	-	2.66	-	-	-	-	-	-	-	-	-	-	-	-	-	3.62	0.664	2.87	1.49
Ortho-Phosphate	mg/L	5.4	5.4	-	2.66	8.72	8.72	1.91	1.91	3.59	3.67	3.93	6.14	2.19	1.25	5.13	5.19	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.8	-	105	127
Total Phosphorous as P	mg/L	6.08	-	5.94	-	9.99	-	9.99	-	3.84	5.24	6.36	7.84	5.03	6.07	6.66	7.7	6.15	4.75	6	6.74
Dissolved Metals																					
Dissolved Aluminum	µg/L	124	124	129	129	186	186	149	149	66.7	91.7	107	196	114	160	298	125	359	90.7	100	113
Dissolved Calcium	mg/L	54.5	54.5	59	59	43.2	43.2	61.4	61.4	38.6	< 0.04	79	60.3	56.6	141	120	129	69.1	48.1	71.6	85.9
Dissolved Iron	µg/L	46	46	64	64	70	70	87.4	87.4	32.4	38.2	40.9	< 200	36.4	< 200	< 200	29.3	<200	26.7	23.7	69.2
Dissolved Magnesium	mg/L	220	220	174	174	202	202	217	217	143	134	190	229	195	235	262	249	217	199	198	252
Dissolved Manganese	µg/L	215	215	228	228	133	133	192	192	174	211	344	200	137	382	206	204	128	197	104	275
Dissolved Potassium	mg/L	195	195	203	203	255	255	289	289	141	158	245	271	208	222	283	221	180	195	192	269
Dissolved Sodium	mg/L	2,770	2,770	2,300	2,300	4,380	4,380	4,120	4,120	1,700	1,820	2,770	4,000	2,810	2,100	4,070	4,370	2900	2080	2630	3840
Antimony	µg/L	11.6	11.6	6.14	6.14	13.7	13.7	33.9	33.9	6.82	8.65	15.1	37.3	14.2	13.4	39.2	32.9	31.5	12.3	30.8	41.4
Arsenic	µg/L	33	33	28.3	28.3	40.1	40.1	134	134	26.2	35.8	51.7	81.4	79.4	32.7	95.5	95	74	31.3	65.2	97.2
Barium	µg/L	85.6	85.6	89.2	89.2	145	145	177	177	56.7	77.7	157	145	90.8	153	175	156	108	95.6	112	144
Beryllium	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.057	0.057	0.02	< 0.010	0.035	< 1.00	0.031	1.72	< 1.00	0.053	<1.00	<0.050	<0.100	<0.100
Boron	µg/L	1,390	1,390	1,470	1,470	2,140	2,140	1,740	1,740	1,160	< 2.0	2,070	2,340	1,660	1,930	2,420	2,040	1990	1610	1770	1950
Cadmium	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	0.014	0.014	0.0119	0.0119	0.0042	0.0056	0.0079	< 0.200	0.0046	< 0.200	< 0.200	0.0082	<0.200	<0.0100	<0.0200	<0.0200
Chromium	µg/L	18.2	18.2	17.8	17.8	54.2	54.2	52.5	52.5	13.2	14.3	33.9	41.7	24.7	18.1	46.7	42.1	15.3	16.2	32.7	39.7
Cobalt	µg/L	2.72	2.72	2.98	2.98	5.52	5.52	7.47	7.47	2.47	2.57	7.88	5.11	3.14	5.23	6.37	6.88	3.45	2.78	3.9	6.01
Copper	µg/L	0.63	0.63	0.6	0.6	0.45	0.72	0.48	0.48	0.42	0.57	0.25	< 10.0	0.42	27.1	< 10.0	0.66	<10.0	0.74	<1.00	<1.00
Lead	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	0.2	0.2	0.157	0.157	0.068	< 0.050	0.106	< 5.00	0.092	< 5.00	< 5.00	0.087	<5.00	<0.250	<0.500	<0.500
Lithium	µg/L	66.1	66.1	52.4	52.4	63	63	54.2	54.2	36.9	< 0.050	55.5	65.9	64.6	68.1	74.6	92.8	76.9	61	62.7	73.9
Mercury	µg/L	< 0.100	< 0.100	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.040	< 0.010	< 0.040	< 0.020	< 0.020	< 0.040	< 0.010	< 0.010
Molybdenum	µg/L	4.22	4.22	2.42	2.42	5.8	5.8	6.04	6.04	3.23	2.67	2.71	5.62	4.27	3.78	5.92	4.09	4.73	2.28	2.97	7.98
Nickel	µg/L	17.8	17.8	17.3	17.3	36.9	36.9	34.1	34.1	12.5	13.5	23.7	31	17.6	23	25.3	27.1	17.9	14.4	18.8	26.1
Selenium	µg/L	0.76	0.76	0.78	0.78	26.6	26.6	1.25	1.25	0.73	< 0.10	0.89	12.2	1.07	< 10.0	< 10.0	1.12	40.5	54	<1.00	1.26
Silver	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.014	0.014	< 0.010	< 0.010	< 0.010	< 1.00	< 0.010	< 1.00	< 1.00	< 0.010	<1.00	<0.050	<0.100	<0.100
Thallium	µg/L	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.0040	< 0.0040	< 0.0040	< 0.0040	0.005	< 0.400	< 0.0040	< 0.400	< 0.400	< 0.00				

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		P2 A2 Leachate MH							
Sample ID		P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH
Sample Date (yyyy mm dd)		2021 03 19	2021 06 18	2021 09 16	2021 10 21	2022 02 07	2022 06 23	2022 09 14	2022 10 20
Parameter	Units	Analytical Results							
Dissolved Inorganics									
Ammonia, Total (as N)	µg/L	81,400	127,000	161,000	155,000	69,800	210,000	212,000	211,000
Nitrate (as N)	µg/L	< 100	221	< 100	388	7,700	<100	<100	1,570
Nitrite (as N)	µg/L	< 100	< 100	< 1,000	< 100	290	< 100	< 100	< 100
Chloride	mg/L	1,030	830	1,150	1,310	934	1480	1480	1420
Fluoride	µg/L	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000
Sulfate	mg/L	345	305	115	145	410	66	<100	104
Total Alkalinity	mg/L	2,940	3,390	4,450	4,470	2450	4550	4520	4000
Alkalinity, Bicarbonate (as CaCO3)	mg/L	2,940	3,390	4,450	4,470	2450	4550	4520	4000
Alkalinity, Carbonate (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Bromide	mg/L	13.6	73.4	70.5	< 10.0	1.51	<1.00	4.4	3.2
Sulfide	mg/L	0.114	1.8	3.41	2.49	29.8	0.108	0.026	0.02
Biochemical Oxygen Demand	mg/L	1,270	3,260	3,160	< 34268.8	2520	107	37	128
Chemical Oxygen Demand	mg/L	1,870	6,460	4,690	644	4100	822	787	662
Phosphate	mg/L	-	-	-	-	<0.0500	<0.0500	<0.0500	<0.0500
Ortho-Phosphate	mg/L	< 0.0500	< 0.0500	< 0.0500	< 0.0500	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	-	112	535	186	224
Total Phosphorous as P	mg/L	3.19	5.79	4.42	1.66	85.8	2.42	1.64	1.13
Dissolved Metals									
Dissolved Aluminum	µg/L	42.8	56.8	34.6	153	264	24.4	20.2	19.5
Dissolved Calcium	mg/L	280	675	525	163	146	145	134	144
Dissolved Iron	µg/L	6,890	37,900	85,300	9,530	13600	16000	2240	1870
Dissolved Magnesium	mg/L	401	322	421	410	422	461	441	454
Dissolved Manganese	µg/L	4,990	20,800	21,900	671	369	107	135	140
Dissolved Potassium	mg/L	228	186	205	222	221	209	208	233
Dissolved Sodium	mg/L	1,270	922	1,070	1,380	1120	1300	1430	1450
Antimony	µg/L	4.2	9.73	4.1	< 5.00	<5.00	1.96	2.02	2.06
Arsenic	µg/L	20.7	16.8	55.8	64.1	73.7	116	34.2	33
Barium	µg/L	380	924	1,240	1,830	2060	1930	1340	1490
Beryllium	µg/L	0.017	0.013	0.016	< 1.00	<1.00	<0.050	<0.050	<0.050
Boron	µg/L	5,170	7,330	6,100	4,710	3870	5680	6170	5770
Cadmium	µg/L	0.116	0.0198	0.0253	< 0.200	<0.200	0.0108	0.02	0.0133
Chromium	µg/L	25.9	51	23.5	15	17.1	21.2	18.6	17.5
Cobalt	µg/L	61.9	157	31.8	15.8	40.8	14.6	13.9	15.1
Copper	µg/L	3.66	0.64	1.13	< 10.0	<10.0	1.19	1.83	1.92
Lead	µg/L	0.37	< 0.050	0.13	< 5.00	<5.00	<0.250	<0.250	<0.250
Lithium	µg/L	39.9	65	37.7	29.3	42.3	33.6	31.9	34.9
Mercury	µg/L	< 0.040	< 0.010	< 0.040	< 0.020	< 0.020	< 0.040	< 0.010	< 0.010
Molybdenum	µg/L	60.7	4.43	6.49	8.25	31.2	8.06	5.5	7.01
Nickel	µg/L	305	356	149	183	201	182	192	198
Selenium	µg/L	3.97	2.32	2.12	< 10.0	<10.0	3.74	2.01	2.17
Silver	µg/L	0.012	< 0.010	0.012	< 1.00	<1.00	<0.050	<0.050	<0.050
Thallium	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.400	<0.400	<0.0200	<0.0200	<0.0200
Titanium	µg/L	19.1	5.49	22.8	30.3	<20.0	25.5	17.3	16.4
Tungsten	µg/L	2.23	0.96	2.88	< 20.0	<20.0	4.58	3.8	3.83
Uranium	µg/L	12.6	3.07	2.73	3.58	22.5	2.84	1.98	3.03
Vanadium	µg/L	19.3	7.39	36	39.7	<20.0	57.8	28.2	24.8
Zinc	µg/L	15.7	15.1	13.2	< 100	<100	<5.0	<5.0	<5.0
Bismuth	µg/L	< 0.010	< 0.010	< 0.010	< 1.00	<1.00	<0.050	<0.050	<0.050
Phosphorous	µg/L	791	655	2,550	1,600	1480	1440	459	457
Silicon	µg/L	28,600	51,600	38,400	36,000	21400	33500	27900	27400
Strontium	µg/L	7,100	6,710	7,670	7,600	6430	8490	8000	9110
Sulphur	µg/L	140,000	121,000	49,600	58,000	170000	38900	45500	44800
Tellurium	µg/L	0.258	0.265	0.271	< 5.00	<5.00	<0.250	<0.250	<0.250
Thorium	µg/L	0.018	< 0.010	0.018	< 1.00	<1.00	<0.050	<0.050	<0.050
Tin	µg/L	1.99	1.41	2	< 5.00	<5.00	2.44	2.13	2.32
Zirconium	µg/L	81.8	5.82	77.5	95.3	86.9	94.4	102	102
Monocyclic Aromatic Hydrocarbons									
Benzene	µg/L	0.8	1.2	3.1	0.7	<2.0	1.4	3.4	<0.5
Ethylbenzene	µg/L	< 1.0	3.1	9.1	2.1	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	17.4	64.6	61.5	6.3	<1.0	3.8	5	<1.0
Xylenes	µg/L	5.5	11.4	20.3	2.8	<1.0	5.4	5	<2.0
Styrene	µg/L	2.3	3.5	2.3	< 1.0	<1.0	<1.0	<1.0	<1.0
Polycyclic Aromatic Hydrocarbons									
Naphthalene	µg/L	< 0.200	0.525	< 2.09	< 1.97	0.291	<0.200	<0.200	<0.200
Methylnaphthalene, 1-	µg/L	< 0.100	< 0.100	< 1.05	< 0.983	<0.050	<0.100	<0.100	<0.100
Methylnaphthalene, 2-	µg/L	< 0.100	0.109	< 1.05	< 0.983	0.297	<0.100	<0.100	<0.100
Acenaphthylene	µg/L	< 0.200	< 0.200	< 2.09	< 1.97	0.193	<0.200	<0.200	<0.200
Acenaphthene	µg/L	< 0.050	< 0.050	< 0.524	< 0.491	7840	<0.050	<0.050	<0.050
Fluorene	µg/L	< 0.050	< 0.050	< 0.524	< 0.491	0.079	<0.050	<0.050	<0.050
Phenanthrene	µg/L	< 0.100	< 0.100	< 1.05	< 0.983	0.928	<0.100	<0.100	<0.100
Anthracene	µg/L	< 0.010	< 0.038	< 0.105	< 0.098	0.414	<0.010	<0.010	<0.010
Acridine	µg/L	< 0.050	0.539	< 0.524	< 0.491	<0.200	<0.050	<0.050	<0.050
Fluoranthene	µg/L	< 0.030	< 0.030	< 0.314	< 0.295	<0.010	<0.030	<0.030	<0.030
Pyrene	µg/L	< 0.020	0.045	< 0.209	< 0.197	0.184	<0.020	<0.020	<0.020
Benzo(a)anthracene	µg/L	< 0.010	< 0.039	< 0.105	< 0.098	<0.010	<0.010	<0.010	<0.010
Chrysene	µg/L	< 0.050	0.057	< 0.524	< 0.491	<0.100	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	µg/L	-	-	-	-	-	-	-	-
Benzo(b+g)fluoranthene	µg/L	< 0.050	< 0.150	< 0.524	< 0.491	<0.010	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	µg/L	< 0.050	0.076	< 0.524	< 0.491	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	µg/L	< 0.010	0.064	< 0.105	< 0.098	<0.071	<0.010	<0.010	<0.010
Indeno(1,2,3-cd)pyrene	µg/L	< 0.050	0.102	< 0.524	< 0.491	0.111	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	µg/L	< 0.010	0.095	< 0.105	< 0.098	<0.241	<0.010	<0.010	<0.010
Benzo(g,h,i)perylene	µg/L	< 0.050	0.116	< 0.524	< 0.491	<0.398	<0.050	<0.050	<0.050
Chloronaphthalene, 2-	µg/L	< 0.100	< 0.100	< 1.05	< 0.983	<0.055	<0.100	<0.100	<0.100
Quinoline	µg/L	< 0.264	< 0.778	1.19	< 0.491	<0.020	<0.610	<0.100	<0.776
Volatile Organic Compounds									
Bromodichloromethane [BDCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<0.5	<1.0	<1.0	<1.0
Bromoform	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	<1.0	<0.5	<0.5	<0.5
Chlorobenzene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<0.5	1.2	<1.0	<1.0

Table H5: Historical Summary of Analytical Results For Leachate													
Sample Location		N Pumphouse MH											
Sample ID	Sample Date (yyyy mm dd)	LEACHATE-PUMPHOUSE MANHOLE-20130312	N Pumphouse MH-20080205	N Pumphouse MH-20080219	N Pumphouse MH-20080304	N Pumphouse MH-20080325	N Pumphouse MH-20080408	N Pumphouse MH-20080424	N Pumphouse MH-20080507	N Pumphouse MH-20080521	N Pumphouse MH-20080617	N Pumphouse MH-20080626	N Pumphouse MH-20080708
		2013 03 12	2008 02 05	2008 02 19	2008 03 04	2008 03 25	2008 04 08	2008 04 24	2008 05 07	2008 05 21	2008 06 17	2008 06 26	2008 07 08
Parameter	Units	Analytical Results											
Volatile Organic Compounds Cont.													
Chloroethane	µg/L	9.7	20	10	30	20	10	< 10	20	20	20	20	10
Chloroform	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	< 5.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dibromoethane, 1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorobenzene, 1,2-	µg/L	< 0.70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	µg/L	< 1.0	1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1
Dichlorobenzene, 1,4-	µg/L	1.1	< 1	1	1	1	1	1	1	< 1	1	1	1
Dichloroethane, 1,1-	µg/L	17.6	13	12	13	12	11	11	15	15	19	21	11
Dichloroethane, 1,2-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloromethane	µg/L	< 5.0	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.4	-	-	-	-	-	-	-	-	-	-	-
Dichloropropene, 1,3-cis-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Dichloropropene, 1,3-trans-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethane, 1,1,1,2-	µg/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
Methyl tert-butyl ether	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethane, 1,1,1-	µg/L	< 1.0	8	5	5	6	5	5	6	6	3	9	3
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethylene	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichlorofluoromethane	µg/L	< 1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	µg/L	< 1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Gross Parameters													
VH (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
VPH (C6-C10)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
EPH (C10-C19)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
LEPH (C10-C19)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
EPH (C19-C32)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
HEPH (C19-C32)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
MTBE													
Methyl Tert-butyl Ether [MTBE]	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Resin and Fatty Acids													
Acetic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate													
Sample Location		N Pumphouse MH											
Sample ID		N Pumphouse MH-20131211	N Pumphouse MH-20140408	N Pumphouse MH-20140610	N Pumphouse MH-20150122	N Pumphouse MH-20150615	N Pumphouse MH-20150915	N Pumphouse MH-20151203	N PUMPHOUSE MH-20160315	N PUMPHOUSE MH-20160623	N PUMPHOUSE MH-20160915	N PUMPHOUSE MH-20161117	N PUMPHOUSE MH-20170914
Sample Date (yyyy mm dd)		2013 12 11	2014 04 08	2014 06 10	2015 01 22	2015 06 15	2015 09 15	2015 12 03	2016 03 15	2016 06 23	2016 09 15	2016 11 17	2017 09 14
Parameter	Units	Analytical Results											
Volatile Organic Compounds													
Chloroethane	µg/L	6.3	1.3	-	-	6	6	4.3	5.2	-	-	3.7	9
Chloroform	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Chloromethane	µg/L	< 5.0	< 5.0	-	-	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dibromoethane, 1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorobenzene, 1,2-	µg/L	< 0.70	< 0.70	-	-	< 0.70	< 0.70	< 0.70	< 0.70	-	-	< 0.70	< 0.50
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichlorobenzene, 1,4-	µg/L	1.5	< 1.0	-	-	1.1	1.2	1.1	< 1.0	-	-	1.1	1.3
Dichloroethane, 1,1-	µg/L	16.2	1.5	-	-	12.4	9.4	6.4	12.6	-	-	13.3	10.1
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichloromethane	µg/L	< 5.0	< 5.0	-	-	< 5.0	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.4	< 1.4	-	-	< 1.4	< 1.4	< 1.4	< 1.4	-	-	< 1.4	< 1.0
Dichloropropene, 1,3-cis-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50
Dichloropropene, 1,3-trans-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50
Tetrachloroethane, 1,1,1,2-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Methyl tert-butyl ether	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.20
Trichloroethane, 1,1,1-	µg/L	1.6	< 1.0	-	-	1.6	1.1	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50
Trichloroethylene	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0
Vinyl Chloride	µg/L	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.40
Gross Parameters													
VH (C6-C10)	µg/L	-	< 100	< 100	-	< 100	< 100	< 100	< 100	-	-	< 100	-
VPH (C6-C10)	µg/L	-	< 100	< 100	-	< 100	< 100	< 100	< 100	-	-	< 100	-
EPH (C10-C19)	µg/L	-	1,110	1,180	650	< 250	260	310	260	< 250	< 250	400	< 250
LEPH (C10-C19)	µg/L	-	1,110	1,170	650	< 250	250	310	260	< 250	< 250	400	< 250
EPH (C19-C32)	µg/L	-	640	850	720	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
HEPH (C19-C32)	µg/L	-	640	850	720	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250
MTBE													
Methyl Tert-butyl Ether [MTBE]	µg/L	-	-	-	-	-	-	-	-	-	-	-	-
Resin and Fatty Acids													
Acetic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate													
Sample Location		N Pumphouse MH											
Sample ID		N PUMPHOUSE MH-20171204	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH-20180524	N Pumphouse MH	N Pumphouse MH-20181108	N Pumphouse MH	N Pumphouse MH-20190315	N Pumphouse MH	N Pumphouse MH-20190603	N Pumphouse MH	N Pumphouse MH-20190903
Sample Date (yyyy mm dd)		2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 11 08	2018 11 08	2019 03 15	2019 03 15	2019 06 03	2019 06 03	2019 09 03	2019 09 03
Parameter	Units	Analytical Results											
Volatile Organic Compounds													
Chloroethane	µg/L	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2	2	< 2.0	< 2.0
Chloroform	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	µg/L	< 5.0	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromoethane, 1,2-	µg/L	-	< 0.3	< 0.3	-	< 0.3	-	< 0.3	-	< 0.3	-	< 0.3	-
Dibromomethane	µg/L	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-
Dichlorobenzene, 1,2-	µg/L	< 0.50	< 0.5	< 0.5	< 0.5	0.6	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.1	2.1	< 1.0	< 1.0
Dichlorobenzene, 1,4-	µg/L	1.6	< 1.0	< 2.3	< 2.3	3	3	< 1.0	< 1.0	2.1	2.1	3	3
Dichloroethane, 1,1-	µg/L	3.2	< 1.0	1.8	1.8	10.8	10.8	2.6	2.6	3.6	3.6	9	9
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	µg/L	< 5.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.0	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-
Dichloropropene, 1,3-cis-	µg/L	< 0.50	-	-	-	-	-	-	-	-	-	-	-
Dichloropropene, 1,3-trans-	µg/L	< 0.50	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
Methyl tert-butyl ether	µg/L	< 0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethane, 1,1,2-	µg/L	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/L	< 0.40	< 1.0	< 1.0	< 1.0	1	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Gross Parameters													
VH (C6-C10)	µg/L	-	< 100	147	147	181	181	< 100	< 100	< 100	< 100	224	224
VPH (C6-C10)	µg/L	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
EPH (C10-C19)	µg/L	250	< 250	766	766	346	346	681	681	724	724	953	953
LEPH (C10-C19)	µg/L	250	< 250	763	763	342	342	675	675	719	719	945	945
EPH (C19-C32)	µg/L	< 250	< 250	660	660	< 250	< 250	429	429	474	474	858	858
HEPH (C19-C32)	µg/L	< 250	< 250	660	660	< 250	< 250	429	429	474	474	858	858
MTBE													
Methyl Tert-butyl Ether [MTBE]	µg/L	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-
Resin and Fatty Acids													
Acetic Acid	mg/L	-	-	-	-	-	-	< 3.0	-	< 3.0	-	3	-
Butyric Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Caporic Acid	mg/L	-	-	-	-	-	-	< 2.0	-	2.4	-	< 2.0	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Propionic Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-
Valeric Acid	mg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	-	< 2.0	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		N Pumphouse MH														P1 Leachate MH									
Sample ID		N Pumphouse MH	N Pumphouse MH-20191031	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	N Pumphouse MH	Landfill Leachate-20061109	Landfill Leachate-20061116	Landfill Leachate-20061122	P1 LEACHATE MH-20130911	P1 LEACHATE MH-20140408	P1 LEACHATE MH-20140610	P1 LEACHATE MH-20150122	P1 LEACHATE MH-20150615		
Sample Date (yyyy mm dd)		2019 10 31	2019 10 31	2020 03 05	2020 06 03	2020 09 30	2020 11 16	2021 03 18	2021 06 17	2021 09 16	2021 10 22	2022 02 14	2022 06 23	2022 09 14	2022 10 20	2006 11 09	2006 11 16	2006 11 22	2013 09 11	2014 04 08	2014 06 10	2015 01 22	2015 06 15		
Parameter	Units	Analytical Results																							
Volatile Organic Compounds																									
Chloroethane	µg/L	< 2.2	< 2.2	< 2.0	< 2.0	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 10	< 10	8.1	< 1.0	-	-	< 1.0		
Chloroform	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Chloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 10	< 10	< 10	< 5.0	< 5.0	-	-	< 5.0		
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dibromoethane, 1,2-	µg/L	< 0.3	-	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	-	-	-	-	-	-	-	-		
Dibromomethane	µg/L	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-	-		
Dichlorobenzene, 1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 1	< 1	< 1	< 0.70	< 0.70	-	-	< 0.70		
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichlorobenzene, 1,4-	µg/L	1.6	1.6	< 1.0	2	1.8	1.7	2.6	2.5	2.8	< 1.0	1.2	2.2	6.5	1.2	< 1	< 1	< 1	1.2	1.1	-	-	< 1.0		
Dichloroethane, 1,1-	µg/L	5.8	5.8	4.3	2.9	4.5	2.9	3.4	4.7	5.3	2	2.5	2.2	4.3	< 1.0	1	1	1	20.3	1.8	-	-	4.5		
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloromethane	µg/L	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 5	< 5	< 5	< 5.0	< 5.0	-	-	< 5.0		
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	< 1.4	< 1.4	-	-	< 1.4		
Dichloropropene, 1,3-cis-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Dichloropropene, 1,3-trans-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	< 1.0	< 1.0	-	-	< 1.0		
Tetrachloroethane, 1,1,1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Trichloroethylene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	< 1.0	< 1.0	-	-	< 1.0		
Vinyl Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1	< 1.2	< 1.0	1.2	< 1.0	2.4	< 1.0	< 2	< 2	< 2	< 1.0	< 1.0	-	-	< 1.0		
Gross Parameters																									
VH (C6-C10)	µg/L	< 100	< 100	104	< 100	< 100	< 100	173	168	199	< 100	120	108	328	< 210	-	-	-	-	< 100	< 100	-	< 100		
VPH (C6-C10)	µg/L	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	165	< 210	-	-	-	-	< 100	< 100	-	< 100		
EPH (C10-C19)	µg/L	330	330	< 250	< 250	442	< 250	355	792	< 2,500	321	< 2500	821	734	472	-	-	-	-	920	920	400	< 250		
LEPH (C10-C19)	µg/L	325	-	< 250	< 250	437	< 250	352	789	< 2,500	319	< 2500	810	728	470	-	-	-	-	920	920	400	< 250		
EPH (C19-C32)	µg/L	< 250	< 250	< 250	426	292	< 250	1,180	2,400	< 2,500	< 250	< 2500	1210	521	251	-	-	-	-	450	590	430	< 250		
HEPH (C19-C32)	µg/L	< 250	-	< 250	426	292	< 250	1,180	2,400	< 2,500	< 250	< 2500	1210	521	251	-	-	-	-	450	590	430	< 250		
MTBE																									
Methyl Tert-butyl Ether [MTBE]	µg/L	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-	-		
Resin and Fatty Acids																									
Acetic Acid	mg/L	< 3.0	-	23.4	< 3.0	25.7	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Butyric Acid	mg/L	< 2.0	-	7.2	< 2.0	13.7	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Caporic Acid	mg/L	< 2.0	-	3.5	< 2.0	5.6	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Heptanoic Acid	mg/L	< 2.0	-	< 2.0	< 2.0	< 2.0	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Isobutyric Acid	mg/L	< 2.0	-	< 2.0	< 2.0	7	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Isocaproic Acid	mg/L	< 2.0	-	< 2.0	< 2.0	2.7	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Isovaleric Acid	mg/L	< 2.0	-	< 2.0	< 2.0	< 2.0	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Propionic Acid	mg/L	< 2.0	-	3.8	< 2.0	3.3	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Valeric Acid	mg/L	< 2.0	-	2	< 2.0	5	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate													
Sample Location		P1 Leachate MH											
Sample ID		P1 LEACHATE MH-20150915	P1 LEACHATE MH-20151203	P1 LEACHATE MH-20160315	P1 LEACHATE MH-20160623	P1 LEACHATE MH-20160915	P1 LEACHATE MH-20161117	P1 LEACHATE MH-20170914	P1 LEACHATE MH-20171204	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH-20180524	P1 Leachate MH
Sample Date (yyyy mm dd)		2015 09 15	2015 12 03	2016 03 15	2016 06 23	2016 09 15	2016 11 17	2017 09 14	2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 08 16
Parameter	Units	Analytical Results											
Volatile Organic Compounds													
Chloroethane	µg/L	1.2	< 1.0	4	-	-	< 1.0	6	6.9	8.9	< 2.0	< 2.0	< 2.0
Chloroform	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	µg/L	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0	< 5.0	-	-	-	-
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromoethane, 1,2-	µg/L	-	-	-	-	-	-	-	-	< 0.3	< 0.3	-	< 0.3
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0
Dichlorobenzene, 1,2-	µg/L	< 0.70	< 0.70	< 0.70	-	-	< 0.70	< 0.50	< 0.50	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene, 1,4-	µg/L	1.1	< 1.0	< 1.0	-	-	< 1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.2
Dichloroethane, 1,1-	µg/L	2.7	1.3	16.6	-	-	3.5	6.4	3.2	2.3	< 1.0	< 1.0	1
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	µg/L	< 5.0	< 5.0	< 5.0	-	-	< 5.0	< 5.0	< 5.0	< 3.0	< 3.0	< 3.0	< 3.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.4	< 1.4	< 1.4	-	-	< 1.4	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0
Dichloropropene, 1,3-cis-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50	< 0.50	-	-	-	-
Dichloropropene, 1,3-trans-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50	< 0.50	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	-	-	-	-
Methyl tert-butyl ether	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.20	< 0.20	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/L	< 1.0	< 1.0	< 1.0	-	-	< 1.0	< 0.40	< 0.40	< 1.0	< 1.0	< 1.0	< 1.0
Gross Parameters													
VH (C6-C10)	µg/L	< 100	< 100	< 100	-	-	< 100	-	-	< 100	< 100	< 100	< 100
VPH (C6-C10)	µg/L	< 100	< 100	< 100	-	-	< 100	-	-	< 100	< 100	< 100	< 100
EPH (C10-C19)	µg/L	280	< 250	< 250	< 250	< 250	270	< 250	< 250	714	616	616	< 250
LEPH (C10-C19)	µg/L	280	< 250	< 250	< 250	< 250	270	< 250	< 250	712	615	615	< 250
EPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	609	480	480	< 250
HEPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	609	480	480	< 250
MTBE													
Methyl Tert-butyl Ether [MTBE]	µg/L	-	-	-	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0
Resin and Fatty Acids													
Acetic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/L, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Sample Location					P1 Leachate MH 2										S Leachate Wet Well							
Sample ID	P1 Leachate MH-20180816	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH-20190315	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	P1 Leachate MH	S LEACHATE WET WELL-20131211	S LEACHATE WET WELL-20140408	S LEACHATE WET WELL-20140610	S LEACHATE WET WELL-20150615	S LEACHATE WET WELL-20150915	S LEACHATE WET WELL-20151203	S LEACHATE WET WELL-20160315	
Sample Date (yyyy mm dd)	2018 08 16	2018 11 08	2019 03 15	2019 03 15	2020 09 29	2020 11 16	2021 03 18	2021 06 18	2021 09 16	2021 10 22	2022 02 04	2022 06 23	2022 09 20	2022 10 20	2013 12 11	2014 04 08	2014 06 10	2015 06 15	2015 09 15	2015 12 03	2016 03 15	
Parameter	Units	Analytical Results																				
Volatile Organic Compounds																						
Chloroethane	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 8.0	9.9	17.4	4.7	< 6.8	< 3.0	4	< 200	2.9	< 20.0	< 2.0	< 1.0	-	1.4	1.1	< 1.0	< 1.0
Chloroform	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 1.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dibromoethane, 1,2-	µg/L	-	< 0.3	< 0.3	-	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 30.0	< 0.3	< 3.0	-	-	-	-	-	-	-
Dibromomethane	µg/L	-	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 1.0	-	-	-	-	-	-
Dichlorobenzene, 1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 50.0	< 0.5	< 5.0	< 1.4	< 0.70	-	< 0.70	< 0.70	< 0.70	< 0.70
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene, 1,4-	µg/L	< 1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	2.9	< 1.0	-	2	2.2	1.3	1.1
Dichloroethane, 1,1-	µg/L	1	< 1.0	< 1.0	< 1.0	6.8	5	5.4	1.2	3.7	1.5	1.6	< 100	< 1.0	< 10.0	5.2	< 1.0	-	< 1.0	< 1.0	< 1.0	1.1
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	60.9	65.2	53.6	19.5	69.4	21.8	27.9	< 100	27.2	14.2	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	5	8.3	12.8	1.4	9	3.3	4	< 100	4.4	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	15.2	19	14.6	4	11.1	14.3	7.8	< 100	9.4	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	µg/L	< 3.0	< 3.0	< 3.0	< 3.0	264	234	174	54.1	12.4	< 3.0	16.7	< 300	4.2	< 30.0	< 1.0	< 5.0	-	< 5.0	< 5.0	< 5.0	< 5.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 2.5	1.8	< 1.6	< 1.0	1.7	< 1.0	< 1.0	< 100	1.2	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	-	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.8	< 1.4	-	< 1.4	< 1.4	< 1.4	< 1.4
Dichloropropene, 1,3-cis-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Dichloropropene, 1,3-trans-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	4.4	< 100	6.2	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethane, 1,1,1,1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 50.0	< 0.5	< 5.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 2.4	2.7	7	< 1.0	3.9	1.8	2.5	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	< 1.0	< 1.0	1.4	< 1.0	< 1.0	< 100	< 1.0	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 3.0	< 4.1	< 1.0	< 10.0	6.8	3	< 100	21.6	< 10.0	< 2.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0
Gross Parameters																						
VH (C6-C10)	µg/L	< 100	< 100	< 100	< 100	1,430	889	1,570	287	1,240	481	439	< 10000	1450	< 2880	-	< 100	120	130	140	< 100	< 100
VPH (C6-C10)	µg/L	< 100	< 100	< 100	< 100	1,050	425	1,100	194	918	270	260	< 10000	1290	< 2880	-	< 100	< 100	< 100	< 100	< 100	< 100
EPH (C10-C19)	µg/L	< 250	< 250	< 250	< 250	615	1,250	1,600	384	7,600	3,930	4970	919	2140	2490	-	1,230	1,960	770	260	640	380
LEPH (C10-C19)	µg/L	< 250	< 250	< 250	< 250	614	1,250	1,600	384	7,600	3,930	4970	916	2140	2480	-	1,230	1,950	750	250	620	370
EPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	405	352	430	< 250	13,800	259	21800	528	253	663	-	710	1,340	< 250	< 250	< 250	< 250
HEPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	405	352	430	< 250	13,800	259	21800	528	253	663	-	710	1,340	< 250	< 250	< 250	< 250
MTBE																						
Methyl Tert-butyl Ether [MTBE]	µg/L	-	< 1.0	< 1.0	-	< 1.3	7.2	9.6	1.9	< 8.6	< 4.2	4.4	< 100	6.2	< 10	-	-	-	-	-	-	-
Resin and Fatty Acids																						
Acetic Acid	mg/L	-	-	< 3.0	-	3,610	848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Butyric Acid	mg/L	-	-	< 2.0	-	1,730	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Caporic Acid	mg/L	-	-	< 2.0	-	771	86.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Heptanoic Acid	mg/L	-	-	< 2.0	-	124	11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Isobutyric Acid	mg/L	-	-	< 2.0	-	2,540	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Isocaproic Acid	mg/L	-	-	< 2.0	-	19	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Isovaleric Acid	mg/L	-	-	< 2.0	-	359	53.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Propionic Acid	mg/L	-	-	< 2.0	-	445	466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Valeric Acid	mg/L	-	-	< 2.0	-	870	89.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate													
Sample Location		S Leachate Wet Well											
Sample ID		S LEACHATE WET WELL-20160623	S LEACHATE WET WELL-20160915	S LEACHATE WET WELL-20161117	S LEACHATE WET WELL-20170914	S LEACHATE WET WELL-20171204	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well-20180524	S Leachate Wet Well	S Leachate Wet Well-20180816	S Leachate Wet Well	S Leachate Wet Well-20181108
Sample Date (yyyy mm dd)		2016 06 23	2016 09 15	2016 11 17	2017 09 14	2017 12 04	2018 03 15	2018 05 24	2018 05 24	2018 08 16	2018 08 16	2018 11 08	2018 11 08
Parameter	Units	Analytical Results											
Volatile Organic Compounds													
Chloroethane	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	µg/L	-	-	< 5.0	< 5.0	< 5.0	-	-	-	-	-	-	-
Dibromochloromethane [DBCM]	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromoethane, 1,2-	µg/L	-	-	-	-	-	< 0.3	< 0.3	-	< 0.3	-	< 0.3	-
Dibromomethane	µg/L	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-
Dichlorobenzene, 1,2-	µg/L	-	-	< 0.70	< 0.50	< 0.50	< 0.5	< 0.5	< 0.5	0.6	0.6	0.6	0.6
Dichlorobenzene, 1,3-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorobenzene, 1,4-	µg/L	-	-	< 1.0	2.2	2.4	< 2.5	< 2.2	< 2.2	3.3	3.3	3.4	3.4
Dichloroethane, 1,1-	µg/L	-	-	< 1.0	1.6	2.2	1.8	1.5	1.5	3.6	3.6	9.7	9.7
Dichloroethane, 1,2-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,1-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-cis-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroethylene, 1,2-trans-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	µg/L	-	-	< 5.0	< 5.0	< 5.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dichloropropane, 1,2-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	-	-	< 1.4	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-
Dichloropropene, 1,3-cis-	µg/L	-	-	< 1.0	< 0.50	< 0.50	-	-	-	-	-	-	-
Dichloropropene, 1,3-trans-	µg/L	-	-	< 1.0	< 0.50	< 0.50	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	< 1.0	< 1.0	< 1.0	-	-	-	-	-	-	-
Methyl tert-butyl ether	µg/L	-	-	< 1.0	< 0.20	< 0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethane, 1,1,2-	µg/L	-	-	< 1.0	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/L	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/L	-	-	< 1.0	< 0.40	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	1.1
Gross Parameters													
VH (C6-C10)	µg/L	-	-	< 100	-	-	136	159	159	186	186	219	219
VPH (C6-C10)	µg/L	-	-	< 100	-	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100
EPH (C10-C19)	µg/L	290	760	520	300	380	1,020	804	804	312	312	484	484
LEPH (C10-C19)	µg/L	280	750	510	290	380	1,020	799	799	306	306	480	480
EPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	< 250	709	665	665	< 250	< 250	891	891
HEPH (C19-C32)	µg/L	< 250	< 250	< 250	< 250	< 250	709	665	665	< 250	< 250	891	891
MTBE													
Methyl Tert-butyl Ether [MTBE]	µg/L	-	-	-	-	-	< 1.0	< 1.0	-	< 1.0	-	< 1.0	-
Resin and Fatty Acids													
Acetic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	-	-	-	-	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.

Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.

All terms defined within the body of Keltech's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

QA/QC RPD Denotes quality assurance/quality control relative percent difference

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate

Sample Location		S Leachate Wet Well																			
Sample ID		S Leachate Wet Well	S Leachate Wet Well-20190315	S Leachate Wet Well	S Leachate Wet Well-20190603	S Leachate Wet Well	S Leachate Wet Well-20190903	S Leachate Wet Well	S Leachate Wet Well-20191031	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well	S Leachate Wet Well
Sample Date (yyyy mm dd)		2019 03 15	2019 03 15	2019 06 03	2019 06 03	2019 09 03	2019 09 03	2019 10 31	2019 10 31	2020 03 05	2020 06 03	2020 09 29	2020 11 16	2021 03 18	2021 06 17	2021 09 15	2021 10 22	2022 02 04	2022 06 23	2022 09 20	2022 10 20
Parameter	Units	Analytical Results																			
Volatile Organic Compounds																					
Chloroethane	µg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2	< 2.0	<2.0	<2.0	4.9	<20.0
Chloroform	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Chloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dibromoethane, 1,2-	µg/L	< 0.3	-	< 0.3	-	< 0.3	-	< 0.3	-	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	<0.3	<0.3	<0.3	<3.0
Dibromomethane	µg/L	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichlorobenzene, 1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	0.6	<5.0
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichlorobenzene, 1,4-	µg/L	2.9	2.9	2.8	2.8	3.3	3.3	3.1	3.1	<2.6	2	2.4	3.6	3.4	3.1	2.8	2.7	3.2	2.8	7.3	<10.0
Dichloroethane, 1,1-	µg/L	4.1	4.1	2.5	2.5	9.7	9.7	8.3	8.3	2.3	2.2	3.8	5.8	3.6	5.6	6	4.3	4.3	1.9	4.4	<10.0
Dichloroethane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	< 1.0	1.2	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	1.1	<10.0
Dichloroethylene, 1,2-trans-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichloromethane	µg/L	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	<3.0	<3.0	<3.0	<30.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Dichloropropene, 1,3-cis-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichloropropene, 1,3-trans-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<5.0
Methyl tert-butyl ether	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<1.0	<1.0	<1.0	<10.0
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Trichloroethylene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<10.0
Vinyl Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	1.3	1.3	< 1.8	< 1.8	< 1.0	< 1.0	< 1.0	< 1.3	< 1.0	< 1.0	3.2	< 1.0	1.5	<1.0	2.4	<10.0
Gross Parameters																					
VH (C6-C10)	µg/L	206	206	127	127	270	270	200	200	237	< 100	120	215	235	179	114	< 100	125	157	<400	<2880
VPH (C6-C10)	µg/L	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	120	< 100	< 100	< 100	<100	<100	<400	<2880
EPH (C10-C19)	µg/L	1,020	1,020	458	458	2,580	2,580	600	600	337	< 250	2,300	424	< 250	483	544	< 2,500	<2500	368	<2500	1040
LEPH (C10-C19)	µg/L	1,020	1,020	452	452	2,580	2,580	592	-	334	< 250	2,290	417	< 250	480	536	< 2,500	<2500	362	<2500	1030
EPH (C19-C32)	µg/L	604	604	334	334	3,470	3,470	380	380	268	439	785	322	< 250	685	313	< 2,500	3320	<250	<2500	825
HEPH (C19-C32)	µg/L	604	604	334	334	3,470	3,470	380	-	267	439	785	322	< 250	685	313	< 2,500	3320	<250	<2500	825
MTBE																					
Methyl Tert-butyl Ether [MTBE]	µg/L	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<10.0
Resin and Fatty Acids																					
Acetic Acid	mg/L	< 3.0	-	< 3.0	-	3.5	-	< 3.0	-	< 3.0	< 3.0	23.1	5.2	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	10.5	< 2.0	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	< 2.0	-	2.3	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	4.9	< 2.0	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	< 2.0	< 2.0	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	4	< 2.0	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	3.5	< 2.0	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	< 2.0	< 2.0	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	< 2.0	< 2.0	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	-	< 2.0	< 2.0	2.7	< 2.0	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.
Associated Exova file(s): 506479, 507801, 509233, 600276, 602695, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

Table H5: Historical Summary of Analytical Results For Leachate									
Sample Location		P2 A2 Leachate MH							
Sample ID		P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH	P2 A2 Leachate MH
Sample Date (yyyy mm dd)		2021 03 19	2021 06 18	2021 09 16	2021 10 21	2022 02 07	2022 06 23	2022 09 14	2022 10 20
Parameter	Units	Analytical Results							
Volatile Organic Compounds									
Chloroethane	µg/L	< 2.0	< 2.0	< 5.2	< 2.0	<1.0	<2.0	<2.0	<2.0
Chloroform	µg/L	< 1.0	1.2	< 1.0	< 1.0	<2.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	-	-	-	-	-	-	-	-
Dibromochloromethane [DBCM]	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Dibromoethane, 1,2-	µg/L	< 0.3	< 0.3	< 0.3	< 0.3	<1.0	<0.3	<0.3	<0.3
Dibromomethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<0.3	<1.0	<1.0	<1.0
Dichlorobenzene, 1,2-	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	<1.0	1.8	<0.5	<0.5
Dichlorobenzene, 1,3-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<0.5	1.5	<1.0	<1.0
Dichlorobenzene, 1,4-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	2.1	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	< 1.0	< 1.0	2.2	< 1.0	<1.0	2.3	3.2	<1.0
Dichloroethane, 1,2-	µg/L	2	7.6	10.6	< 1.0	<1.0	1.1	1.6	<1.0
Dichloroethylene, 1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Dichloroethylene, 1,2-cis-	µg/L	< 1.0	2	6.7	5.7	<1.0	4.4	6	<1.0
Dichloroethylene, 1,2-trans-	µg/L	1.8	2	2.8	< 1.0	<1.0	<1.0	<1.0	<1.0
Dichloromethane	µg/L	38.3	58.1	32.4	< 3.0	<1.0	<3.0	<3.0	<3.0
Dichloropropane, 1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<3.0	<1.0	<1.0	<1.0
Dichloropropene, 1,3- (cis+trans)	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropene, 1,3-cis-	µg/L	-	-	-	-	-	-	-	-
Dichloropropene, 1,3-trans-	µg/L	-	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	<1.0	<0.5	<0.5	<0.5
Methyl tert-butyl ether	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,2-	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethylene	µg/L	< 1.0	< 1.0	1.6	< 1.0	<1.0	1.3	<1.0	<1.0
Trichlorofluoromethane	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	< 1.0	< 1.0	< 2.8	1.9	<1.0	1.6	5.2	1.7
Gross Parameters									
VH (C6-C10)	µg/L	284	496	439	< 100	<100	195	430	<425
VPH (C6-C10)	µg/L	258	413	343	< 100	<100	185	417	<425
EPH (C10-C19)	µg/L	299	1,150	< 2,500	< 2,500	1600	998	913	774
LEPH (C10-C19)	µg/L	299	1,140	< 2,500	< 2,500	1600	998	913	774
EPH (C19-C32)	µg/L	< 250	859	< 2,500	< 2,500	16400	284	<250	<250
HEPH (C19-C32)	µg/L	< 250	859	< 2,500	< 2,500	16400	284	<250	<250
MTBE									
Methyl Tert-butyl Ether [MTBE]	µg/L	4	3.5	< 9.0	< 5.0	<1.0	9.1	11.5	<1.0
Resin and Fatty Acids									
Acetic Acid	mg/L	-	-	-	-	-	-	-	-
Butyric Acid	mg/L	-	-	-	-	-	-	-	-
Caporic Acid	mg/L	-	-	-	-	-	-	-	-
Heptanoic Acid	mg/L	-	-	-	-	-	-	-	-
Isobutyric Acid	mg/L	-	-	-	-	-	-	-	-
Isocaproic Acid	mg/L	-	-	-	-	-	-	-	-
Isovaleric Acid	mg/L	-	-	-	-	-	-	-	-
Propionic Acid	mg/L	-	-	-	-	-	-	-	-
Valeric Acid	mg/L	-	-	-	-	-	-	-	-

Associated CARO file(s): 8031228, 8052345, 8081555, 8110837, 9031248, 9060275, 9090105, mg/l, N000833, ug/L.
Associated Exova file(s): 506479, 507801, 509233, 600276, 602895, 605393, 608922, 611891, 614770, 617175, 619914, 625680, 627511, 629501.
All terms defined within the body of Keltech's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
QA/QC RPD Denotes quality assurance/quality control relative percent difference
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

APPENDIX G
QUALITY ASSURANCE AND QUALITY CONTROL: METHODS
AND RESULTS

APPENDIX G – QUALITY ASSURANCE AND QUALITY CONTROL

1.0 METHODS

A quality assurance and quality control (QA/QC) program should be implemented during the monitoring program so that the sampling and analytical data are meaningful, reproducible, and reliable. Standard industry QA/QC procedures should be used in both the collection (field program) and analysis (laboratory) of water samples. The following includes a summary of the QA/QC measures to be implemented during the field program and during the review of the data, as well as QA/QC measures implemented by the laboratory.

Quality control (QC) measures used in the collection, preservation, and delivery of samples include the following:

- Sampling methods to be consistent with established protocols and provincial requirements. <https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-field-sampling-manual>
- Field notes, including the geographic locations of samples collected, to be recorded during the stages of the monitoring program and to be available upon request.
- Samples to be placed and stored in laboratory-provided containers. Sample containers are not to be reused.
- Samples to be stored in coolers and chilled with ice or ice packs during transport to the analytical laboratory; and,
- Samples to be transported to the laboratory using laboratory chain of custody procedures.

The Quality assurance (QA) measures established for the field program should include:

- Submission of blind field duplicate samples for a minimum of 10% of the samples analyzed. A blind field duplicate sample is a second sample of certain media (e.g., soil, water, soil vapour) from the same location that is submitted to the analytical laboratory under a separate label such that the lab has no prior knowledge that it is a duplicate.
- Submission of trip and field blank samples
- The relative percent difference (RPD – the absolute difference between the two values, divided by the mean) of duplicate analyses is used to evaluate the sample result variability. An RPD value of less than 30 percent is considered an indication of acceptable sample variability and therefore represents a good correlation between the duplicate samples. An RPD value of greater than 30 percent may reflect “within bottle” variability (which reflects the nature of the contaminant distribution) or variation in test procedures.

The British Columbia Laboratory Manual published by the Ministry of Environment and Climate Change Strategy contains recommended Data Quality Objectives (DQOs) for laboratory duplicate RPDs. It is recognized that these DQOs are intended for laboratory duplicates and do not include provisions for additional variability in field duplicates. However, these DQOs are considered a conservative screen for assessing the quality of field duplicates.

The DQOs applied to this monitoring program should be less than 30 percent

The following are considered acceptable for laboratory QA/QC samples:

- Analytical blanks below the detection limits used for the specified analyses
- Laboratory duplicates within the DQO set by the laboratory; and,

- Analytical results for the reference materials or spiked standards within the target specified by the laboratory.

The laboratory records the sample integrity upon arrival at the laboratory, including:

- Sample condition (i.e., broken bottles, missing labels);
- Sample temperature; and,
- Analysis holding time status.

CARO Analytical Services of Kelowna, BC was used for analysis of the water samples for this program. CARO is accredited by Canadian Association for Laboratory Accreditation Inc. (CALA) for the analyses performed. The analyzed samples were subject to QA/QC procedures specific to the laboratory, which included internal and surrogate samples, replicates and duplicates, method blanks, and method spikes. Reports from the laboratory are internally reviewed before delivery. CARO reported the results of internal checks and these were used to assess the reliability, accuracy, and reproducibility of the data.

2.0 RESULTS

Chain of custody procedures were followed during the sampling events and chain of custody accompanied all sample submissions. Samples were submitted to the laboratory under chain-of-custody protocols using forms that did not identify the physical sampling locations, expected concentrations, or QA/QC samples or duplicate samples. Samples were stored in coolers prior to submission to the analytical laboratory.

The target for QA/QC for the monitoring program for duplicates is one sample for up to every ten samples analyzed for a regulated substance. This target was met.

The laboratory met internal QA/QC requirements for duplicate samples

The RPDs for the collected samples and their duplicates were 30% or less for the parameters collected except for the following:

Sample ID/ Duplicate ID	Parameter Exceeded	RPD Value	Sampling Event
GL1-2/DUP B	Copper	128%	Groundwater
	Iron	105%	
	Nickel	100%	
N Pumphouse MH/DUP 1	Alkalinity	35%	Leachate
	Fluorene	113%	
Bredin Pond/Dup1	Fecal Coliform	40%	Surface Water
	Iron	53%	
	Zinc	89%	
Tutt Pond/Dup1	Fecal Coliform	86-150%	
	Iron	31%	
Robert Lake	Several metals	>30%	

Keltech requested from CARO, an internal laboratory comment regarding the high RPDs and CARO responded on February 28, 2024, with the following:

- For bacteriological parameters (Total Coliforms, Fecal Coliforms, E. coli, etc.), CARO does not use RPD as an acceptance criterion. The acceptance criteria for bacteriological parameters are comparing the log difference between the results. The lab's acceptance criteria are ~0.74.
- Alkalinity (Phenolphthalein and Carbonate) results in report 2113474 are extremely small (~1% of the total alkalinity results). All alkalinity parameters are interrelated and are related to pH values and very small variations in the starting pH can have a significant impact on the results.
- Fluorene RPD is high, but the results are 0.18 and < 0.05. Since the results are less than 5x the reporting limit the result is slightly high but since the rest of the PAHs had acceptable values, this data would be accepted.
- Bredin Pond/Dup 1. There are more metals with high RPDs. The comparison of the major cations is acceptable. The analytes that have flagged with higher RPDs, appear to be the ones most likely to potentially come from particulate in the sample. There is a chance the difference is due to different amounts of precipitate in the sample.
- Total Metals in Robert Lake are highly variable. When comparing the major cations between the dissolved and total run they are different. The dissolved metals and the major cations are significantly different. CARO stated they should have rerun the analysis at the time the analysis was originally done. Nevertheless, CARO suggested that these data be excluded as "they appear to not match historical".
- Iron – RPD 31% - slightly elevated Iron RPD but all other metals had acceptable RPDs. Therefore, this is considered a statistical outlier. Overall, the data matches the field duplicate and the sample. The difference could be due to a slight difference in particulates in the two samples.
- Total Copper and Nickel look off between GL 1-2 / Dup B. There is a chance that the Dup sample was biased high which could be related to contamination during the laboratory analysis total digestion step.

The RPD values for all parameters analyzed for are presented in Table G: Summary of QA/QC data provided below.

Lab Report Number Matrix Type Date Field ID			23E3435	23E3435	RPD	23E3908	23E3908	RPD	23J2863	23J2863	RPD	23J2863	23J2863	RPD	23J3007	23J3007	RPD	23J3007	23J3007	RPD	23J3218	23J3218	RPD
			Water	Water		Water	Water		Water	Water		Water	Water		Water	Water							
			25 May 2023	25 May 2023		30 May 2023	30 May 2023		23 Oct 2023	23 Oct 2023		23 Oct 2023	23 Oct 2023		24 Oct 2023	24 Oct 2023		24 Oct 2023	24 Oct 2023				
			GL 39-1	DUP 2		GL 28-1	DUP 3		GL 1-1	Dup A		GL 1-2	Dup B		GL 39-2	Dup C		GL 20-1	Dup D		GL 4-1	Dup E	
	Unit	EQL																					
Calculations																							
Hardness as CaCO3 (filtered)	mg/L	0.125	2,450	2,450	0	1,880	1,880	0	713	711	0	732	736	1	611	608	0	444	450	1	614	622	1
General Parameters																							
pH (Lab)	-	0.1	7.64	7.66	0	7.86	7.85	0	8.07	8.03	0	8.08	8.08	0	7.94	7.97	0	7.67	7.65	0	8.06	8.13	1
Total Dissolved Solids (Lab) (filtered)	mg/L	30	4,410	4,610	4	3,430	3,430	0	1,010	1,020	1	1,050	1,020	3	1,160	1,350	15	4,170	4,140	1	1,220	1,270	4
Alkalinity (total) as CaCO3	mg/L	1	576	578	0	496	478	4	581	582	0	607	585	4	353	353	0	3,360	3,370	0	483	493	2
Chemical Oxygen Demand	mg/L	20	26	30	14	<20	<20	0	<20	<20	0	<20	<20	0	20	21	5	348	334	4	<20	<20	0
Alkalinity (P)	mg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
Alkalinity (Carbonate as CaCO3)	mg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	576	578	0	496	478	4	581	582	0	607	585	4	353	353	0	3,360	3,370	0	483	493	2
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0
Chloride	mg/L	0.1	137	142	4	78.1	77.8	0	140	135	4	127	128	1	106	105	1	402	397	1	18.5	18.8	2
Sulphate	mg/L	10	2,490	2,530	2	1,970	1,930	2	238	225	6	235	238	1	643	642	0	36.8	28.9	24	517	515	0
Nitrate (as N)	mg/L	0.01	7.52	7.39	2	<0.100	<0.100	0	<0.100	<0.100	0	<0.100	<0.100	0	0.516	0.525	2	<0.100	<0.100	0	<0.010	<0.010	0
Ammonia	mg/L	0.05	<0.050	<0.050	0	0.077	0.078	1	<0.050	<0.050	0	0.055	0.06	9	<0.050	<0.050	0	89.3	90.6	1	0.105	0.103	2
Nitrite (as N)	mg/L	0.01	<0.100	<0.100	0	<0.100	<0.100	0	<0.100	<0.100	0	<0.100	<0.100	0	<0.100	<0.010	0	<0.100	0.102	2	<0.010	<0.010	0
Bromine	µg/L	100	<1,000	<1,000	0	<1,000	<1,000	0	<1,000	<1,000	0	<1,000	<1,000	0	<1,000	<100	0	<1,000	<1,000	0	<100	<100	0
Dissolved Organic Carbon (filtered)	mg/L	0.5	9.84	11.9	19	11.2	13.2	16	5.1	4.78	6	5.16	4.07	24	6.58	4.87	30	102	125	20	4.32	3.71	15
Fluoride	mg/L	0.1	<1.00	<1.00	0	<1.00	<1.00	0	<1.00	<1.00	0	<1.00	<1.00	0	<1.00	0.54	0	<1.00	<1.00	0	1.75	1.78	2
Phosphate	µg/L	5	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<5.0	0	1,190	1,160	3	11.1	10.8	3
Metals																							
Aluminium (filtered)	mg/L	0.001	0.0014	0.0016	13	<0.0010	0.0014	33	<0.0010	<0.0010	0	0.0031	0.0019	48	0.0012	<0.0010	18	0.0732	0.0768	5	<0.0010	<0.0010	0
Sodium (filtered)	mg/L	0.02	520	523	1	412	416	1	143	139	3	139	141	1	263	259	2	1,450	1,490	3	201	202	0
Antimony (filtered)	mg/L	0.00005	0.00005	<0.000050	0	0.000065	0.000076	16	0.000066	0.000083	23	0.000068	0.000084	21	0.000074	0.000067	10	0.000554	0.000546	1	<0.000050	<0.000050	0
Arsenic (filtered)	mg/L	0.00005	0.000362	0.000333	8	0.00103	0.00105	2	0.000407	0.00041	1	0.000508	0.000521	3	0.00035	0.000356	2	0.00975	0.00956	2	0.00226	0.00224	1
Barium (filtered)	mg/L	0.0001	0.0108	0.011	2	0.0109	0.0107	2	0.0432	0.0435	1	0.0436	0.0442	1	0.0199	0.0196	2	0.195	0.194	1	0.0189	0.0172	9
Beryllium (filtered)	mg/L	0.00001	<0.000010	<0.000010	0	0.000013	<0.000010	26	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000050	<0.000050	0	<0.000010	<0.000010	0
Bismuth (filtered)	mg/L	0.00001	0.000022	0.000021	5	0.000014	0.000015	7	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000050	<0.000050	0	<0.000010	<0.000010	0
Boron (filtered)	mg/L	0.002	0.0157	0.0161	3	0.0167	0.0167	0	0.0309	0.0316	2	0.0338	0.0344	2	0.0103	0.0117	13	2.17	2.2	1	0.014	0.0139	1
Calcium (filtered)	mg/L	0.05	251	256	2	237	234	1	56.9	59.5	4	59.5	60	1	58.3	60.7	4	49.8	50.4	1	52.5	53.3	2
Cadmium (filtered)	mg/L	0.000002	0.0000554	0.0000653	16	0.0000573	0.0000545	5	<0.0000540	<0.0000440	0	<0.0000260	<0.0000280	0	<0.0000380	<0.0000460	0	<0.0000100	<0.0000100	0	<0.0000080	<0.0000080	0
Chromium (III+VI) (filtered)	mg/L	0.0005	<0.00050	<0.00050	0	<0.00050	<0.00050	0	<0.00050	<0.00050	0	<0.00050	<0.00050	0	<0.00050	<0.00050	0	0.0187	0.0187	0	<0.00050	<0.00050	0
Cobalt (filtered)	mg/L	0.000005	0.000202	0.000199	1	0.000807	0.000802	1	0.0000899	0.0000914	2	0.000111	0.000101	9	0.000109	0.000106	3	0.0117	0.0119	2	0.0000302	0.0000276	9
Copper (filtered)	mg/L	0.0001	0.00163	0.00164	1	0.00037	0.00035	6	0.00075	0.00069	8	0.00075	0.00342	128	0.00094	0.00089	5	0.00059	<0.00050	17	0.00014	<0.00010	33
Iron (filtered)	mg/L	0.002	<0.0020	<0.0020	0	0.579	0.579	0	<0.0020	<0.0020	0	0.0064	<0.0020	105	<0.0020	<0.0020	0	6.88	6.86	0	0.682	0.676	1
Lead (filtered)	mg/L	0.00005	<0.000050	<0.000050	0	<0.000050	<0.000050	0	<0.000050	<0.000050	0	<0.000050	<0.000050	0	<0.000050	<0.000050	0	<0.000250	<0.000250	0	<0.000050	<0.000050	0
Lithium (filtered)	mg/L	0.00005	0.0729	0.0744	2	0.084	0.0835	1	0.0398	0.0397	0	0.0412	0.0408	1	0.0126	0.0125	1	0.0774	0.074	4	0.0382	0.0393	3
Magnesium (filtered)	mg/L	0.005	443	439	1	313	315	1	139	136	2	142	142	0	113	111	2	77.6	78.6	1	117	119	2
Manganese (filtered)	mg/L	0.00005	0.0175	0.0174	1	0.358	0.359	0	0.0112	0.0113	1	0.00194	0.00159	20	0.0102	0.01	2	0.198	0.199	1	0.0724	0.0715	1
Mercury (filtered)	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0
Molybdenum (filtered)	mg/L	0.00001	0.0211	0.0211	0	0.011	0.0113	3	0.0208	0.021	1	0.0205	0.0208	1	0.0395	0.0403	2	0.00497	0.00489	2	0.0274	0.0268	2
Nickel (filtered)	mg/L	0.00004	0.00114	0.00103	10	0.00299	0.00293	2	0.000945	0.0009	5	0.00099	0.00298	100	0.000793	0.000992	22	0.0221	0.0219	1	0.000285	0.000282	1
Phosphorus (filtered)	mg/L	0.01	<0.01	<0.01	0	0.011	0.016	37	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	2.44	2.45	0	0.022	0.018	20
Potassium (filtered)	mg/L	0.02	15.4	15.4	0	11.4	11.5	1	10.3	10.2	1	11.5	11.5	0	5.4	5.41	0	126	127	1	6.21	6.31	2
Selenium (filtered)	mg/L	0.0001	0.00134	0.00132																			

Lab Report Number			23C3280	23C3280		23E2530	23E2530		23I3437	23I3437		23K0193	23K0193		23K0379	23K0379	
Matrix Type			Water	Water		Water	Water		Water	Water		Water	Water		Water	Water	
Date			29 Mar 2023	29 Mar 2023		18 May 2023	18 May 2023		27 Sep 2023	27 Sep 2023		01 Nov 2023	01 Nov 2023		02 Nov 2023	02 Nov 2023	
Field ID			Tutt Pond	Dup 1	RPD	Bredin Pond	Dup 1	RPD	Bredin Pond	Dup 1	RPD	Tutt Pond	Dup 1	RPD	Robert Lake	DUP 2	RPD
	Unit	EQL															
Calculations																	
Hardness as CaCO3	mg/L	0.125	994	1,000	1	596	608	2	714	712	0	1,110	1,100	1	2,070	2,170	995
Hardness as CaCO3 (filtered)	mg/L	0.125	1,040	983	6	637	626	2	690	681	1	1,130	1,150	2	2,140	2,060	1,041
Nitrite + Nitrate as N	mg/L	0.01	<0.100	<0.100	0	<0.0100	<0.0100	0	0.0119	0.0136	13	0.115	0.107	7	<0.250	<0.250	<0.100
Nitrogen (Total)	µg/L	50	1,150	1,380	18	623	560	11	1,310	1,590	19	1,980	2,140	8	7,550	8,740	1,610
General Parameters																	
pH (Lab)	-	0.1	8.39	8.4	0	8.65	8.68	0	9.09	9.1	0	8.5		0	9.08	9.08	8.41
Total Dissolved Solids (Lab) (filtered)	mg/L	30	1,570	1,690	7	1,050	986	6	1,210	1,200	1	2,000	1,800	11	12,800	13,300	1,810
Alkalinity (total) as CaCO3	mg/L	1	547	544	1	496	508	2	644	621	4	620	619	0	1,890	2,010	547
Chemical Oxygen Demand	mg/L	20	23	21	9	21	20	5	35	27	26	38	41	8	249	264	23
Alkalinity (P)	mg/L	1	12.1	12.4	2	49.4	58	16	155	157	1	39.2	37.2	5	370	387	12.7
Alkalinity (Carbonate as CaCO3)	mg/L	1	24.2	24.8	2	98.8	116	16	311	313	1	78.4	74.5	5	739	774	24.14
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	523	519	1	398	393	1	333	308	8	542	545	1	1,150	1,230	523
Electrical Conductivity (Lab)	µS/cm	2	2,720	2,700	1	1,660	1,670	1	1,860	1,850	1	3,120	3,110	0	14,200	14,700	2,680
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	<1.0
Chloride	mg/L	1	226	233	3	151	153	1	180	187	4	259	259	0	367	376	226
Sulphate	mg/L	10	687	716	4	171	188	9	295	301	2	853	859	1	7,660	7,780	687
Nitrate (as N)	mg/L	0.01	<0.100	<0.100	0	<0.010	<0.010	0	<0.010	<0.010	0	<0.100	<0.100	0	<0.250	<0.250	<0.100
Ammonia	mg/L	0.05	0.192	0.173	10	<0.050	<0.050	0	0.098	0.138	34	0.731	0.702	4	0.591	0.167	0.154
Nitrite (as N)	mg/L	0.01	<0.100	<0.100	0	<0.010	<0.010	0	0.012	0.014	15	0.115	0.107	7	<0.250	<0.250	<0.100
Kjeldahl Nitrogen Total	mg/L	0.05	1.15	1.38	18	0.623	0.56	11	1.3	1.58	19	1.86	2.04	9	7.55	8.74	1.61
Bromine	µg/L	100	<1,000	<1,000	0	<100	<100	0	<1,000	<1,000	0	<1,000	<1,000	0	<2,500	<2,500	<1,000
Dissolved Organic Carbon (filtered)	mg/L	0.5	11.3	11.4	1	6.91	6.91	1	10.4	10.5	1	15.7	13.2	17	75.9	75.1	11.5
Fluoride	mg/L	0.1	<1.00	<1.00	0	0.87	0.83	5	1.15	1.15	0	<1.00	<1.00	0	<2.50	<2.50	<1.00
Phosphate	µg/L	5	<50.0	<50.0	0	<5.0	<5.0	0	<5.0	<5.0	0	81		0	762	855	<50.0
Total Organic Carbon	mg/L	0.5	11.4	11.4	0	7.9	8.09	2	11	11	0	20.8	13.6	42	77.2	79.7	11.4
Phosphorus (P)	mg/L	0.005	0.102	0.103	1	0.0432	0.0383	12	0.0362	0.0455	23	0.501	0.518	3	3.36	3.47	0.104
Metals																	
Aluminium	mg/L	0.001	0.143	0.189	28	0.0086	0.0089	3	0.0226	0.0147	42	0.0985	0.0974	1	1.08	2.68	0.235
Aluminium (filtered)	mg/L	0.001	0.0024	0.0022	9	0.0031	0.0037	18	0.0015	0.0018	18	<0.0030	<0.0020	0	<0.0100	<0.0100	0.002
Sodium	mg/L	0.02	320	324	1	164	170	4	225	222	1	397	398	0	4,590	4,560	320
Sodium (filtered)	mg/L	0.02	380	354	7	175	172	1	217	217	0	397	398	2	4,070	3,940	380
Antimony	mg/L	0.00005	0.000169	0.000157	7	0.000089	0.00009	1	0.000136	0.000135	3	0.000292	0.000282	3	0.000613	<0.000500	0.000145
Antimony (filtered)	mg/L	0.00005	0.000159	0.000179	12	0.000102	0.000121	17	0.00011	0.000123	11	0.000299	0.000311	4	0.000508	0.000581	0.000199
Arsenic	mg/L	0.00005	0.00259	0.00266	3	0.00104	0.0011	6	0.00156	0.0015	4	0.00525	0.00522	1	0.0113	0.0118	0.00273
Arsenic (filtered)	mg/L	0.00005	0.00274	0.0027	1	0.00108	0.00112	4	0.00149	0.00145	3	0.00545	0.00549	1	0.0115	0.0115	0.00266
Barium	mg/L	0.0001	0.075	0.0762	2	0.0872	0.0882	1	0.108	0.106	2	0.0764	0.0764	0	0.0645	0.0841	0.0774
Barium (filtered)	mg/L	0.0001	0.082	0.0815	1	0.0923	0.093	1	0.104	0.104	0	0.0787	0.0759	4	0.0463	0.0475	0.081
Beryllium	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000100	0.000122	<0.000010
Beryllium (filtered)	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000100	<0.000100	<0.000010
Bismuth	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000100	<0.000100	<0.000010
Bismuth (filtered)	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000015	40	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000100	<0.000100	<0.000010
Boron	mg/L	0.002	0.0387	0.0374	3	0.0306	0.0317	4	0.0327	0.0318	3	0.0363	0.0373	3	0.0702	0.0754	0.0361
Boron (filtered)	mg/L	0.002	0.039	0.0329	17	0.0302	0.033	9	0.0288	0.0297	3	0.0344	0.0356	3	0.0655	0.0625	0.0268
Calcium	mg/L	0.05	87.3	86.5	1	35.8	37.1	4	18.7	18.4	2	63.2		1	31	34.5	87.4
Calcium (filtered)	mg/L	0.05	82.5	83.4	1	36.6	34.6	6	18	18.2	1	67.4	70.2	4	30.8	29.8	82.6
Cadmium	mg/L	0.000002	0.0000077	<0.0000060	25	<0.0000030	<0.0000040	0	<0.0000060	<0.0000060	0	<0.0000120	<0.0000140	0	<0.000160	<0.000150	0.0000078
Cadmium (filtered)	mg/L	0.000002	<0.0000080	<0.0000100	0	<0.0000040	<0.0000030	0	<0.0000020	<0.0000030	0	<0.0000040	<0.0000040	0	<0.0000800	<0.000100	<0.0000120
Chromium (III+VI)	mg/L	0.00001	0.00047	0.00064	31	0.00064	0.00064	0	0.00062	0.00062	18	0.00062	<0.00060	0	<0.00500	<0.00500	0.00060
Chromium (III+VI) (filtered)	mg/L	0.0001	0.00018	<0.00018	0	<0.00050	<0.00050	0	<0.00050	<0.00050	0	<0.00050	<0.00050	0	<0.00500	<0.00500	0.00018
Cobalt	mg/L	0.000005	0.000531	0.000566	6	0.00012	0.000125	4	0.000128	0.000121	6	0.0005	0.000506	1	0.000944	0.00193	0.000601
Cobalt (filtered)	mg/L	0.000005	0.000452	0.000447	1	0.00012	0.000122	2	0.0000929	0.0000886	5	0.000423	0.000437	3	0.000351	0.000341	0.000442
Copper	mg/L	0.0001	0.00171	0.00277	47	0.00041	0.00043	5	0.00056	0.00031	57	0.00063	0.00066	5	0.00306	0.00553	0.00383
Copper (filtered)	mg/L	0.0001	0.00104	0.00103	1	0.0004	0.0004	0	0.00021	0.00033	44	0.00033	0.00034	3	0.0016	0.00149	0.00102
Iron	mg/L	0.002	0.205	0.279	31	0.0137	0.0137	0	0.036	0.0209	53	0.156	0.153	2	1.16	3.25	0.353
Iron (filtered)	mg/L	0.002	0.0074	0.0073	1	0.0053	0.0053	0	0.0028	0.0032	13	0.0136	0.0133	2	<0.0200	<0.0200	0.0072
Lead	mg/L	0.00005	0.000107	0.000153	35	<0.00050	<0.00050	0	0.000055	<0.000050	13	0.00012	0.000136	13	0.000811	0.00196	0.000169
Lead (filtered)	mg/L	0.00005	0.000063	<0.000050	23	<0.00050	<0.000050	0	<0.000050	<0.000050	0	<0.000050	0.000052	4	<0.000500	<0.000500	0.000063
Lithium	mg/L	0.00005	0.029	0.0286	1	0.0276	0.0294	6	0.0369	0.0365	1	0.0342	0.0322	6	0.0266	0.0292	0.0282
Lithium (filtered)	mg/L	0.00005	0.0361	0.0304	17	0.0321	0.0321	0	0.0357	0.0369	3	0.0337	0.0328	3	0.0272	0.0251	0.0247
Magnesium	mg/L	0.005	188	190	1	123	125	2	162	162	0	231	229	1	484	507	188
Magnesium (filtered)	mg/L	0.005	204	188	8	133	131	2	157	154	2	233	237	2	501	483	204
Manganese	mg/L	0.00005	0.167	0.168	1	0.0164	0.0165	1	0.0359	0.035	3	0.148	0.145	2	0.0846	0.166	0.169
Manganese (filtered)	mg/L	0.00005	0.169	0.164	3	0.0124	0.0127	2	0.00493	0.00462	6	0.14	0.14	0	0.0118	0.0114	0.159
Mercury	mg/L	0.00001	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	<0.000010	<0.000010	0	0.000022	<0.000010	<0.000010
Molybdenum	mg/L	0.00001	0.0111	0.0132	2	0.0132	0.0136	2	0.0143	0.0142	1	0.0132	0.0133	1	0.117	0.117	0.0109
Molybdenum (filtered)	mg/L	0.00001	0.0106	0.0104	2	0.0127	0.0127	0	0.011	0.0116	5	0.0123	0.0125	2	0.113	0.115	0.0102
Nickel	mg/L	0.00004	0.00252	0.00273	8	0.00107	0.00116	8	0.00131	0.00152	15	0.00266	0.0026				

Lab Report Number Matrix Type Date Field ID			23C2450	23C2450		23C2450	23C2450		23E2436	23E2436		23E2436	23E2436		23I3474	23I3474	
			Water	Water		Water	Water		Water	Water		Water	Water				
			21 Mar 2023	21 Mar 2023		21 Mar 2023	21 Mar 2023		17 May 2023	17 May 2023		17 May 2023	17 May 2023				
			N Pumphouse MH	Dup 1		RPD	N Pumphouse MH		Dup 1	RPD		S Leachate Wet Well	DUP 1		RPD	S Leachate Wet Well	
	Unit	EQL															
Calculations																	
Hardness as CaCO3 (filtered)	mg/L	0.625	1,250	-	-	1,310	-	-	1,100	-	-	1,140	-	-	1,280	1,290	1
General Parameters																	
pH (Lab)	-	0.1	7.95	-	-	-	-	-	8.25	-	-	-	-	-	8.23	8.26	0
Total Dissolved Solids (Lab) (filtered)	mg/L	150	6,820	-	-	-	-	-	6,920	-	-	-	-	-	9,260	9,440	2
Alkalinity (total) as CaCO3	mg/L	1	3,510	-	-	-	-	-	2,990	-	-	-	-	-	5,650	6,000	6
Chemical Oxygen Demand	mg/L	20	562	486	15	-	486	-	502	457	9	-	457	-	712	669	6
Alkalinity (P)	mg/L	1	<1.0	-	-	-	-	-	11.1	-	-	-	-	-	44.4	63.4	35
Alkalinity (Carbonate as CaCO3)	mg/L	1	<1.0	-	-	-	-	-	22.3	-	-	-	-	-	88.8	127	35
Alkalinity (Bicarbonate as CaCO3)	mg/L	1	3,510	-	-	-	-	-	2,970	-	-	-	-	-	5,560	5,870	5
Electrical Conductivity (Lab)	µS/cm	2	9,860	-	-	-	-	-	9,160	-	-	-	-	-	11,600	12,100	4
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Chloride	mg/L	10	549	-	-	-	-	-	566	-	-	-	-	-	731	710	3
Sulphate	mg/L	100	1,520	-	-	-	-	-	1,540	-	-	-	-	-	1,790	1,690	6
Biochemical Oxygen Demand	mg/L	16.2	241	-	-	-	-	-	60.7	-	-	-	-	-	108	118	9
Nitrate (as N)	mg/L	0.1	<0.100	-	-	-	-	-	3.53	-	-	-	-	-	<0.100	0.171	52
Ammonia	mg/L	0.5	77	79	3	-	79	-	41.1	39.6	4	-	39.6	-	81.2	78.9	3
Nitrite (as N)	mg/L	0.1	<0.100	-	-	-	-	-	17.7	-	-	-	-	-	<0.250	<0.250	0
Bromine	µg/L	1,000	<1,000	-	-	-	-	-	1,030	-	-	-	-	-	<1,000	<1,000	0
Dissolved Organic Carbon (filtered)	mg/L	5	88.4	91.9	4	-	91.9	-	90.5	120	28	-	120	-	109	133	20
Fluoride	mg/L	1	<1.00	-	-	-	-	-	<1.00	-	-	-	-	-	<1.00	<1.00	0
Hydrogen sulfide	mg/L	1	51.4	50.2	2	-	50.2	-	52.7	52.6	0	-	52.6	-	38.5	41.8	8
Phosphate	µg/L	50	26,800	-	-	-	-	-	23,200	-	-	-	-	-	<82,500	<77,200	0
Phosphorus (P)	mg/L	0.1	3.91	3.84	2	-	3.84	-	3.76	3.62	4	-	3.62	-	5.62	5.53	2
Hydrocarbons																	
VH (C6-C10)	µg/L	100	<100	<100	0	-	<100	-	<100	-	-	-	-	-	146	146	0
VPH (VH C6-C10 - BTEX)	µg/L	100	<100	<100	0	-	<100	-	<100	-	-	-	-	-	<100	<100	0
EPH C10-C19	µg/L	250	772	-	-	-	-	-	1,340	-	-	-	-	-	474	419	12
EPH C19-C32	µg/L	250	862	-	-	-	-	-	6,090	-	-	-	-	-	335	<250	29
LEPH	µg/L	250	760	-	-	-	-	-	1,330	-	-	-	-	-	470	415	12
HEPH	µg/L	250	861	-	-	-	-	-	6,090	-	-	-	-	-	335	<250	29
1,1,1-trichloroethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	0	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	<0.5	0
1,1,2-trichloroethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,1-dichloroethane	µg/L	1	3.2	3.2	0	-	3.2	-	4.3	-	-	-	-	-	2.1	2.1	0
1,1-dichloroethene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,2-dibromoethane	µg/L	0.3	<0.3	<0.3	0	-	<0.3	-	<0.3	-	-	-	-	-	<0.3	<0.3	0
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	0	-	<0.5	-	0.8	-	-	-	-	-	<0.5	<0.5	0
1,2-dichloroethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,2-dichloropropane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,3-Dichloropropene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,3-dichlorobenzene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
1,4-dichlorobenzene	µg/L	1	2.2	2.3	4	-	2.3	-	5	-	-	-	-	-	1.5	1.5	0
Benzene	µg/L	0.5	3.2	3.3	3	-	3.3	-	9.6	-	-	-	-	-	4.4	4.5	2
Bromoform	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Bromodichloromethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	0	-	<0.5	-	<0.5	-	-	-	-	-	<0.5	<0.5	0
Chlorodibromomethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Chlorobenzene	µg/L	1	1.1	1.1	0	-	1.1	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Chloroform	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Chloroethane	µg/L	2	4.5	<2.0	77	-	<2.0	-	<2.0	-	-	-	-	-	4.8	5	4
cis-1,2-dichloroethene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Dibromomethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Dichloromethane	µg/L	3	<3.0	<3.0	0	-	<3.0	-	<3.0	-	-	-	-	-	<3.0	<3.0	0
MTBE	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Styrene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Trichloroethene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Tetrachloroethene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Toluene	µg/L	1	1.2	1.1	9	-	1.1	-	2.6	-	-	-	-	-	1.2	1.2	0
Ethylbenzene	µg/L	1	37.7	38	1	-	38	-	77.8	-	-	-	-	-	37.8	38.1	1
trans-1,2-dichloroethene	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Trichlorofluoromethane	µg/L	1	<1.0	<1.0	0	-	<1.0	-	<1.0	-	-	-	-	-	<1.0	<1.0	0
Vinyl chloride	µg/L	1	<1.0	<1.0	0	-	<1.0	-	1.4	-	-	-	-	-	<1.0	<1.0	0
Xylene Total	µg/L	2	24.7	24.9	1	-	24.9	-	79.6	-	-	-	-	-	29	29.2	1

Table G: QAQC - Leachate

Metals																	
Aluminium (filtered)	mg/L	0.005	0.0537	-	-	-	-	-	0.054	-	-	0.0551	-	-	0.0592	0.06	1
Sodium (filtered)	mg/L	0.1	1,940	-	-	-	-	-	2,060	-	-	2,150	-	-	2,030	2,080	2
Antimony (filtered)	mg/L	0.00025	0.0153	-	-	-	-	-	0.0102	-	-	0.0113	-	-	0.0205	0.0213	4
Arsenic (filtered)	mg/L	0.00025	0.0339	-	-	-	-	-	0.0292	-	-	0.031	-	-	0.045	0.0477	6
Barium (filtered)	mg/L	0.0005	0.15	-	-	-	-	-	0.0859	-	-	0.0918	-	-	0.162	0.161	1
Beryllium (filtered)	mg/L	0.00005	<0.000050	-	-	-	-	-	<0.000050	-	-	-	-	-	<0.000050	<0.000050	0
Bismuth (filtered)	mg/L	0.00005	<0.000050	-	-	-	-	-	<0.000050	-	-	-	-	-	<0.000050	<0.000050	0
Boron (filtered)	mg/L	0.01	1.45	-	-	-	-	-	1.31	-	-	1.63	-	-	1.48	1.53	3
Calcium (filtered)	mg/L	0.25	103	-	-	-	-	-	127	-	-	133	-	-	99.7	99.8	0
Cadmium (filtered)	mg/L	0.00001	0.000017	-	-	-	-	-	0.0000114	-	-	<0.000050	-	-	0.0000138	0.0000204	39
Chromium (III+VI) (filtered)	mg/L	0.0005	0.0144	-	-	-	-	-	0.0131	-	-	0.0143	-	-	0.0214	0.0227	6
Cobalt (filtered)	mg/L	0.000025	0.00415	-	-	-	-	-	0.00262	-	-	0.00288	-	-	0.00593	0.00589	1
Copper (filtered)	mg/L	0.0005	<0.00050	-	-	-	-	-	0.00069	-	-	<0.00200	-	-	<0.00050	<0.00050	0
Iron (filtered)	mg/L	0.01	0.0277	-	-	-	-	-	0.0198	-	-	<0.05	-	-	0.0516	0.0606	16
Lead (filtered)	mg/L	0.00025	<0.000250	-	-	-	-	-	<0.000250	-	-	-	-	-	<0.000250	<0.000250	0
Lithium (filtered)	mg/L	0.00025	0.0608	-	-	-	-	-	0.0636	-	-	0.0825	-	-	0.0534	0.0532	0
Magnesium (filtered)	mg/L	0.025	255	-	-	-	-	-	190	-	-	196	-	-	250	254	2
Manganese (filtered)	mg/L	0.00025	0.242	-	-	-	-	-	0.155	-	-	0.162	-	-	0.205	0.199	3
Mercury (filtered)	mg/L	0.00001	<0.000010	-	-	-	-	-	<0.000020	-	-	-	-	-	<0.000010	<0.000010	0
Molybdenum (filtered)	mg/L	0.00005	0.00351	-	-	-	-	-	0.00194	-	-	0.00199	-	-	0.00765	0.0075	2
Nickel (filtered)	mg/L	0.0002	0.0164	-	-	-	-	-	0.0107	-	-	0.0119	-	-	0.0188	0.0178	5
Phosphorus (filtered)	mg/L	0.05	4.21	-	-	-	-	-	3.8	-	-	3.96	-	-	4.07	4.29	5
Potassium (filtered)	mg/L	0.1	151	-	-	-	-	-	164	-	-	166	-	-	162	164	1
Selenium (filtered)	mg/L	0.0005	0.00099	-	-	-	-	-	0.00086	-	-	<0.00250	-	-	0.00155	0.00145	7
Silicon (filtered)	µg/L	500	13,400	-	-	-	-	-	10,400	-	-	10,500	-	-	13,900	14,000	1
Silver (filtered)	mg/L	0.00005	<0.000050	-	-	-	-	-	0.000104	-	-	<0.000250	-	-	<0.000050	<0.000050	0
Sulfur (filtered)	mg/L	15	-	-	-	-	-	-	583	-	-	-	-	-	-	-	-
Strontium (filtered)	mg/L	0.0005	3.11	-	-	-	-	-	2.36	-	-	2.37	-	-	3.34	3.34	0
Sulphur as S (filtered)	mg/L	5	567	-	-	-	-	-	563	-	-	-	-	-	493	494	0
tellurium (filtered)	µg/L	0.25	<0.250	-	-	-	-	-	<0.250	-	-	-	-	-	<0.250	<0.250	0
Thallium (filtered)	mg/L	0.00002	<0.0000200	-	-	-	-	-	<0.0000200	-	-	-	-	-	<0.0000200	<0.0000200	0
Thorium (filtered)	mg/L	0.00005	0.00008	-	-	-	-	-	0.000158	-	-	<0.00050	-	-	0.000077	0.000116	40
Tin (filtered)	mg/L	0.00025	0.023	-	-	-	-	-	0.0332	-	-	0.0335	-	-	0.0419	0.0435	4
Titanium (filtered)	mg/L	0.001	0.0352	-	-	-	-	-	<0.0250	-	-	0.0253	-	-	0.0572	0.0545	5
Tungsten (filtered)	mg/L	0.001	0.00233	-	-	-	-	-	0.00217	-	-	<0.0050	-	-	0.00308	0.00328	6
Uranium (filtered)	µg/L	0.005	21.9	-	-	-	-	-	19	-	-	19.8	-	-	15.4	15.9	3
Vanadium (filtered)	mg/L	0.005	0.00816	-	-	-	-	-	0.00604	-	-	<0.0250	-	-	0.0122	0.0116	5
Zinc (filtered)	mg/L	0.005	<0.0050	-	-	-	-	-	<0.0050	-	-	-	-	-	<0.0050	<0.0050	0
Zirconium (filtered)	µg/L	0.1	17.8	-	-	-	-	-	12.5	-	-	12.7	-	-	26.1	27.3	4
PAHs																	
1-Methylnaphthalene	µg/L	0.1	2	-	-	-	-	-	0.943	-	-	-	-	-	0.633	0.663	5
2-methylnaphthalene	µg/L	0.1	0.58	-	-	-	-	-	0.368	-	-	-	-	-	0.131	<0.100	27
2-chloronaphthalene	µg/L	0.1	<0.100	-	-	-	-	-	<0.100	-	-	-	-	-	<0.100	<0.100	0
Acenaphthene	µg/L	0.05	2.03	-	-	-	-	-	0.337	-	-	-	-	-	0.25	0.216	15
Acenaphthylene	µg/L	0.2	<0.200	-	-	-	-	-	<0.200	-	-	-	-	-	<0.200	<0.200	0
Acridine	µg/L	0.05	0.056	-	-	-	-	-	<0.052	-	-	-	-	-	<0.050	<0.050	0
Anthracene	µg/L	0.01	0.302	-	-	-	-	-	<0.010	-	-	-	-	-	<0.010	<0.010	0
Benz(a)anthracene	µg/L	0.01	0.033	-	-	-	-	-	<0.010	-	-	-	-	-	<0.010	<0.010	0
Benzo(a) pyrene	µg/L	0.01	<0.010	-	-	-	-	-	<0.010	-	-	-	-	-	<0.010	<0.010	0
Benzo(b+j)fluoranthene	µg/L	0.05	<0.050	-	-	-	-	-	0.325	-	-	-	-	-	<0.050	<0.050	0
Benzo(g,h,i)perylene	µg/L	0.05	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	0
Benzo(k)fluoranthene	µg/L	0.05	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	0
Chrysene	µg/L	0.05	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	0
Dibenz(a,h)anthracene	µg/L	0.01	<0.010	-	-	-	-	-	<0.010	-	-	-	-	-	<0.010	<0.010	0
Fluoranthene	µg/L	0.03	0.649	-	-	-	-	-	<0.030	-	-	-	-	-	<0.030	<0.030	0
Fluorene	µg/L	0.05	1.45	-	-	-	-	-	<0.215	-	-	-	-	-	0.18	<0.050	113
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	0
Naphthalene	µg/L	0.2	5.7	-	-	-	-	-	3.62	-	-	-	-	-	3.6	3.74	4
Phenanthrene	µg/L	0.1	2.64	-	-	-	-	-	0.398	-	-	-	-	-	0.111	0.121	9
Pyrene	µg/L	0.02	<0.020	-	-	-	-	-	<0.020	-	-	-	-	-	<0.020	<0.020	0
Quinoline	µg/L	0.05	<0.050	-	-	-	-	-	<0.050	-	-	-	-	-	<0.050	<0.050	0
VFAs																	
Heptanoic Acid	µg/L	2,000	<2,000	-	-	-	-	-	<2,000	<2,000	0	-	<2,000	-	<2,000	<2,000	0
Isobutyric Acid	µg/L	2,000	<2,000	-	-	-	-	-	<2,000	<2,000	0	-	<2,000	-	<2,000	<2,000	0
Isocaproic Acid	µg/L	2,000	<2,000	-	-	-	-	-	<2,000	<2,000	0	-	<2,000	-	<2,000	<2,000	0
Isovaleric Acid	µg/L	2,000	<2,000	-	-	-	-	-	<2,000	<2,000	0	-	<2,000	-	<2,000	<2,000	0
2,4,5-Trichlorophenoxy-propanoic acid	mg/L	2	<2.0	-	-	-	-	-	<2.0	<2.0	0	-	<2.0	-	<2.0	<2.0	0
Acetic Acid	µg/L	3,000	<3,000	-	-	-	-	-	<3,000	<3,000	0	-	<3,000	-	<3,000	<3,000	0
Valeric Acid	µg/L	2,000	<2,000	-	-	-	-	-	<2,000	<2,000	0	-	<2,000	-	<2,000	<2,000	0
Butyric Acid	mg/L	2	<2.0	-	-	-	-	-	<2.0	<2.0	0	-	<2.0	-	<2.0	<2.0	0
Hexanoic Acid	mg/L	2	<2.0	-	-	-	-	-	<2.0	<2.0	0	-	<2.0	-	<2.0	<2.0	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory