SOLID WASTE MANAGEMENT
Annual Operations and Monitoring Report
Golden Refuse Disposal Site MR-17006
2022

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Executive Summary

The Golden Refuse Disposal Site (Site) is located at 350 Golden-Donald Upper Road, Golden, BC approximately 2 km northeast from the Town of Golden. The legal description of the property is Subdivision 12 of Section 18, Township 27, Range 21, West of the 5th Meridian, Kootenay District. The Site is approximately 1.2 km north of the Kicking Horse River, the nearest major surface water body.

The Site has been in operation since the early 1970's as a natural attenuation landfill. In the late 1970's, the permit was transferred from the Town of Golden to the Columbia Shuswap Regional District (CSRD). The property is leased to the CSRD by the Crown and covers an area of approximately 17 ha. The waste footprint currently covers an area approximately 4.4 ha. The Site is operated by Pet Eagle Holdings Ltd. under contract with the CSRD.

The Site provides solid waste disposal and residual processing services for residents, businesses, and institutions located within the Town of Golden and the CSRD's Electoral Area A. A CSRD transfer station in Parson and a transfer station located in Field (owned and operated by Parks Canada) deliver solid wastes to the Site in 50 yd containers on a regular frequency. The Site is operated under an approved Design and Operations Plan (D&O Plan), in accordance with Operational Certificate 17006, issued by the Ministry of Environment (MoE) on May 5, 2003 and amended on June 30, 2021.

Environmental Monitoring at the Site includes groundwater sampling, analysis and reporting. All environmental monitoring and reporting are performed by contracted professionals. Data collected from the groundwater monitoring program is compared to the historical records to determine whether the Site has adversely affected groundwater quality and, if so, to what extent. The qualified professional's report is included as an appendix in this report.

In 2020, the CSRD's 2019 Design, Operating, and Closure Plan (DOCP) update was approved, with conditions, by the MoE on May 4, 2020. This report addresses reporting requirements under Section 5.4 of Operational Certificate 17006.

i) Tonnages and categories of waste and recyclable material received at the Facility, and how they were managed

In 2022, approximately 7,136 tonnes of refuse and recoverable wastes were managed at the Site, representing a 6% increase over 2021. The quantity of municipal solid waste landfilled at the Site in 2022 was 5,331 tonnes, which represents a 5% increase over 2021. Using the most recent census date (2021) the per capita disposal rate for 2022 was 0.73 tonnes/person/year, based on a population of 7,311 for the service area.

In 2022 approximately 1,805 tonnes were diverted to marshaling areas for recovery, which represents a 11% increase over 2021. CSRD led diversion programs include mattresses, child car seats, household hazardous waste, asphalt shingles, concrete, clean soil, wood waste, yard and garden waste, scrap metal, propane tanks, ammonia and non-program ODS appliances, reusable items, lead-acid batteries and commercial fibre (cardboard) and container recycling stream materials. Programs to manage diverted materials are either managed by the Site contractor or handled by separate contractors and hauled off-site for further processing.

Furthermore, the Site collects materials on behalf of the following Extended Producer Responsibility (EPR) programs: Recycle BC, Product Care CESA and Bulky items, Call2Recycle, MARR, Automotive batteries, HRAI and OPEI. These items are picked up and managed through each individual EPR program.

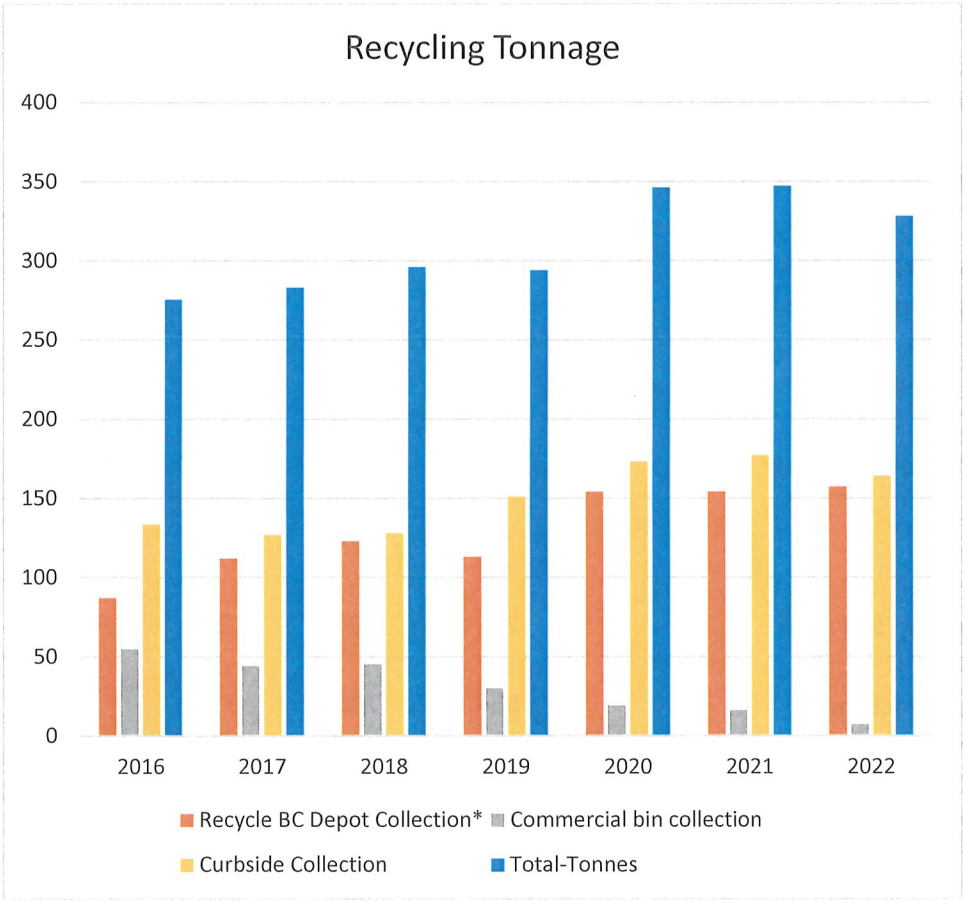
The following table provides an annual summary of materials received and separated for processing and categories and related tonnages processed for recycling or reused on the Site for internal purposes:

Golden Landfill - Resource Recovery Recoverable Resource	2018	2019	2020	2021	2022
Wood Waste - Received (MT)	835	466	566	392	372
Wood Waste - Processed (m3)	8907	4710	6938	7590	4680
Yard & Garden Waste - Received (MT)	N/T	N/T	N/T	N/T	N/T
Yard & Garden Waste - Processed (m3)	incl. WW	incl. WW	incl. WW	incl. WW	incl. WW
Yard & Garden Waste - Bulk (MT)				214	94
Metal Waste - Received (MT)	N/T	N/T	N/T	N/T	N/T
Metal waste - Salvaged (MT)	385	252	389	272	325
Gypsum Drywall - Received (MT)	25	Refuse	Refuse	Refuse	Refuse
Gypsum Drywall - Salvaged (MT)	Refuse	Refuse	Refuse	Refuse	Refuse
Asphalt Shingles - Received (MT)	85	152	147	91	112
Asphalt Shingles - Salvaged (MT)	83	124	212	0	0
Asphalt Shingles - Processed (m3)				510	323
Concrete/Brick/Porcelain - Received (MT)	577	615	249	403	282
ODS Units - Received MARR	300	195	279	181	118
ODS Units - Processed MARR	271	398	447	295	226
Ammonia Appliances				4	16
Propane Tanks - Salvaged					
1 lbs.		1500	731	1107	1009
5-100 lbs.		625	297	73	240
Auto Batteries - Salvaged	211	0	36	524	347
Mattresses - Received	654	794	776	777	388
Mattresses - Salvaged	124	1582	938	899	658
Child Car Seats	-	-	-	15	13
Contaminated Soil Received (MT)	13126	1002	0	0	326
Clean Soil Received (MT)	784	4231	474	174	314

Wood Waste Chipped Received (MT)	1	5	0	56	60
Land Clearing Waste (MT)	2	5	1	29	23
Product Care - Appliances CESA (MT)	-	2.4	3.8	3.5	2.9
Recycle BC* (MT)	-	113	154	154	154
Commercial Recycling (MT)		30	19	16	7
MT - Metric Tonne m3 - Cubic Metre					

The CSRD maintains a recycling program for commercial users, which is tracked separately from residential recycling programs. The CSRD collects fibre and containers as part of its commercial recycling program at the Site. The commercial fibre is hauled and processed through a recycling contractor. The CSRD offers two depot drop off locations, one at the Site and the second at the Golden Bottle Depot in the Town of Golden. In December 2021, the CSRD partnered with the Kicking Horse Mountain Resort (Resort) to offer a Recyle BC satelite depot in order to standardize the collection and expand the types of recycling items able to be collected. The CSRD previously operated a small recycling program at the Resort.

The following table provides an annual summary of recycling materials received:

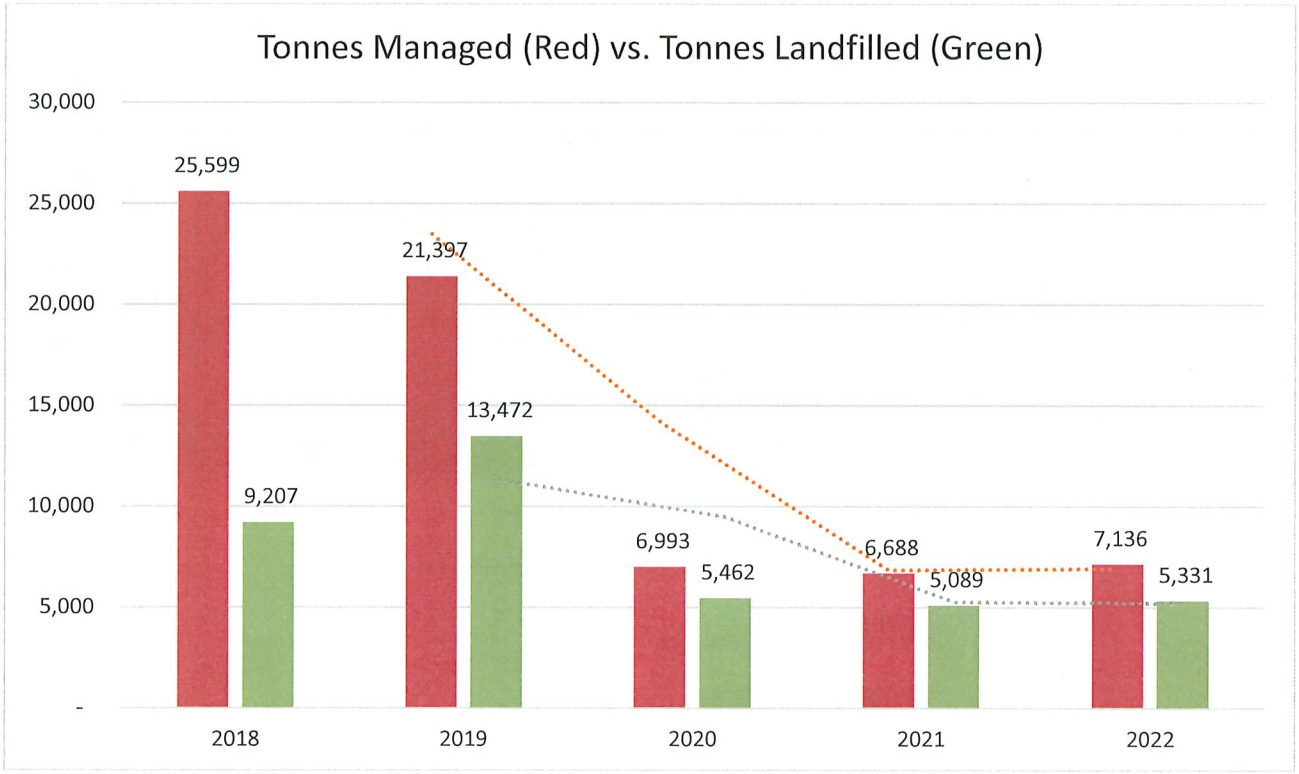


The CSRD continues to operate a permanent used oil and hazardous waste drop off facility at the Site. The following table provides a summary of the amounts of materials collected in 2022, including flammable substances, corrosives, and other HHW:

HHW Depot GO	2022
Non-Hazardous waste	600 litres
Flammable Liquids	205 litres
Corrosive Liquids	225 litres
Fire extinguishers	11
Used Oil	2000 litres
Antifreeze	615 litres

ii) Tonnages and categories of waste discharged to the Site

The following graph displays five years of historical data of the tonnes of solid waste managed (Red) vs. tonnes of solid waste landfilled (Green) at the Site. It should be noted that in 2018 and 2019 the Golden landfill received significant volumes of contaminated (landfilled) and clean soil (managed) from CP Rail clean-up projects:

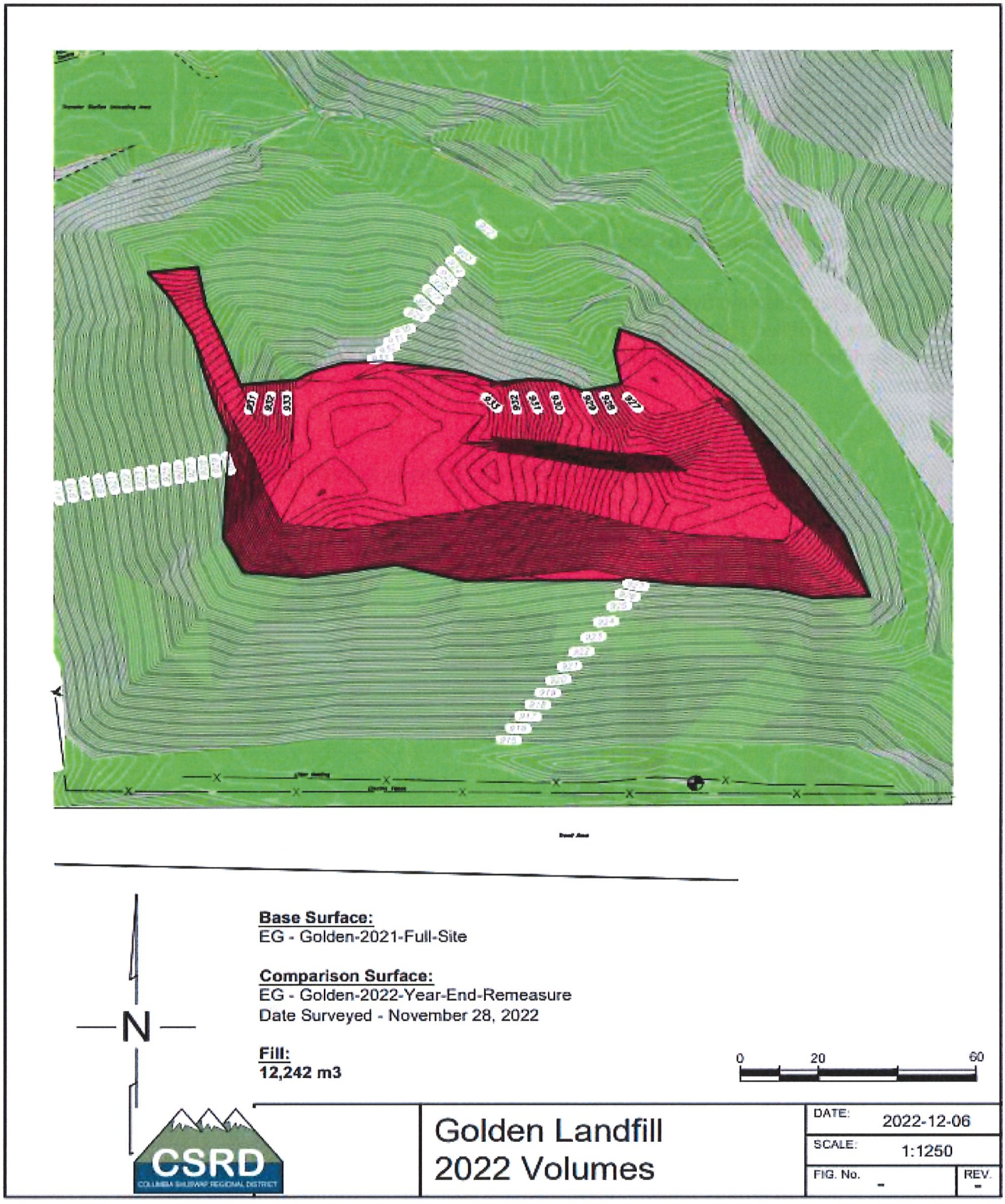


iii) Remaining volume and life of the Site

The CSRD conducts a survey of the airspace consumed over the year on an annual basis. The survey information is used to project the amount of airspace available for future landfilling and estimate timelines

for preparing closure plans. According to the results of the 2022 survey, the Site consumed 12,242 m^3, a 14% increase over 2021.

The following diagram details the air space volume changes of the Site between 2021 and 2022:



The CSRD continues to advance landfilling in accordance with the 2019 DOCP. The following table was provided by Golder Associates, through their 2019 DOCP review work, to project landfill capacity:

Phase	Projected Completion Year	Approximate Available Airspace (m^3)	Approximate Available Capacity (tonnes)	Progressive Closure Area (m^2)
1	2027	103,000	52,900	17,600
2	2039	147,000	75,700	8,000
3	2045	85,000	43,600	4,500
4	2067	300,000	154,000	6,300
5	2080	200,000	102,000	36,600

iv) Summary of DOCP Implementation

In 2022, the CSRD continued to implement measures to address conditions outlined in the MoE's approval of the 2020 DOCP. A summary of the actions undertaken are as follows:

1) The Stormwater Management Construction Report, prepared by Sperling Hansen Associates and submitted to the MoE in 2020, continued to be implemented in 2022. A summary of actions, plans for 2023 and sign off by the Qualified Professional has been appended the 2022 Annual Report.

2) The CSRD continued to implement best management practices for litter control at and around the Site including expanding litter fencing, increasing litter picking within the Site and increased daily cover activities. As a part of the efforts to be a good neighbor and ensure that litter collection is addressed in a timely manner, the CSRD advanced clean-up activities on an impacted property to the south of the Site to address litter which escaped the landfill boundaries on an as needed basis throughout 2022. The CSRD conducted litter pick-ups external to the Site on the following dates in 2022:

   - April 18, 19, and 20;
   - April 26 and 27;
   - May 18; and
   - October 26 and 27.

   In accordance with section 3.7.1 of the Site's Operational Certificate, the CSRD engaged its contractor to conduct regular litter collection events within the boundaries of the landfill as well as in the public access areas to the west of the site. The following is a table summarizing the litter collection efforts at the site. Detailed logs showing exact dates and locations are available upon request.

Golden	Litter Collection Summary	
Month	Hours	Number of Bags
January	7	12
February	5	6.5
March	26	36
April	47.5	114
May	41.5	99

June	24.5	78
July	18.5	49
August	20	64
September	14	42
October	13	31
November	2.5	8
December	0	0

3) As per the Water Quality Improvement Plan, the CSRD installed an additional downstream monitoring well in the fall of 2022 and has incorporated that well into the Golden Landfill water quality monitoring program. The Water Quality Improvement Plan has been appended to this report.

4) The CSRD facilitated training by a qualified expert in bird management for the contracted staff at the Site and hired a part-time wildlife management contractor to be on site throughout 2022.

5) As a part of the Wildlife Management Plan, the CSRD obtained a Damage or Danger Permit to Kill-to-Scare Ring-billed Gulls from the Federal Government. The annual report for the Permit has been appended to the 2022 Annual Report.

6) The Wildlife Management contractor has provided the following summary report for 2022:

Shuswap Bird of Prey Services visited the Golden Landfill on September 20 and 21, 2022, to discuss control methods and wildlife monitoring with the current contractor, as well as provide falconry abatement. The number of ravens recorded on the 21st (10 individuals) was significantly less than the 30 ravens seen on the previous day. Site visits during 2020 recorded much larger flock sizes of corvids, 60-70 individuals. No ravens were killed during the falconry exercises. Monitoring consisted of daily sheets recording the number of birds, species, weather, control method used and any other pertinent information. The monitoring sheets were originally designed for a staff member who would be consistently at the active face. The information was collected for the last week of September and the month of October.

However, it was difficult for the contractor to have dependable and accurate data due to the many different jobs employees are performing throughout the landfill, not only the active face. Data needs to be collected consistently and continuously over the period of a year to allow for comparisons and analysis of the current program. In the future, a more reliable form of monitoring should be considered. Installation of wildlife cameras to collect data at the active face would allow for information to be supplied directly to the wildlife manager for analysis. Collection and the weight of dispersed litter from the adjacent property is another reliable form of information providing annual comparisons. Data was provided for 21 days in September and October of 2022.

The weather was varied with sun, clouds, fog and rain recorded. No gulls or starlings were viewed during those weeks. Corvids (ravens and crows) were recorded in flocks of approximately 1 to 50 individuals, they appeared in larger numbers during the opening and closing hours. Six skunks were noted on September 22nd. The main form of control being employed by the staff at the landfill was pyrotechnics (bangers, screamers etc.).

v) Summary of screening/revegetation efforts;

The CSRD engaged with the Town of Golden in 2022 to explore the option of using treated biosolids, from the Town of Golden's sewage treatment facility, to revegetation closed side slopes at the landfill. The CSRD supported this option and advised the consultant working on behalf of the Town of Golden to obtain necessary approvals from the MoE. This project did not proceed and the CSRD has not advanced any screening/revegetation work in 2022. There are plans in place for 2023 to review this option and work with the Town of Golden to incorporate biosolids into a closure/revegetation plan.

vi) Summary of construction report(s)

The Stormwater Management Construction Report update was prepared by Sperling Hansen Associates, which details the project construction completed in the summer/fall of 2022 and confirms that construction was completed in general conformance with the project requirements as defined by the construction drawings and specifications. The remaining recommendations in the Sperling Hansen Associate plan will be advanced in 2023.

vii) Summary of Electric Enclosure inspection logs, issues, causes corrective actions, and reports to the Conservation Officer Service

Historically, the Site's electrified enclosure was a 5-foot-high electric fence surrounding the Site. The fence was upgraded in the fall of 2021 to increase the height to an 8-foot electric fence as per the recommendations outlined in the Wildlife Management Plan submitted to the MoE as per the requirements of the approved DOCP. The entrance gate is a 5-foot gate that is fully electrified. Daily testing of the electric fence was performed through the operational period of April 15 – Nov. 30. Fence voltage exceeded the required 6000 volts for the required operational period.

The CSRD has plans to upgrade the electric enclosure in 2023 by isolating the fence into 2 sections of electrified wire so wires below the snowpack can be turned off so they will not affect the fence voltage. The CSRD is also working with a fencing contractor to improve the fence's effectiveness at keeping deer from the accessing the landfill.

There were no incidents of bears within the electrified enclosure of the landfill in 2022 and no incidents requiring the CSRD to notify the Conservation Officer Service in 2022. However, deer accessing the landfill continues to be a challenge that the CSRD is exploring options to control. The daily testing logs are available upon request.

viii) Summary of complaints and nuisances

On May 27, 2022 the CSRD received an email regarding the Golden landfill noting; "just a few questions and requests regarding the ongoing problems that we are experiencing next to the Golden dump." The CSRD responded to these concerns and the MoE was included in all responses. No other complaints were documented in 2022.

ix) Summary of non-compliance notifications and non-compliance reporting

The CSRD inspected the Site 3 times throughout 2022. The Site contractors were found to be meeting contractual obligations to maintain Site. The CSRD assessed Site operations against the Site's Operational Certificate and based on CSRD observations, the DOCP and Operational Certificate requirements were being met at the time of the inspections.

The Site was not inspected by the MoE in 2022.

x) For the next calendar year, summary of planned DOCP implementation and construction of Significant Works

The CSRD has budgeted funds to complete the Surface Water Management works in 2023.

xi) Environmental Monitoring Program Report

Environmental Monitoring in 2022 included groundwater sampling, landfill gas analysis and reporting at the Site in accordance with Section 5.4 of the 2022 Operational Certificate. The environmental monitoring and reporting program and the Water Quality Improvement Plan (WQIP) are delivered by Ecoscape Environmental Ltd. Data collected from the groundwater monitoring program has been compared to the historical record to determine whether the Site has affected groundwater quality and, if so, to what extent. The qualified professional's report is included in this report as an Appendix.

The WQIP was necessitated by the elevated levels of monitoring parameters at the property boundary in accordance with the Contaminated Sites Regulation. As per direction from the MoE, received on March 14, 2023, the CSRD will proceed with providing neighbouring property owners with notification of likely potential offsite contamination.

The WQIP has been included in this report as an Appendix.

Qualified Professionals

In accordance with Section 2.2 of the Operational Certificate, this Report was prepared by and is certified by a Qualified Professional.

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Reviewed by:

Darcy Mooney, P.Ag
Manager of Operations, Operations Management

APPENDIX A
2022 Environmental Monitoring Report – Golden Refuse Disposal Facility (MR-17006)
2022 Water Quality Improvement Plan – Golden Refuse Disposal Facility (MR-17006)
2022 Sperling Hansen Associates – Storm Water Management Implementation Plan
2022 Environment and Climate Change Canada – Damage or Danger Permit

2022 Annual Environmental Monitoring Report
Golden Refuse Disposal Facility (OC-17006)

350 Golden-Donald Upper Road, Golden, BC

Prepared By:
Ecoscape Environmental Consultants Ltd.

Prepared For:
Columbia-Shuswap Regional District

March 22, 2023

2022 ANNUAL ENVIRONMENTAL MONITORING REPORT
GOLDEN REFUSE DISPOSAL FACILITY (OC-17006)

Prepared For:

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March 22, 2023
Version 1
File No. 19-2850

Version Control and Revision History				
Version	**Date**	**Prepared By**	**Reviewed By**	**Notes/Revisions**
A	February 14, 2023	MPS	LR	Draft for internal review
0	March 3, 2023	MPS	LR	Draft for client review
1	March 22, 2023	MPS	LR	Final Report

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ACRONYMS AND ABBREVIATIONS

BCAWQG	BC Approved Water Quality Standards
BC GWPR	BC Groundwater Protection Regulation
BCWWQG	BC Working Water Quality Guidelines
CALA	Canadian Association for Laboratory Accreditation
CARO	Caro Analytical Services, Kelowna, BC
CaCO3	Calcium Carbonate
CCME	Canadian Council of Ministers of the Environment
CFU	Colony Forming Unit
CSR	BC Contaminated Sites Regulation
CSR AW CSR	Freshwater Aquatic Water numerical standard
CSR DW CSR	Drinking Water numerical standard
CSR IW	CSR Irrigation Water numerical standard
CSRD	Columbia Shuswap Regional District
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
DW	Drinking Water numerical standard
EC	Electrical Conductivity
EMA	Environmental Management Act
ENV	BC Ministry of Environment and Climate Change Strategy
GCDWQ AO	Guideline for Canadian Drinking Water Quality Aesthetic Objective
GCDWQ MAC	Guideline for Canadian Drinking Water Quality Maximum Acceptable Concentration
GSC	Geological Survey of Canada
IDF	Interior Douglas Fir
LEL	Lower Explosive Limit
LWMP	Liquid Waste Management Plan
m asl	Meters Above Sea Level
m bgs	Meters Below Ground Surface
m btoc	Meters Below Top of Casing
mg/L	Milligrams per Litre
MPN	Most Probable Number
N	Nitrogen
OC	Operational Certificate
ORP	Oxidation-reduction Potential
QA/QC	Quality Assurance/Quality Control
PAH	Polycyclic Aromatic Hydrocarbon
RDF	Refuse Disposal Facility
RPD	Relative Percent Difference
SD	Standard Deviation
SHA	Sperling Hansen Associates
STN ID	Climate Station ID
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
US GPM	US Gallons Per Minute
VOC	Volatile Organic Compound
WRA	Water Resource Atlas
WTN	Well Tag Number
WWAL	Western Water Associates Ltd.

1.0 INTRODUCTION

The Columbia Shuswap Regional District (CSRD) retained Ecoscape Environmental Consultants Ltd. (Ecoscape) to carry out environmental monitoring and sampling at the Golden Refuse Disposal Facility (RDF or the Site), and prepare this annual monitoring report per Site's Ministry of Environment and Climate Change Strategy (ENV) Operational Certificate (OC-17006) monitoring requirements.

This report presents a summary and analysis of groundwater and landfill gas monitoring data collected by Ecoscape from January 1 to December 31, 2022, and includes a discussion of the applicable regulatory context, field procedures, quality assurance/quality control measures, and recommendations for future Site monitoring. This report has been prepared for inclusion in the annual report that is submitted by the CSRD to ENV for the Site.

General terms and conditions applicable to this report are attached as Appendix A.

1.1. Background

The Golden RDF was originally designed and constructed as natural attenuation landfill. The Site is classified as a natural attenuation landfill because it does not have a low permeability liner or a leachate collection system below the waste mass. The landfill relies on its small size, relatively low leachate generation potential (based on climatic conditions), deep groundwater conditions and the use of appropriate operating and closure procedures to protect the receiving environment from potential leachate impacts.

The Site has operated as a natural attenuation landfill since the early 1970s. The operating permit was transferred to the CSRD in the late 1970s, and the Site now operates under Operational Certificate (OC) 17006, issued by ENV on May 5, 2003, and most recently amended on June 30, 2021. A copy of the OC is provided in Appendix B.

The Golden RDF currently provides solid waste disposal services to businesses, institutions, and residents within the municipality of Golden and CSRD Electoral Area A.

Previous annual environmental monitoring reports were completed by Sperling Hansen Associates (SHA) in 2008, Summit Environmental Consultants Inc. (now Associated Environmental) from 2009 through 2013, Western Water Associates Limited (WWAL), from 2014 through 2018, and Ecoscape from 2019 through 2022.

2.0 OBJECTIVE AND WORK SCOPE

The objective of this work program was to satisfy annual monitoring reporting requirements stipulated in the OC by providing an evaluation of spatial and temporal

trends in groundwater and landfill gas quality and identifying locations where water quality and landfill gas exceeds applicable guidelines and standards.

Key questions answered in this report are:

- Do groundwater quality and landfill gas meet applicable guidelines and standards at and beyond the Site boundary?
- Do water quality and landfill gas at and near the Site vary spatially between sample locations and temporally between seasons and years as a result of ongoing landfilling at the Site, and if so, what are the variances?
- If spatial and temporal trends in groundwater chemistry exist, do these trends suggest adverse effects, and is this linked to historical permitted landfill operations?

In meeting these objectives and answering these questions, Ecoscape undertook the following tasks:

- Collected representative groundwater samples and landfill gas measurements from select monitoring locations on and near the Site (Figure 2), as listed in Section 5;
- Submitted groundwater samples to Caro Analytical Services (CARO), which is accredited by the Canadian Association for Laboratory Accreditation (CALA) for analyses;
- Entered water quality and landfill gas data into a database (tabulated) and compared to applicable provincial guidelines and standards to determine if exceedances were observed;
- Analyzed temporal and spatial groundwater quality trends to evaluate the potential for landfill leachate impacts on water quality; and
- Prepared this annual environmental monitoring report.

3.0 SITE DESCRIPTION

The Site is located approximately 2 km northeast and upslope of Golden's town centre (Figure 1). A Site description is provided in Table 1.

Table 1: Site Description

Topic	Details
Civic Address	350 Golden-Donald Upper Road, Golden, BC
Legal Description	Subdivision 12 of Section 18, Township 27, Range 21, West of the 5th Meridian, Kootenay District
Registered Site Owner	The Province of British Columbia
Latitude and Longitude (of Site centre)	51° 18' 31.0" N and 116° 57' 15.1" W
Approximate Site Area	17 hectares
Current Land Use	Natural Attenuation Landfill
Site Elevation	Approximately 925 m above sea level

The Site is mainly surrounded by undeveloped, forested land to the north, west and south with several rural residences to the east on Hietala Road. The nearest privately-owned residence is within 100 m of the landfill boundary to the east at a higher elevation of 964 m above sea level (m asl). The nearest residence downslope of the landfill is situated approximately 220 m southwest, at an elevation of 915 m asl.

The Mountain View Cemetery is situated at 216 Golden Donald Upper Rd, approximately 210 m south and hydraulically cross- to downgradient of the Site. Potential contaminants of concern associated with cemeteries include nitrate, ammonia, chemical oxygen demand, and select metals, which may have been released into the underlying aquifers near the Site. Additionally, ongoing BC *Contaminated Sites Regulation* (CSR) Schedule 2 activities, including but not limited to welding and machine shops (C.6), appliance, equipment or engine repair (E.1), road salt storage (Activity E.7), petroleum product storage in above ground or underground tanks (Activity F.7), automotive, truck or other motor vehicle repair, salvage or wrecking (Activity G.2), and wood, pulp and paper products and related industries and activities (Activity I), have been observed near and upgradient of the Town of Golden supply wells and other wells monitored in the valley bottom, and may be affecting their geochemistry.

This potential should be considered when interpreting groundwater geochemistry in the area.

3.1. Climate and Biogeoclimatic Zones

The Site is located within the Engelmann Spruce – Subalpine Fir dry cool woodland (ESSFdkw) forest subzone, where winters are typically long and cold and the summers cool and short (temperatures are above 10°C for only 0 to 2 months of the year) (Meidinger and Pojar, 1991).

Climate normal data from Environment Canada (2022) was used to complete this assessment. Based on data collected from the Golden Airport station (STN ID 1173210) between 1981 and 2010 the average annual total precipitation (rain and snow) in the area was 466.8 mm with an average rainfall of 325.2 mm, suggesting the Site climate is relatively dry. The highest precipitation typically occurred between June and August (as rain), and again in November – January (as snow). The daily average temperatures for January and July were -7.9 °C and 17.3 °C, respectively.

It is important to note, however, that most climate models for southern BC indicate that seasonal precipitation and temperature patterns will likely shift from the above-referenced “normals”, which are based on data collected over two decades ago. Specifically, we can expect to see warmer and drier summers, coupled with earlier spring freshet, while winter seasons will experience increased precipitation falling as rain as opposed to snow, particularly in low elevation areas.

3.2. Topography, Drainage and Nearby Watercourses

The portion of the Site east of the active landfill area slopes southeast from a topographic high of approximately 955 m above sea level (m asl), and levels out at approximately 925 m above sea level (m asl) for the remainder of the Site. The nearby surrounding area generally slopes southwest, and surface drainage at and near the Site is expected to mimic topography with flow towards the southwest. During freshet and heavy precipitation events, a gulley near the northeast boundary diverts surface runoff away from the landfill area, and no known surface water drainages lead away from the Site.

An unnamed provincially mapped watercourse traverses the Site from the northeast to the southwest; however, this watercourse is ephemeral, and only contains water during freshet and following heavy precipitation events (WWAL, 2019b). A drainage ditch has been constructed along the southern Site boundary at the toe of the active landfill face to collect and direct this watercourse to high permeability soils at the southwest Site corner, allowing discharge water to seep into the ground (WWAL, 2019b).

Hospital Creek is situated approximately 1.2 km north to northwest of the Site and flows southwest towards the Columbia River. The Kicking Horse River is approximately 1.3 km south to southwest and downslope of the Site, at an elevation of approximately 800 m asl, and flows northwest into the Columbia River. The Columbia River flows northwest, and at its nearest point is approximately 3 km from the Site.

Nearby watercourse locations with respect to the Site are shown on Figure 1.

3.3. Regional And Local Geology and Hydrogeology

The BC Geological Survey (BCGS) maintains a province-wide repository of bedrock geological maps. In its current edition, bedrock geology is amalgamated from original maps at scales ranging from 1:250,000 to 1:50,000 (Cui et al., 2017). These maps are low resolution, and as such, Site geology may be different than BCGS mapping. According to BC Geological Survey mapping, bedrock beneath the Site comprises Cambrian to Ordovician-aged argillite, shale and/or limestone of the McKay Group (Cui et al., 2017).

Bedrock is visible in outcrops near the northeast Site corner, and was encountered at the following depths during monitoring well drilling and installation:

- MW09-6D (western Site boundary) –34 m below ground surface (m bgs);
- MW10-08 (northwest of Site) – 15 m bgs;
- MW18-10 (southern Site boundary) – 24 m bgs; and
- MW18-11 (southwest Site corner) – 116 m bgs.

Based on this, the underlying bedrock surface steeply dips towards the southwest Site corner. Monitoring well locations are shown on Figure 2.

The Golden area is underlain by thick continuous glacial till blanket (GSC, 2014). Previous subsurface investigations at the Site (Kala, 1995; SHA, 2008, Summit, 2010b and 2011, and WWAL, 2019a) identified dense gravelly sand and silty ablation till along the sloped area to the east, with clean bedded sand and gravel alluvial deposits in the south central and western portions of the Site, and within the trench at the southwest Site corner. Overburden becomes increasingly thick towards the southwest, where bedrock is over 115 m bgs (e.g. at and near MW18-11). Exposed sediments along the west side of Golden-Donald Road (immediately west of the Site) comprise dense, well-sorted sand and gravel with traces of silt and clay, and intermittent bedding.

Overburden permeability at the Site ranges from low to moderate. Low permeability silt-dominated deposits near the eastern side of the landfill were previously inferred to limit surface water infiltration and groundwater recharge while silty sand and gravel located in the south-central section of the landfill was listed as moderately permeable (SHA, 2008).

Ecoscape completed a hydrogeological characterization assessment of the Site in 2021 to provide a better understanding of Site and nearby surrounding area geology, hydrogeology, and hydrology. Information presented in the onsite and near-site monitoring well logs, drillers logs provided in the BC Water Resource Atlas (WRA), ENV aquifer mapping, regional geological mapping, and surface elevation provided by Google Earth indicated that:

- The Site and areas upslope of the Site are underlain by a poorly defined, but locally important bedrock aquifer. This aquifer is intersected by monitoring wells MW09-06D, MW10-08, MW18-10, and MW18-11 and nearby domestic supply wells to the north, northeast and east. This bedrock aquifer is not mapped in the WRA.
- The unmapped bedrock aquifer below and near the Site comprises mudstone, siltstone, and shale of the McKay Group. These sedimentary rock-types are often highly fractured. Well depths for bedrock wells within 1 km of the Site are highly variable, ranging from approximately 30 to 180 m bgs. This indicates that groundwater flows through complex network of fractures, in which the presence, depth and number of water-bearing fractures may vary from one location to the next.
- Based on surveyed static water levels in on- and near-site bedrock monitoring wells, regional groundwater flow in the bedrock aquifer likely mimics topography, with groundwater flow towards the southwest from topographically elevated recharge areas.
- Single-well response testing conducted at monitoring wells MW09-6D, MW10-08, MW18-10 and MW18-11 indicated that saturated bedrock hydraulic conductivity below and near the Site ranges from 2×10^{-6} m/sec to 2×10^{-8} m/sec. These estimates are consistent with industry-accepted hydraulic conductivity values for limestone (10^{-6} to 10^{-9} m/sec) (Freeze and Cherry, 1979).

- Overburden is generally unsaturated beneath, and near, the Site and no sand and gravel aquifers are known to underlie the Site. A localized, perched sand and gravel water-bearing unit was identified above the bedrock surface at MW09-6S, but was not encountered at nearby monitoring wells MW10-08, MW18-10 and MW18-11.
- Elevations of the piezometric surface were consistently higher at nested monitoring well MW09-6S (shallow) compared to MW09-6D (deep), indicating a downward hydraulic gradient between the perched sand and gravel water-bearing unit and unmapped bedrock aquifer at this location.
- Sand and gravel Aquifer 456 IIB was mapped approximately 50 m southwest of the Site, extending along the east side of the Columbia River and generally spanning the Town (ENV, 2023) (Figure 1). The aquifer seems to lap up the steep bedrock surface identified near MW18-11, and is likely recharged via mountain block recharge from surrounding upland areas, in which groundwater infiltrates bedrock, migrates downward, and then flows laterally through bedrock fractures into the overburden deposits occurring along the Columbia River valley; however, some flows may also occur above and along the overburden-bedrock interface.
- Static water level in Aquifer 456 is consistent with the Columbia River and Kicking Horse River elevations, indicating the aquifer is hydraulically connected to these waterbodies.
- The Kicking Horse River likely represents a regional groundwater divide, and as such, only wells between the Site and the river have the potential to be hydraulically connected to groundwater that flows beneath the landfill.

Localized groundwater flow gradients contrary to that described above may be induced by well pumping and variability in the permeability and orientation of sand and gravel deposits and bedrock fractures.

4.0 REGULATORY FRAMEWORK

The Site currently operates under OC 17006 issued by ENV under the provisions of the *Environmental Management Act* (EMA; SBC 2003, Chapter 53 assented October 23, 2003, current to December 14, 2021).

Per Section 4 of the OC, the ENV *Landfill Criteria for Municipal Solid Waste, Second Edition* (2016) also provides guidance for Site monitoring and water quality data interpretation. A *Design, Operations, and Closure Plan Update* (DOCP) was developed following this guidance by Golder Associates Ltd. in 2019 (Golder, 2019a), which included groundwater monitoring requirements for the Site. Golder also prepared the *Golden Landfill Environmental Monitoring Plan* (EMP) for the Site (Golder, 2019b) (Appendix H). The monitoring requirements in the 2019 DOCP and EMP documents have been followed as they reflect the most current environmental standards. Golder recommended that the EMP be reviewed and updated every five (5) years, as applicable.

The CSRD currently has an environmental monitoring program in place at the Golden RDF that is updated annually and as required. The CSRD continues to meet the monitoring requirements of the OC, the DOCP and EMP, and has engaged Ecoscape to execute the monitoring program recommended in the EMP (Golder, 2019b) and those provided in the 2021 Annual Report (Ecoscape, 2021a).

4.1. Applicable Standards and Guidelines

The CSR is the primary regulatory document that describes the EMA's requirements for contaminated sites management in BC. The CSR first came into effect in 1997 and was amended most recently on July 7, 2021 (includes amendments by B.C. Reg. 179/2021). Schedule 3.2 of the CSR provides numerical standards for various contaminant concentrations in water for the following uses: aquatic life (AW), irrigation (IW), livestock watering (LW), and drinking water (DW).

BC ENV also recognizes that background groundwater concentrations of some inorganic parameters exceed the above-listed numerical standards in some regions throughout BC. As such, the BC ENV established *Protocol 9 – Establishing Local Background Concentrations in Groundwater* (2021b), which lists regional background groundwater concentrations for select inorganic substances for three regions in British Columbia. Concentrations of a water quality parameter in a groundwater sample that exceeds applicable numerical water quality standards but is below a background concentration at the site is not considered contaminated under the CSR. BC ENV-established background concentrations cannot be applied to the Site, as it falls outside of the geographic boundaries of regions included in Protocol 9; however, the province-wide background cobalt concentration of 0.02 mg/L has been applied to this assessment.

The Federal-Provincial-Territorial Committee on Drinking Water (CDW) has established *Guidelines for Canadian Drinking Water Quality* (GCDWQ), most recently updated in 2022 (Health Canada, 2022), to protect drinking water quality.

Given the above, the following standards and guidelines were applied to address Section 4 of the OC in order to protect current and potential future nearby domestic water supply sources:

- *Guidelines for Canadian Drinking Water Quality* Maximum Acceptable Concentration (health-based guideline) (GCDWQ MAC) and Aesthetic Objective (based on aesthetic considerations) (GCDWQ AO); and
- BC *CSR Drinking Water* (CSR DW) numerical standards.

Ecoscape only applied the GCDWQ to domestic wells in this assessment, as the GCDWQ generally do not apply to groundwater samples collected from monitoring wells. This is consistent with recommendations in the EMP (Golder, 2019b).

5.0 GROUNDWATER MONITORING PROGRAM

5.1. Historical Water Quality Monitoring and Sampling

Kala drilled and installed four (4) monitoring wells (MW95-01 through MW95-04) in 1995 to depths ranging from 18.3 to 30.5 m bgs. No groundwater was encountered during drilling, and these wells have since been decommissioned.

Three (3) on-site monitoring wells were installed in 2009 by Summit: MW09-6S (shallow), MW09-6D (deep), and MW09-7 to replace decommissioned wells MW95-4 and MW95-3, respectively. MW09-7 has remained dry since installation and has thus never been sampled. Nested wells MW09-6S and MW09-6D are situated near the western Site boundary north of the site access. MW09-6S and MW09-6D repeatedly showed similar water chemistry, and MW09-6D sampling was discontinued in 2011 due to redundancy; however, they were sampled again in 2018 and reintroduced to the monitoring program in 2020.

Monitoring well MW10-8 was installed by WWAL in 2010, approximately 150 m northwest and cross-gradient of the Site to evaluate potential offsite leachate migration. MW10-8 was not sampled in 2016 or 2017 but has been sampled consistently since.

Two (2) additional monitoring wells were drilled by WWAL in 2018; MW18-10 and MW18-11. MW18-10 was installed on the southern Site boundary to replace MW95-02 (TH-2), which had been dry since it was installed in 1995. MW18-11 was installed immediately southwest of the Site to provide additional monitoring coverage along the Site boundary.

Domestic well DMW-1b, situated east of the Site, was introduced to the monitoring network in 2011 to replace upgradient monitoring location DMW-1, which was precluded from the monitoring network because filtration systems were installed prior to all the water outlets. DMW-4, situated east of the Site, was introduced to the monitoring network in 2013, and along with DMW-1b, provides background water quality data for the Site. Domestic well DMW-5 (approximately 740 m north of the Site) was introduced to the monitoring program in 2018; however, the well owners opted not to include their well in the 2019 program and subsequent years.

Town Wells #4 and #6 comprise two (2) of Golden's five (5) municipal water supply wells and are situated approximately 1.5 km and 2 km northwest of the Site. Town Well #6 was sampled in spring 2018, but was not sampled in summer or fall 2018 at which time work was completed in attempt to increase the well's yield. It has been sampled twice since spring 2019, however turbidity levels have remained elevated in the well. As such, the town removed the well's pump and deemed the Town Well #6 inoperable.

Per recommendations in the EMP (Golder, 2019b, Appendix G), a winter sampling event was added to the program in 2021 for a total of four (4) monitoring events.

The Columbia Diesel domestic well (WTN 116561) was added to the program in 2020 as DMW20-01. Details for this well are included in Table 2, water quality results are in Appendix D, and a well log from WRA is attached in Appendix C.

Ecoscape conducted a drive-by and walk-around survey of drinking water wells in the residential developments downgradient of the Site, including those along Granite Drive, Pine Drive, Quartz Crescent, and Deer Ridge Road area in October 2022 to confirm the absence of wells in the area, as communicated by the CSRD, Town of Golden, and WWAL (2018). No wells were observed in the area, nor were any listed in the WRA. As such, consistent with previous recommendations, a monitoring well (MW22-12) was drilled and constructed next to the Golden Visitor's Centre in October 2022 by Kicking Horse Water Services under Ecoscape's guidance. A dedicated submersible pump was installed in the well to facilitate future sampling. This well was completed in Aquifer 456, and will be used as a sentry well for Town Well #6.

The landfill gas monitoring network was expanded in 2020 at which time with four (4) new nested gas probes (2 pairs) were installed at the eastern Site boundary (GP20-01S, -02D, GP20-02S, and -02D).

Well logs and gas probe logs for current and past monitoring wells and probes are provided in Appendix C.

5.2. Current Monitoring Well Network

The current monitoring network consists of six (6) groundwater monitoring wells, three (3) domestic supply wells and two (2) Town of Golden supply wells, as follows:

- Monitoring wells MW09-6S, -6D, MW10-8, MW18-10, MW18-11, and MW22-12
- Domestic supply wells DMW-1b, DMW-4, and DMW20-01; and
- Town Well #4 and Town Well #6 (currently out of commission).

These wells were sampled quarterly, except Town Well #4 and MW22-12, which were sampled in the fall only.

Although not part of the monitoring program, Ecoscape collected and analyzed water quality results from the Town of Golden's supply well MW15-01. This well serves as a sentry well for the Town of Golden Town Well #4, and the Town of Golden has permitted the use of its water quality data.

Ecoscape noticed a discrepancy in sampling locations DMW-1b and DMW-4. Namely, these sampling locations were (likely by accident) swapped on site figures in annual monitoring reports completed by prior consultants from 2015 to 2016. We believe that the map locations for DMW-1b and DMW-4 were accurate in figures up to 2015, and directly swapped for each other thereafter. Ecoscape continues to use this convention,

and it should be noted that Figures 2 and 3 in this assessment shows these monitoring locations as they match to laboratory certificates, water quality data presented in Appendix D, and time-series plots for data collected in 2022.

In Section 6.4 *Water Quality Trend Analysis*, where select parameters are discussed, water quality results reported for DMW-1b are actually representative of water quality at DMW-4 for these sampling events and are discussed accordingly. Likewise, water quality results reported for DMW-4 are actually representative of water quality at DMW-1b for these sampling events and are discussed accordingly.

This discrepancy does not impact Table 2: *Summary of Golden RDF Monitoring Network* below, Table 4: *Summary of 2021 Water Quality Exceedances*, or well logs in Appendix C. As in, Table 2, Table 4, and Appendix C contain the appropriate information for wells DMW-1b and DMW-4.

Town Well #6 was not sampled in 2022, as its pump was removed in 2020.

Table 2 below summarizes the monitoring network, and monitoring locations are shown on Figure 2.

Table 2: Summary of Golden RDF Monitoring Network

Monitoring ID	Location	Rationale	Well Depth (m btoc)	Top of Casing elevation (m asl)[1]	Ground Surface Elevation (m asl)[1]	Lithology
Landfill Monitoring Wells						
MW09-6S / -6D	West Site boundary, downgradient of the landfill.	Monitor potential offsite migration of leachate impacts the west	35.3	917.06 / 917.00	916.23	Gravel (MW09-6S) Bedrock (MW09-6D)
MW10-08	150 m northwest and cross- to upgradient of the landfill	Monitor potential offsite migration of leachate impacts to the northwest	26.3	919.60	919.70	Bedrock
MW18-10	South Site boundary, cross- to downgradient of the landfill	Monitor potential offsite migration of leachate impacts to the south	35.6	914.84	914.08	Bedrock
MW18-11	20 m southwest and downgradient of the Site	Monitor potential offsite migration of leachate impacts to the southwest	146.3	908.53	907.73	Bedrock
MW18-12	900 m west and downgradient of the Site, next to	Monitor general downgradient impacts	38.1	n/a	806[2]	Silty Sand and Gravel

Table 2: Summary of Golden RDF Monitoring Network						
Monitoring ID	**Location**	**Rationale**	**Well Depth (m btoc)**	**Top of Casing elevation (m asl)[1]**	**Ground Surface Elevation (m asl)[1]**	**Lithology**
	the Golden Visitors Centre.					
Private Domestic Wells						
DMW-1b	Located approximately 200 m east and upgradient of the Site	Monitor background water quality	60	n/a	965[2]	Bedrock
DMW-4	130 m east and upgradient of the Site.	Monitor background water quality	120	n/a	970[2]	Unknown - Presumably bedrock
DMW20-01	1.2 km west and downgradient of the Site	Monitor general downgradient impacts	26	n/a	790[2]	Overburden
Town of Golden Supply Wells						
Town Well #4	1.5 km northwest and downgradient of the Site	Monitor general downgradient impacts	Unknown	n/a	800[2]	Unknown – presumably overburden
Town Well #6	2 km northwest and downgradient of the Site	Monitor general downgradient impacts	Unknown	n/a	Unknown	Unknown – presumably overburden

Notes:
1 = Elevations of ground surface and top of monitoring well casings were surveyed by Ecoscape in 2020 with a vertical accuracy of ± 0.01 m.
2 = Approximate ground surface elevations from Google Earth

5.3. Groundwater Sampling Methodology

Ecoscape personnel collected groundwater samples in general accordance with BC ENV's *British Columbia Field Sampling Manual* (2013) and BC ENV *Technical Guidance on Contaminated Sites 8* (BC ENV 2017).

Ecoscape completed the following procedures during each groundwater sampling event:

- Measured static water level off a permanent marking on the top of each well riser using a decontaminated electric water level meter;
- Purged monitoring wells using a submersible well pump, bailer, or Waterra™ Hydrolift II pump connected to dedicated high-density polyethylene (HDPE) Waterra™ tubing outfitted with an inertia foot valve until temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and electrical conductivity readings stabilized (+/-10%);

- Three (3) to five (5) well volumes were typically purged from each well, unless the well was purged dry. Wells purged dry were left to recover to half their pre-purging level prior to sampling;

- Noted visual and olfactory groundwater observations, including sheen, colour, turbidity and odour;
- Collected groundwater samples directly into clean, new laboratory-supplied containers, field filtered (0.45 µm) and preserved samples as required for each analytical parameter; and
- Stored sample bottles in ice-chilled coolers for transport to CARO for chemical analysis.

Ecoscape followed proper chain-of-custody procedures during sample transport, and maintained regular communication with CARO personnel.

5.4. Landfill Gas Monitoring Program

The CSRD conducted landfill gas monitoring at gas probes GP-6S, -6D, GP-7S, and -7D annually from 2013 to 2020. Ecoscape expanded the gas monitoring program in 2020 with the installation of two (2) nested gas probes at the eastern Site boundary GP20-01S, -02D, GP20-02S, and -02D. Ecoscape took over the gas monitoring program in 2020 and has since conducted tri-annually to quarterly gas monitoring at the eight (8) active gas probes. Historical data is included in Appendix F, 2022 results are presented in Section 6.6 *Landfill Gas Monitoring Results*, and gas probe logs are included in Appendix C.

The CSRD Facilities Superintendent Mr. Isaac Walker has confirmed that methane and carbon monoxide detectors (equipped with an alarm) were installed inside the scale house of each CSRD landfill. Extra vents were also installed in the re-use centers at each landfill as an added safety measure in 2021. These safety measures will help to monitor and ensure that combustible gas concentrations will not exceed 20% of the Lower Explosive Limit (LEL) of methane (1% by volume) as recommended by the BC ENV *Landfill Criteria for Municipal Solid Waste, 2nd Edition* (June 2016), and section 5.31 in WorkSafe BC's OHS *Regulation Part 5: Chemical Agents and Biological Agents* (WorkSafe BC, 2021).

Per *Section 2.8 Landfill Gas Management* in the OC, if landfill methane concentrations exceed the LEL criteria of 5% by volume at the Site boundary, a qualified professional should be retained to evaluate the exceedance and provide recommendations regarding appropriate next steps and mitigation strategies. These could include verification monitoring or the installation of passive or active gas controls.

5.4.1 Gas Monitoring Methodology

Ecoscape personnel conducted gas monitoring on a tri-annual basis using a calibrated Landtec GEM 2000 Plus Landfill Gas Monitor (GEM 2000). The instrument measured five (5) landfill gases of interest by percent (%) volume: methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), hydrogen sulfide (H_2S), and carbon monoxide (CO).

Prior to sampling, Ecoscape personnel turned on the GEM 2000 gas monitor and ran it for about five minutes to pull in ambient air and stabilize the instrument. We then attached the GEM 2000 to the sampling port and purged at least one (1) probe volume of stagnant air from the probe. This process generally took about four (4) minutes. We waited approximately three to five minutes to allow the probe to equilibrate before recording gas concentration readings.

Gas probes are equipped with a switch lock on the sampling port which is left closed when the probes are not being sampled. This removes influence from atmospheric air and ensures there is no gas loss from the probe.

6.0 MONITORING PROGRAM RESULTS

The 2022 Site observations, water level measurements, groundwater quality exceedances, water quality trends, and landfill gas monitoring results are discussed in this section. The 2022 water quality results are tabularized in Appendix D, and historical water quality and landfill gas data are provided in Appendix E and F, respectively. Laboratory certificates of analysis are attached in Appendix G.

6.1. Site Observations

Monitoring well locations were readily accessible and in good condition in 2022. MW10-8 was not accessible during the March 2022 sampling event, as it was buried under a large pile of snow. DMW-1B was not sampled in November 2022 as the homeowners had winterized and shut off the water supply. All wells exhibited reasonably good recharge rates and provided sufficient water to sample.

Ecoscape staff did not observe signs of stressed vegetation, leachate breakout or ponding water at or near any of the monitoring locations during the 2022 sampling events. Additionally, Ecoscape did not observe wildlife (including medium and large carnivores) during sampling events at the Site in 2022.

6.2. Water Levels and Inferred Groundwater Flow Direction

Ecoscape personnel measured static water levels within each monitoring well on March 16, May 18, August 24, and November 16, 2022.

Water levels measured in 2022 remained consistent with previous years, with minimal (<1 m) seasonal fluctuations observed at MW09-6S, MW09-6D, MW10-08, and MW18-10 (Figure 4).

Ecoscape surveyed monitoring well elevations to a ± 0.01 m vertical accuracy in June 2020 to facilitate groundwater elevation and flow direction measurements at the Site. Groundwater level contours and inferred groundwater flow direction for August 2022 are shown on Figure 3. Groundwater elevations are highest at upgradient well MW10-08,

and, following topography, decrease towards the southwest with lower groundwater elevations at MW09-6D, -6S, and MW18-10, followed by the lowest groundwater elevations observed at MW18-11 situated at the southwest corner of the landfill. Groundwater levels in MW18-11 are similar to those measured in the valley-bottom sand and gravel aquifer. Based on this, groundwater flow through the unmapped bedrock aquifer below the Site is towards the southwest and Kicking Horse River, with an estimated hydraulic gradient of 0.5 m/m near the landfill.

Elevations of the piezometric surface were higher at MW09-6S compared to MW09-6D for all sampling events in 2022, likely indicating a downward hydraulic gradient between the sand and gravel water-bearing unit and unmapped bedrock aquifer at this location.

Water level data from 2022 are summarized in Appendix D. Historical water levels measured between 2009 and 2021 are provided in Appendix E.

6.3. 2022 Analytical Results Relative to Applicable Standards and Guidelines

Ecoscape personnel collected groundwater samples on March 16, May 18, August 24, and November 16, 2022.

During each sampling event, samples were collected from wells with sufficient groundwater for sampling and submitted to CARO in Kelowna, BC for chemical analysis of the following parameters:

- Total Alkalinity (total as CaCO3);
- Anions (chloride, bromide, sulfate, and fluoride);
- Conductivity and pH;
- Dissolved Metals;
- Total Hardness (as CaCO3);
- Nutrients (Nitrate (as N), Nitrite (as N), and Ammonia (as N));
- Total and Dissolved Organic Carbon (TOC and DOC);
- Chemical and Biological Oxygen Demand;
- Total and Suspended Solids and Turbidity; and
- Light and Heavy Extractable Petroleum Hydrocarbons (L/HEPH), Polycyclic Aromatic Hydrocarbons (PAHs), and Volatile Organic Compounds (VOCs) (Fall only).

In addition, personnel recorded pH, temperature, DO, ORP and electrical conductivity in the field.

2022 groundwater chemistry results are provided in detail in Appendix D, with exceedances from the tri-annual sampling events summarized in Table 3 below.

Table 3: Summary of 2022 Water Quality Exceedances		
Monitoring Location	**Guideline or Standard**	**Exceeding Parameter**
MW09-6S	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N), Sodium (dissolved), Sulfate
MW09-6D	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N), Sodium (dissolved), Sulfate
MW10-8	CSR DW	Chloride, Lithium (dissolved), Sodium (dissolved), Tungsten (dissolved)
MW18-10	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N)
MW18-11	CSR DW	Arsenic (dissolved), Lithium (dissolved)
MW22-12	CSR DW	Benzo(a)pyrene, Benzo(b+j)fluoranthene, Dibenz(a,h)anthracene
DMW-4	CSR DW	Lithium (dissolved), Strontium (dissolved)
	GCDWQ AO	Total dissolved solids
DMW-1B	CSR DW	Arsenic (dissolved), Lithium (dissolved)
	GCDWQ AO	pH (field), Iron (dissolved), Total dissolved solids
	GCDWQ MAC	Arsenic (dissolved)
DMW20-01	GCDWQ AO	Temperature (field), Total dissolved solids
Town Well #4	GCDWQ AO	Total dissolved solids

All other parameters analyzed by the laboratory were found at concentrations less than the applicable CSR standards for the Site.

Dissolved lithium exceeded the BC CSR DW standard of 0.008 mg/L in samples from nearly all monitoring locations in 2022. Per BC ENV Protocol 9, the background groundwater concentration for lithium in the Thompson-Okanagan Region is 96 µg/L (0.096 mg/L). While the Site is not within this mapped region, on-site lithium concentrations are below this value and are likely naturally elevated in the area given nearly monitoring network-wide exceedances of the CSR DW standard.

Background Water Quality

Background groundwater quality at the Site is represented by samples collected from upgradient domestic wells DMW-1b and DMW-4.

Consistent with previous years, dissolved arsenic exceeded the GCDWQ MAC guideline and CSR DW standard of 0.01 mg/L in all samples collected from DMW-1b ranging from 0.81 mg/L to 0.0485 mg/L in 2022. Dissolved arsenic concentrations are orders of magnitude lower at remaining monitoring locations (except for concentrations of approximately 0.01 in MW18-11 samples), with many concentrations near or below the laboratory detection limit.

Dissolved strontium concentrations in all samples from DMW-4 once again exceeded the CSR DW standard of 2.5 mg/L in 2022, ranging from 3.5 mg/L to 5.5 mg/L. Dissolved strontium has historically exceeded the CSR DW standard at this location.

Dissolved lithium exceeded the CSR DW standard of 0.008 mg/L in all 2022 samples collected from both DMW-1b and DMW-4. Given nearly monitoring network-wide exceedances, and a BC ENV background concentration of 0.096 mg/L in other nearby regions of the province, it is likely that dissolved lithium is naturally elevated in the area.

Dissolved iron (Figure 8) was detected above GCDWQ AO guideline of 0.3 mg/L in the winter and spring samples from DMW-1b, which may be attributable to erosion and weathering of soil and minerals near the well.

Field measured pH was slightly below the GCDWQ AO acceptable range of 7 to 10.5 in the fall 2022 sample from DMW-1B, but the lab measured pH was within the acceptable range.

Finally, total dissolved solids exceeded the GCDWQ AO concentration of 500 mg/L in all 2022 samples from domestic wells DMW-1b and DMW-4. Samples from DMW-1 had TDS concentrations ranging from 681 mg/L to 735 mg/L, while samples from DMW-4 had TDS concentrations ranging from 713 mg/L to 834 mg/L.

Based on the above, concentrations of arsenic, iron, lithium, strontium and TDS are likely naturally elevated above applicable guidelines and standards in the local bedrock aquifer, and are not necessarily attributable to ongoing landfilling activities.

Onsite and Near Site Monitoring Wells

Monitoring wells MW09-6S, -6D, MW18-10 and MW18-11 are situated on or immediately adjacent to the Site, cross- to downgradient of the landfill, and are thus used to monitor potential offsite migration of leachate-impacted groundwater.

Similar to previous years, the following parameters exceeded applicable standards on and immediately adjacent to the Site in 2022: chloride (Figure 5), dissolved sodium (Figure 5), sulfate (Figure 6), nitrate (Figure 7), and dissolved lithium. Additionally, dissolved arsenic

exceeded in the spring sample from MW18-11 in 2022. As discussed above dissolved lithium and arsenic may be naturally occurring in the area, based on measured background groundwater chemistry.

Downgradient wells MW09-6S and -6D continued to exhibit the greatest number of exceedances and highest leachate-indicator concentrations compared to remaining monitoring locations, suggesting ongoing leachate impacts at the western Site boundary. Chloride, nitrate, sulfate, dissolved lithium, and dissolved sodium concentrations exceeded provincial standards in 2022.

Groundwater samples from cross- to downgradient monitoring well MW18-10 exceeded applicable standards for chloride, nitrate, dissolved lithium and dissolved sodium concentrations, indicating leachate impacted groundwater is likely migrating beyond the south Site boundary.

Most leachate indicator parameter concentrations at MW18-11 were at or near background levels; however, tritium concentrations from the 2022 isotope analysis were slightly elevated above background, which means leachate impacts at this well cannot be ruled out. Dissolved lithium and dissolved arsenic concentrations exceeded criteria in samples from MW18-11; however, these parameters are likely naturally elevated in the area.

Offsite Monitoring Wells

Monitoring well MW10-08, MW22-12, DMW20-01, and Town Well #4 are situated well beyond the Site boundary.

Groundwater samples from cross- to upgradient monitoring well MW10-08 exceeded applicable standards for chloride (Figure 5), dissolved lithium, dissolved sodium (Figure 5), and dissolved tungsten during one or more sampling events, with chloride and sodium concentrations being the highest measured concentrations at any well in 2022. Dissolved tungsten concentrations have only been elevated in samples from MW10-08 since 2018, and samples from remaining monitoring locations have never shown a dissolved tungsten concentration above drinking water standards.

Most leachate indicator parameter concentrations at MW18-11 were low compared to those in monitoring wells near the landfill; however, select PAHs exceeded their respective drinking water standards. The elevated PAH concentrations are likely not attributable to landfill operations, as PAHs were not detected in any of the remaining samples collected in 2022. They could be attributable to an organic layer encountered above the well's screened interval, or may have been introduced during drilling activities. PAHs should be carefully monitored at this well moving forward to confirm or refute these inferences.

TDS concentrations in the Town Well #4 and DMW20-01 samples exceeded the GCDWQ AO guideline of 500 mg/L.

6.4. Water Quality Trend Analysis

Analyses and discussion of spatial and temporal trends in landfill leachate indicator parameter concentrations at and near the Site are discussed in this section. Groundwater quality data from 2002 to 2021 are tabularized in Appendix E.

Parameters indicative of landfill leachate are typically present at concentrations above background concentrations in leachate-impacted groundwater and generally include, but are not limited to: alkalinity, chloride, electrical conductivity, sulfate, sodium, ammonia, iron, manganese, and heavy metals cadmium, chromium, copper, nickel and zinc (Christensen et al., 2001). The chemical composition of landfill leachate can vary, and depends on composition of waste materials, climatic conditions, and the age and degradation rate of the solid waste (Bulc, 2006). Calcium and hardness are often elevated on the leading edge of a leachate-impacted groundwater plume, a phenomenon referred to as a "hardness halo" (Griffen et al., 1976). A hardness halo occurs as a result of the ion exchange between calcium and/or magnesium ions bound to sediments and various cations present in the leachate.

Like previous years, leachate parameter concentrations, including chloride, nitrate, ammonia, sodium, sulfate, hardness, alkalinity, select dissolved metals, including boron, calcium, magnesium, potassium, and sulfur and electrical conductivity were generally highest in samples from MW09-6S and -6D and to a lesser degree in MW18-10 samples compared to samples from the remaining monitoring locations. Concentrations were quite low in MW10-8 samples, except for sodium and chloride, which were once again the highest recorded in the monitoring network in 2022. Isotope analysis conducted in 2022 indicated the elevated sodium and chloride concentrations were likely related to road salting activities or some other non-landfill related source, and not leachate impacts.

Ecoscape plotted trends in water quality parameters across the Site over the sampling periods to identify if spatial and temporal trends in leachate indicator parameters were present. The following parameters were plotted:

- Chloride and Dissolved Sodium (Figure 5);
- Electrical Conductivity and Sulfate (Figure 6);
- Nitrate (Figure 7); and
- Dissolved Iron and Dissolved Manganese (Figure 8).

Individual discussions for select parameters follow.

6.4.1 Chloride

Chloride concentrations are typically elevated in leachate due to degradation of food waste and paper products; however, chloride also naturally occurs in groundwater, and may come from external sources such as road salt, industrial processes, wastewater effluent disposal to ground, and agricultural activity. Chloride is often found at the leading edge of a landfill leachate plume because it is conservative (non-reactive) in the environment and is thus useful in evaluating the plume's extent.

Like previous years, chloride concentrations remained above the CSR DW standard of 250 mg/L in samples collected from MW09-6S, -6D, MW10-08, and MW18-10. Concentrations at remaining monitoring locations were below applicable standards in 2022 (Figure 5).

Concentrations continued to be highest in samples from cross- to upgradient well MW10-08, fluctuating between 613 mg/L and 652 mg/L (Figure 5). MW10-08 was not sampled between 2015 and 2017; prior to then concentrations nearly doubled from just over 500 mg/L in 2010 to almost 1,000 mg/L in 2012, and then decreased to 666 mg/L by May 2015. Concentrations increased from 509 mg/L in September 2018 to 736 mg/L in October 2019, then decreased to 558 mg/L by November 2020. Concentrations have since been variable, but stable.

Chloride concentrations in samples from MW09-6S and -6D also continued to be elevated above background. Highest concentrations at this location were observed in February 2010 at around 715 mg/L; however, concentrations steadily decreased between 2012 and 2018, and have since stabilized around 350 to 400 mg/L. Concentrations ranged from 362 mg/L to 403 mg/L in 2022.

MW18-10 was drilled in June 2018. Since installation, chloride concentrations increased from a minimum of 299 mg/L (May 2019) to a maximum of 376 mg/L (November 2020). Concentrations decreased to 351 mg/L in March 2021 and were remarkably stable through to March 2022, but rebounded to 381 mg/L by November 2022.

MW18-11 was also drilled in 2018, and chloride concentrations in samples from the well increased from 23.2 mg/L in December 2018 to 113 mg/L in March 2020. Concentrations then decreased to 60.6 mg/L in May 2020 and increased again to 84.1 mg/L in the November 2020 sample. Concentrations were relatively stable in 2021, and consistent with those recorded in 2020, fluctuating between 73.2 mg/L and 85.1 mg/L, but increased to 105 mg/L by November 2022.

Background chloride concentrations measured in samples from DMW-1b and DMW-4 have been historically stable with concentrations generally less than 50 mg/L. Concentrations were lower in samples from DMW-4 than DMW-1b, with recent concentrations of 11.3 mg/L and 51 mg/L in November and August 2022, respectively. The chloride concentration in the sample collected from Town Well #4 were

above background in 2022 at 109 mg/L. Concentrations in samples from domestic monitoring well DMW20-01 were quite variable in 2022, and in some instances similar to those recorded at MW18-11, fluctuating between 11.3 mg/L (March) and 111 mg/L (August).

Concentrations in the newly installed MW22-12 were less than 1 mg/L.

No notable seasonal trends were observed in chloride concentrations, with annual maximum concentrations varying between spring, summer and fall from year to year.

6.4.2 Sodium

Sodium is often the dominant cation in leachate; however, various geochemical processes, including dissolution, precipitation, and cation exchange may affect concentrations during groundwater transport. Additionally, like chloride, sodium also naturally occurs in groundwater, and may come from external sources such as road salt, industrial processes, residential water softener use, and agricultural activity.

Sodium concentrations continued to exceed the CSR DW standard of 200 mg/L in samples from MW09-6S, -6D and MW10-08, while concentrations in MW18-10 samples exceeded for the first time in October 2019 and again in November 2020 but were below 200 mg/L in 2022. Remaining monitoring locations were below applicable standards in 2022.

Like chloride, sodium concentrations were highest in samples from MW10-08 in 2022, ranging from 328 mg/L to 335 mg/L. Historically, sodium concentrations in samples from MW10-08 increased from approximately 300 mg/L in 2011 to about 450 mg/L in 2012. Concentrations dropped to 370 mg/L in December 2018 and have since stabilized around 300 to 350 mg/L, with the exception of a spike to 431 mg/L in the October 2019 sample (Figure 5).

Sodium concentrations were also elevated in samples collected from MW09-6S and -6D in 2022. Concentrations at both locations were very similar during each 2022 sampling event, ranging from 253 mg/L to 286 mg/L. Historically, concentrations in MW09-6S samples increased from approximately 300 mg/L in 2011 to about 450 mg/L in 2013, before dropping to 297 mg/L in October 2018. Concentrations stabilized around 300 mg/L between 2019 and 2021 before dropping to the above-discussed 2022 concentrations.

Sodium concentrations were also elevated in samples from monitoring wells MW18-10 and MW18-11. Concentrations in MW18-10 samples increased from 168 mg/L in June 2018 to 206 mg/L in October 2019, decreased to 127 mg/L in May 2020 and increased once again to 239 mg/L in November 2020. Concentrations in MW18-10 samples gradually decreased from 187 mg/L in March 2021 to 141 mg/L in November 2022. Concentrations in MW18-11 samples decreased from 270 mg/L in December 2018 to 81.1 mg/L in May 2019, before increasing to 124 mg/L in March 2021. Concentrations in the MW18-11 samples have since been stable, ranging from 106 mg/L to 114 mg/L in 2022.

Concentrations in samples from remaining monitoring locations continued to remain low and stable, generally below 65 mg/L.

No observable seasonal trends were noted in sodium, annual maximum values varied between spring, summer and fall from year to year.

6.4.3 Electrical Conductivity

There are no applicable guidelines or standards for electrical conductivity; however, electrical conductivity is useful in monitoring landfill leachate impacts because it is a measure of the total dissolved minerals within groundwater.

Electrical conductivity remained highest in samples from MW09-6S and -6D followed by MW10-08 and MW18-10 (Figure 6). Conductivity in MW09-6S has generally exhibited a decreasing since 2013, when values exceeded 5000 µS/cm reaching a historical low of 3,280 µS/cm in May 2021. Conductivity values in MW09-6S and MW09-6D fluctuated between 3,680 µS/cm and 3,980 µS/cm in 2022.

Values in the 2022 samples from MW10-08 ranged from 2,510 µS/cm to 2,760 µS/cm, and were generally consistent with historical values, which have varied between approximately 2,500 and 3,500 µS/cm since 2010.

Electrical conductivity was also elevated above background levels in MW18-10 samples, with values slightly increasing from 2,390 µS/cm in June 2018 to 2,650 µS/cm in October 2019. Conductivity values have been variable but stable since then, with a low of 2,200 µS/cm (May 2021) and high of 3,240 µS/cm (November 2021).

Background electrical conductivity is quite high compared to other CSRD landfill sites, likely due to dissolution of bedrock minerals during groundwater transport. Values have been stable at DMW-1b and DMW-4, ranging from 1,040 to 1,200 µS/cm at both locations in 2021. Values at remaining monitoring locations are near or below background.

No observable seasonal trends were noted in electrical conductivity, with annual maximum values varying between spring, summer and fall from year to year.

6.4.4 Sulfate

Sulfate is often generated in landfill leachate during the decomposition of organic matter and soluble waste.

Sulfate concentrations were below the CSR DW standard of 500 mg/L at all monitoring locations in 2022 except MW09-6S and -6D samples which have exceeded the standard since start of monitoring at this location in 2009 (Figure 6).

Sulfate concentrations in MW09-6S and -6D ranged from 555 mg/L to 643 mg/L in 2022. Concentrations in MW09-6S samples gradually decreased between 2015 (at which time concentrations were close to 1,000 mg/L) and 2020, but have since stabilized.

Concentrations at background wells DMW-1b and DMW-4 were the next highest within the monitoring network, but well below applicable guidelines. Sulfate concentrations in samples from DMW-1b have remained relatively stable around 125 mg/L, with 2022 concentrations ranging from 125 mg/L to 133 mg/L. Concentrations at DMW-4 were somewhat higher, ranging from 216 mg/L to 286 mg/L in 2022.

Sulfate concentrations at remaining monitoring locations continued to be well below background (i.e., less than half). No observable seasonal trends were noted in sulfate, with annual maximum values varying between spring, summer and fall from year to year.

6.4.5 Nitrogen Compounds

Garden and food waste, and biosolids generally contribute to organic nitrogen within the landfill mass. Over time, waste decomposition can deplete oxygen, resulting in anaerobic conditions favourable for ammonification, during which organic nitrogen is converted to ammonia by heterotrophic bacteria. When ammonia in groundwater encounters appropriate aerobic conditions, ammonium is oxidized by microorganisms to nitrate (i.e., nitrification), with nitrite as an intermediary product. Other common anthropogenic sources of nitrate include wastewater disposal to ground, agricultural activities, industrial processes, and mining (blast residuals from explosives).

Nitrate concentrations continued to exceed the CSR DW standard of 10 mg/L in samples from MW09-6S, -6D and MW18-10, while concentrations at remaining monitoring locations remained below 2 mg/L.

Concentrations in MW09-6S and -6D samples have historically trended downwards from approximately 70 mg/L in 2010 to about 30 mg/L in 2018. Since then, concentrations have been somewhat variable, and potentially rebounding. Nitrate should be carefully monitored at this location. Highs of 48.1 mg/L and 53.2 mg/L were observed in May 2022 samples at MW09-6S and -6D, respectively, with lows of 35.2 mg/L and 36 mg/L observed in March 2022, respectively.

Nitrate in samples collected from MW18-10 have also been elevated, with an initial concentration of 12.9 mg/L in June 2018, marginally exceeding the standard of 10 mg/L. Concentrations have since been variable, with 2020 concentrations decreasing from 40 mg/L (March 2020) to 21.3 mg/L (May 2020), followed by a Site-wide maximum concentration of 67.9 mg/L (November 2020). Concentrations decreased to 24.5 mg/L in August 2021, and again to 10.9 mg/L in March 2022 before rebounding to 28.7 mg/L in November 2022.

Concentrations at remaining sample locations have been below 2 mg/L, with no obvious long-term increasing or decreasing trends.

As expected, ammonia concentrations were slightly elevated in samples from MW09-6S, -6D and MW18-10 compared to other monitoring wells in 2022, with maximum concentrations of 2.64 mg/L and 0.978 mg/L, respectively, observed in November.

Nitrite was near or below the laboratory detection limit at all sample locations.

6.4.6 Iron and Manganese

Decomposition of organic matter in leachate can deplete oxygen, creating reducing conditions (and generating organic acids). Under reducing conditions, iron and manganese oxides (both naturally occurring and anthropogenically produced) are generally reduced to more soluble forms, mobilizing dissolved iron and manganese in groundwater.

Dissolved iron exceeded the GCDWQ AO guideline of 0.3 mg/L in the winter and spring samples from background monitoring well DMW-1b, with a maximum concentration of 1.68 mg/L in March. Concentrations at remaining monitoring locations were below applicable guidelines and standards in 2022.

Concentrations in samples from background monitoring well DMW-4 were historically at or near laboratory detection limits (<0.010 mg/L), with a location maximum of 0.122 mg/L (May 2019). 2022 concentrations below laboratory detection limits for all sampling events except for a concentration of 0.048 mg/L in March 2022.

Dissolved iron concentrations have been variable in MW18-11 since the well was first sampled 2019, with 2022 concentrations ranging from 0.061 mg/L to 0.719 mg/L (November).

Consistent with most previous sampling events, iron concentrations at remaining monitoring locations were near or below the laboratory detection limit in 2022, including the newly installed MW22-12. Concentrations have intermittently spiked in the past at MW09-6S, MW10-08 and Town Well #4; however, given the typically low concentrations in samples from the leachate-impacted monitoring wells MW09-6S and MW09-6D, iron concentrations are likely naturally elevated at DMW-1b and MW18-11.

There were no dissolved manganese exceedances in 2022. Manganese concentrations were consistently elevated above background concentrations in samples from downgradient monitoring wells MW09-6S, -6D, MW18-10, and to a lesser degree MW18-11 since start of monitoring. This observation is consistent with manganese being mobilized due to anaerobic and reducing conditions in leachate impacted groundwater below and near the landfill, with concentrations being lower in more oxidizing conditions upgradient, cross-gradient and further downgradient of the Site.

Manganese concentrations have generally been highest in samples from MW18-10 since it was first sampled in June 2018 and ranged from 0.126 mg/L (September 2018) and 0.231 mg/L (May 2019), with a most recent concentration of 0.132 mg/L (November

2022). Manganese concentrations in the samples from MW18-11 were initially at 0.294 mg/L (December 2018) but have since decreased to less than 0.06 mg/L.

Concentrations in MW09-6S samples were first measured at 0.518 mg/L in 2009 followed by a decrease to 0.0882 mg/L in 2012 (Figure 8) and have fluctuated around 0.1 mg/L since then, with a most recent concentration of 0.118 mg/L (November 2022). Concentrations in the deeper MW09-6D were similar in 2022, ranging from 0.11 mg/L to 0.139 mg/L.

Manganese concentrations at remaining monitoring locations, including newly installed MW22-12, have remained stable and near or below measured background concentrations.

6.4.7 Petroleum Hydrocarbons and Volatile Organic Compounds

Samples collected in November 2022 were analyzed for L/HEPH, PAHs, and VOCs.

LEPH and HEPH were detected in the sample from MW22-12 and several PAHs exceeded applicable guidelines; however, L/HEPH and PAHs were not detected in the remaining samples, including leachate impacted monitoring wells MW09-6S/D and MW18-10, which indicates that the hydrocarbon detections and exceedances in MW22-12 are likely naturally occurring (i.e., biogenic) due to the high organic content in sediments encountered near the wells screen, or due to residual contamination from drilling activities. Nonetheless, hydrocarbons should be carefully monitored in MW22-12 moving forward, and the samples can undergo a silica gel cleanup to differentiate between anthropogenic and biogenic influences if necessary.

Similarly, VOCs were not detected in any of the samples except MW22-12, which had low level toluene concentrations (1.8 mg/L vs the 60 mg/L drinking water guideline/standard), likely drilling activities. Remaining VOCs were below the laboratory detection limit in the MW22-12 sample.

Remaining VOC concentrations were below the laboratory detection limits at all sampling locations.

Toluene previously exceeded the CSR DW standard of 60 µg/L in MW18-11 with a concentration of 150 µg/L in May 2019, but decreased by an order of magnitude to 12.8 µg/L in October 2019. Toluene concentration was at 8.8 µg/L in March 2020 and below detection limits for the remainder of 2020 and through 2021.

Toluene historically marginally exceeded the 60 µg/L CSR DW standard in the September 2018 sample from cross- to upgradient well MW10-08 with a concentration of 60.2 µg/L. Toluene concentrations have also been detected in MW09-6S samples (6.6 µg/L in April 2017) and in MW18-10 samples (10.8 µg/L to 16.2 µg/L in 2018); these concentrations were below the CSR DW standard. Persistently elevated toluene concentrations have not been observed at any monitoring location.

We understand that Section 3.4 of the OC was recently amended (October 2019) by ENV such that the Golden RDF can no longer accept hydrocarbon-impacted soil (concentrations of substances less than "hazardous waste" but exceeding the CSR Industrial (IL) numerical standards). Although not explicitly stated in the OC amendment, we understand this decision was largely based on elevated toluene concentrations in groundwater at downgradient monitoring well MW18-11.

Toluene is added to gasoline along with benzene and xylene and is often present in hydrocarbon-impacted soil. Considering the Site's high-volume and historically ongoing acceptance of hydrocarbon-impacted soil, we would expect persistently elevated toluene concentrations in groundwater if this were a concern, particularly at leachate impacted monitoring wells MW09-6S and -6D. However, toluene concentrations have varied both spatially and temporally, with no obvious long-term trends. Furthermore, we would expect to see detectable concentrations of L/HEPH, select PAHs (e.g. naphthalene), benzene, ethylbenzene and xylenes (i.e., remaining BTEX parameters typically included in gasoline mixtures) in downgradient monitoring wells. However, these parameters have not been detected in downgradient groundwater to date.

6.4.8 Remaining Leachate Indicator Parameters

Similar to the above-discussed leachate indicator parameters, alkalinity, hardness, and some dissolved metals, including boron, calcium, potassium and sulfur were elevated in samples from MW09-6S and -6D and to a lesser degree MW18-10 compared to the other monitoring locations and were likely associated with leachate impacts; however, these parameters remain below applicable standards for the Site.

7.0 PIPER DIAGRAM

A Piper diagram is a useful tool for characterizing groundwater chemistry and serves as a visual aid in differentiating between distinct water chemistry signatures and how these compare across monitoring locations. A Piper diagram shows relative percent of anions and cations in two ternary plots, which are then projected onto a central diamond plot. The major ions include Na^+, Ca^+, Mg^+, K^+, HCO_3^-, CO_3^{2-}, SO_4^{2-} and Cl^-, which typically account for the vast majority of the total dissolved solids present in natural groundwater. This central diamond plot is where monitoring locations can be visually grouped into distinct hydrogeochemical categories commonly referred to as facies. We produced a Piper plot using the average results from the 2022 sampling data and present it in Figure 9.

Potable water sources including Town Wells #4 and #6, and domestic wells DMW-1b, DMW-4, and DMW20-01 plotted close to one another in the magnesium bicarbonate type. Monitoring wells MW18-10 and MW18-11 (at southern boundary of the Site) also plotted as magnesium bicarbonate type, however slightly further from the potable water

sources. Downgradient well MW18-10 was almost on the border of the mixed type which included monitoring wells MW09-6S and -6D known to be impacted by leachate, indicating it was potentially impacted by landfill activity. MW18-11 was more offset from this mixed type zone, suggesting it may have had little to no impact from landfill leachate. The isotope analysis discussed in Section 8 provided additional detail regarding groundwater chemistry at MW18-11. Upgradient well MW10-08 plotted on the border of the mixed type and sodium chloride type. Chloride and sodium concentrations were consistently elevated at this location since 2009, and since it was somewhat further on the piper diagram from impacted wells MW09-6S and -6D (which plotted right on top of each other), we suspect the source of ions was different from the leachate chemistry signature (likely road salt).

8.0 ISOTOPE ANALYSIS

Ecoscape submitted the May 2022 samples for analysis of isotopes Oxygen-18 (^{18}O), Chlorine-37 (^{37}Cl), deuterium (^{2}H), and tritium (^{3}H). ^{18}O and ^{2}H are indicators of groundwater origin, ^{3}H is a leachate indicator parameter, and ^{37}Cl is useful in interpreting chloride sources. This concept is discussed in more detail below.

When expressed as ratios between two isotopes of a given element, the delta symbol is used. For example, $\delta^{18}O$ is calculated based on the ratio between the more common Oxygen-16 isotope and less common Oxygen-18 isotope. $\delta^{18}O$ and $\delta^{2}H$ are useful in differentiating between different water source-types: as these elements pass through the hydrologic cycle, they undergo unique fractionation through hydrologic processes such as precipitation and evaporation, wherein the characteristics of the environment for each process (such as moisture content, vapour pressure, humidity, temperature, and altitude) influence the fractionation process. In shallow groundwater regimes, $\delta^{18}O$ and $\delta^{2}H$ serve as tracers because their concentrations are determined by their unique fractionation developed during precipitation and by the amount of evaporation that occurs before the water penetrates the subsurface (Freeze & Cherry, 1979). Thus, different isotopic ratios are found in different water sources, making $\delta^{18}O$ and $\delta^{2}H$ useful tracers to determine source waters (University of Arizona, SAHRA).

Hydrogen has two stable isotopes, ^{1}H and ^{2}H (deuterium), and one radioactive isotope, ^{3}H (tritium). Large concentrations of tritium were created in the 1950s and 1960s due to atmospheric testing of nuclear weapons, which resulted in tritium entering groundwater systems via recharge due to the infiltration of precipitation. Thus, groundwater with concentrations of tritium higher than 5 to 10 tritium units, is modern (or bomb tritium) water (Freeze and Cherry, 1979). Thus, tritium concentrations can be used to roughly age groundwater as pre- or post-1954.

Tritium concentrations are also often elevated in municipal solid waste leachate, largely owing to gaseous tritium lighting devices used in some emergency exit signs, compasses, watches, and even novelty items, such as 'glow stick' key chains (Mutch and Mahoney, 2008). Tritium is useful for studying leachate impacts as it is not significantly affected by reactions in the environment other than radioactive decay (Freeze & Cherry, 1979).

The results of the isotope analysis are presented in Table 4 below.

Table 4: 2022 Isotope Analysis Results

Analyte	Oxygen-18 $\delta^{18}O$	Chlorine-37 $\delta^{37}Cl$	Deuterium $\delta^{2}H$	Tritium $\delta^{3}H$
Units	per mil[1]	per mil	per mil	TU[2]
MW09-6S	-18.71	-0.18	-148.2	45
MW09-6D	-18.87	-0.26	-148.7	44
MW18-10	-19.21	-0.03	-148.4	105
MW18-11	-20.66	-0.04	-159.4	24
MW10-8	-19.17	0.16	-147.8	6.4
DMW-4	-19.45	0.03	-150.6	4.7
DMW-1B	-20.07	-0.25	-156	2.9
DMW20-01	-19.96	-0.06	-152.2	5.6
Town Well #4	-19.96	0.05	-152.4	5.1
DMW20-01	-19.85	-0.16	-150.4	4.2

Notes:
1 = per mil is ‰ , or per thousand
2 = Tritium Units. 1 TU = 1 molecule of ^{3}H per 10^{18} molecules of ^{1}H

The oxygen-18 and deuterium results across all sampling locations indicated that all monitored locations were recharged by the same groundwater system, validating the conceptual understanding that the unmapped bedrock aquifer below the Site discharges to the valley-bottom sand and gravel Aquifer 456 IIB.

Potable water supply wells including the three (3) domestic wells and two (2) town wells all had low tritium concentrations, ranging from 1 to 5 TU. These tritium results were consistent with the measured low concentrations of leachate-indicator parameters at these wells, and indicated that they were not impacted by landfill activity.

The highest concentrations of tritium were found at MW18-10 at 105 TU, which is higher than tritium concentrations measured in 2020 (70.6 TU). Elevated tritium concentrations were also recorded in nested monitoring wells MW09-6S and -6D, at 45 TU and 44 TU respectively. Similar tritium concentrations between MW09-6S and MW09-6D (screened approximately 30 m below MW09-6S) infer the leachate plume has migrated vertically downwards and has exited the landfill, consistent with the steep downward hydraulic gradient measured between the nested wells.

Tritium at MW18-11 was slightly elevated (24 TU) above background, suggesting it could be mildly impacted by landfill leachate, but not as much as MW09-6S/D and MW18-10.

Importantly, tritium concentrations were relatively low at MW10-08, which supported the notion that elevated chloride, sodium and electrical conductivity values at this well are likely not attributable to fracture-controlled leachate migration, but rather road salt or other sources of anthropogenic chloride.

Chlorine-37 values were higher at MW10-8 compared to remaining locations, indicating elevated chloride concentrations at this well are likely coming from a different source (e.g., road salt) than those at remaining impacted well locations.

9.0 LANDFILL GAS MONITORING RESULTS

Landfill gas is generated by the biodegradation of organic material in landfills, and typically comprises equal parts of methane (CH_4) and carbon dioxide (CO_2). Other gases generated within a landfill mass including oxygen (O_2) and nitrogen (N_2), and traces of hydrogen sulfide (H_2S) and carbon monoxide (CO). Landfill gas constituent concentrations are contingent on volume and composition of waste material, decomposition rates of waste material, and the degree of atmospheric exchange occurring within the landfill cell.

Methane (CH_4) is the most critical landfill gas constituent, as it becomes explosive at concentrations between approximately 5 and 15 % by volume in air (CRA, 2010). The lower end of this range (5 %) is commonly referred to as the lower explosive limit (LEL), while the upper end is referred to as the upper explosive limit (UEL). Methane is generated at a landfill as waste (organic matter) decomposes under anaerobic conditions (Topp et al., 1997).

Carbon dioxide (CO_2) is denser than air and may displace oxygen from subsurface structures such as wells and manholes, potentially resulting in asphyxiation for personnel entering a subsurface structure without properly monitoring conditions beforehand.

Hydrogen sulfide (H_2S) becomes highly toxic at concentrations above 50 ppm, but is generally smelled at 0.05 ppm and presents a conspicuous rotten egg-like odour by 3 ppm. As such, H_2S is generally identified by on-site personnel prior to reaching highly toxic levels. Nonetheless, monitoring H_2S is important because concentrations above 10 ppm can cause headaches and nausea.

Carbon monoxide (CO) is an odourless gas that mixes freely with air and is typically produced by the incomplete combustion of fossil fuels (Technical Safety BC, 2020). It has an LEL of 12.5 % (at which point it requires a temperature of 609 °C to ignite) and UEL of 74 %.

The CSRD operations team conducted landfill gas monitoring once annually since 2013. Ecoscape took over with quarterly sampling since 2020. Gas probes GP20-01 through

GP20-02 were installed in July 2020. Historical results are presented in Appendix F. Results from 2022 are presented in Table 5 below.

Gas Probe	Date	% CH_4	% CO_2	% O_2)	% H_2S	% CO
GP20-01S	19-May-2022	0	0.0	20.6	0	0
	24-Aug-2022	0.2	0.2	18.6	0	0
	17-Nov-2022	0.2	0.6	21.4	0	0
GP20-01D	19-May-2022	0	0.1	20.4	0	0
	24-Aug-2022	0.2	0.6	18.1	0	0
	17-Nov-2022	0.2	0.1	22.6	0	0
GP20-02S	19-May-2022	0	0.2	20.8	0	0
	24-Aug-2022	0.2	0.7	17.3	0	0
	17-Nov-2022	0.2	0.6	20.2	0	0
GP20-02D	19-May-2022	0	1.5	18.8	0	0
	24-Aug-2022	0.2	0.0	19.0	0	0
	17-Nov-2022	0.2	0.0	21.6	0	0
GP-6S	19-May-2022	0	4.3	12.2	0	0
	24-Aug-2022	0.1	2.8	17.9	0	0
	17-Nov-2022	0.2	2.4	18.7	0	0
GP-6D	19-May-2022	0	2.9	15.9	0	0
	24-Aug-2022	0.1	1.9	17.9	0	0
	17-Nov-2022	0.1	2.1	19.4	0	0
GP-7S	19-May-2022	0	0.7	14.6	0	0
	24-Aug-2022	0.2	0.8	15.1	0	0
	17-Nov-2022	0.2	0.0	21.5	0	0
GP-7D	19-May-2022	0	1.2	12.4	0	0
	24-Aug-2022	0.2	0.7	17.3	0	0
	17-Nov-2022	0.1	1.3	18.5	0	0

No concerning data were found, with consistent results of 0 % hydrogen sulfide and 0 % carbon. As per Section 3.7 of the OC, combustible gas concentrations may not exceed the LEL of methane at the Site boundary. The highest recorded level of methane at the Site was 0.2 %, much less than methane's LEL of 5 %.

10.0 QUALITY ASSURANCE/QUALITY CONTROL

Ecoscape implemented a standardized Quality Assurance/Quality Control (QA/QC) program during this assessment to ensure representative samples were collected and that representative analytical data were reported by the laboratory. Ecoscape performed the following procedures as part of the QA/QC program:

- Recorded field notes during all stages of the investigation, together with a photographic record;
- Donned clean, new nitrile gloves at each sampling location;
- Collected samples using dedicated plastic bailers or tubing to preclude cross-contamination;
- Cleaned non-dedicated sampling equipment (e.g., electric water level) by washing with an Alconox™ (or equivalent)/potable water mixture before initial use and between uses to minimize the potential for cross-contamination; and
- Submitted one (1) field duplicate for laboratory analysis for every ten (10) samples collected.

The duplicate sample analysis ensures laboratory quality control as well as reproducibility of field sampling procedures. Duplicates and their associated sample location are summarized in Table 6.

Table 6: Field Duplicate Samples

Date	Sample ID	Duplicate ID
March 16, 2022	MW09-06S	DUP A
May 18, 2022	M18-10	DUP A
November 16, 2022	MW09-6S	DUP A

The reproducibility of field sampling techniques is quantified by a parameter referred to as the relative percent difference (RPD). RPD is calculated using the following formula:

$$RPD = \frac{S - D}{0.5(S + D)} \; x \; 100\%$$

Where: RPD= relative percent difference

S = sample value

D = duplicate value

RPD values greater than 25% generally suggest further review is required (CCME, 2011). However, analytical error generally increases near the method reporting limit (MRL); therefore, the RPD calculation was not applied unless the concentration of both samples was greater than 5 times the reported detection limit.

In March, total suspended solids had an RPD value of 26%, marginally exceeding the 25% threshold. In May, total suspended solids and turbidity had RPD values of 33% and 46% respectively. These parameters are hard to reproduce since they involve collecting fine particulate matter, and it is hard to replicate exact sampling of such material. Chemical oxygen demand had an RPD value of 37% and 33% in the May and November duplicates.

Remaining duplicate RPD values were less than 25% or were not calculable (due to concentrations less than 5 times the detection limit), suggesting that the sample and duplicate results are reproducible and reliable.

As a conservative measure, the highest concentration of a given parameter in field duplicate sample set was used for comparison against the applicable standard or guideline.

Samples submitted to CARO are subject to five laboratory QA/QC procedures (i.e., method blanks, laboratory control samples, lab duplicates, surrogate recoveries, and reference materials), which are documented in the laboratory Certificates of Analysis provided in Appendix G.

11.0 SUMMARY AND CONCLUSIONS

In accordance with the OC and EMP requirements, Ecoscape conducted groundwater sampling events in the winter, spring, summer and fall of 2022. Samples were analyzed for analytical parameters intended to illustrate potential groundwater effects from permitted landfilling activities. Based on the sampling and analytical program findings, Ecoscape has drawn the following conclusions:

- Concentrations of leachate indicator parameters, including but not limited to nitrate, sulfate, chloride, sodium, conductivity, alkalinity, hardness, and dissolved boron are elevated in samples from MW09-6D, -6S and MW18-10 compared to other monitoring locations, suggesting leachate-impacted groundwater likely occurs at and beyond the west and south Site boundaries. Samples from these three (3) monitoring wells also had elevated concentrations of tritium, which is an isotope indicative of landfill leachate impacts.
- Nitrate, sulfate, sodium and chloride concentrations at MW09-6S (and MW09-6D) trended downwards from approximately 2010 to 2018, but have been somewhat variable since then. Nitrate concentrations may be rebounding at this location and should be carefully monitored moving forward.
- Fluoride, arsenic, iron, lithium and strontium concentrations are likely naturally elevated at and near the Site based on groundwater data collected from background wells DMW-1b and DMW-4.
- Chloride, sodium, tungsten and conductivity concentrations/values were also elevated in cross- to upgradient well MW10-08 samples; however, unlike samples from leachate impacted monitoring wells MW09-6S, -6D and MW18-10,

concentrations of nitrate, sulfate and other leachate indicator parameters were at or near background at MW10-08. Furthermore, the tungsten exceedance was unique to MW10-08, and was not detected at leachate impacted monitoring wells. It was likely naturally occurring. Given the well's adjacency to a roadway, elevated chloride, sodium and conductivity are likely due to road salt as opposed to landfilling activities.

- Similar ^{18}O and deuterium isotope results across all sampling locations indicated that all monitored locations were recharged by the same groundwater system. This validated the conceptual understanding that the unmapped bedrock aquifer below the Site discharges to the valley-bottom sand and gravel Aquifer 456 IIB.
- Except for tritium, leachate indicator parameter concentrations were at or near background at monitoring well MW18-11. Tritium concentrations were slightly elevated above background, which means leachate impacts at this well cannot be ruled out.
- Elevated leachate indicator parameter concentrations were not identified in the Town Well #4 in 2022. Water quality in Town Well #4 has been monitored since 2002, with no signs of leachate impacts (e.g., nitrate concentrations are typically less than 20% of the 10 mg/L CSR DW standard, and chloride concentrations have been less than half of the 250 mg/L CSR DW standard). With that being said, good water quality in the Town Wells thus far does not rule out the potential for future impacts.
- DMW20-01 and MW22-12 serve as a sentry wells to Town Wells #4 and #6. No elevated leachate indicator parameter concentrations were identified in DMW20-01 and MW22-12 in 2022, which bodes well for the long-term sustainability of the Town Wells as potable water supplies.

12.0 RECOMMENDATIONS

Based on the annual monitoring program results and conclusions, we respectfully provide the following recommendations:

- Continue sampling the existing monitoring well network quarterly to evaluate spatial and temporal water quality trends and impacts over time.
- Consistent with Sections 57 and 60.1 of the CSR, owners of parcels west and south of the Site, and the BC ENV, should be notified of potential offsite migration of leachate-impacted groundwater. These notices are called Notifications of Likely or Actual (NOMs).
- Like previous years' recommendations, leachate management control measures beyond those currently constructed at the Site may be necessary if groundwater quality exceeds applicable standards beyond the Site boundary; however, current groundwater quality data and trends indicate additional leachate management controls are not necessary at this time. The CSRD should maintain regular communication with ENV regarding leachate mitigation measures, as necessary.

13.0 LIMITATIONS

This report has been prepared by Ecoscape Environmental Consultants Ltd. for Columbia Shuswap Regional District and is intended for the sole and exclusive use of the CSRD. Except for the CSRD, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without express written permission from Ecoscape.

Nothing in this report is intended to constitute or provide a legal opinion. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

This report has been prepared for specific application to the Site and Site conditions present at the time work was completed. The conclusions and recommendations provided herein are based solely upon our professional judgment and the availability of information pertaining to environmental conditions and historic and present land use at the site with time available to consider data. Ecoscape has relied fully upon information provided or collected by other parties and does not warranty data collected from third party sources used in this report.

This report has been prepared with the understanding that all available information on the past, present, and proposed conditions of the Site have been disclosed. If additional information becomes available that is inconsistent with the information provided herein Ecoscape should be contacted to reassess the conclusions provided in this report.

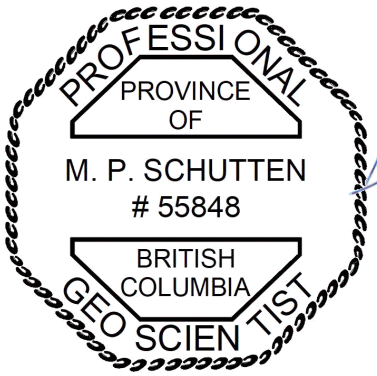
14.0 CLOSURE

We trust that this report satisfies your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Respectfully Submitted

Ecoscape Environmental Consultants Ltd.,

Written By:



2023-03-27

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Reviewed By:

Lee Ringham, M.Sc., P.Geo.
Senior Hydrogeologist
Chinook Arch Geoscience
Direct Line: (403) 860-2925

Attachments: Figures

Appendices

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FIGURES

FIGURE 1
Site Location

Project:	Annual Monitoring Report
Location:	CSRD
Project No.:	19-2850
Prepared for:	CSRD
Prepared by:	Ecoscape Environmental Consultants Ltd. Mike Schutten, M.A.Sc., P.Geo.
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Map Date:	February 14, 2023

LEGEND

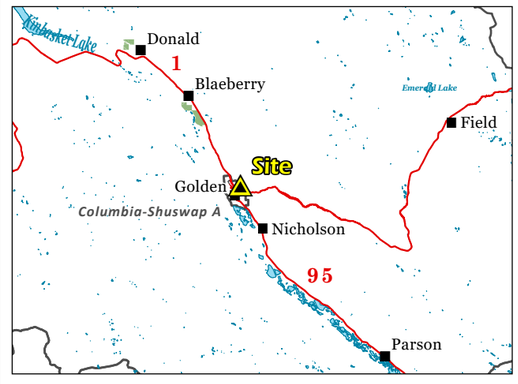
- ENV-Mapped Aquifer
- Approximate RDF Boundary
- Cadastre

Site
350 Golden-Donald Upper Road
Golden, BC

Hospital Creek
Golden-Donald Upper Rd
Lafontaine Rd
12th St N
11th Ave N
10th Ave N
9th Ave N
9th St N
Trans Canada Hwy
Granite Dr
Pine Dr
Kicking Horse Dr
10 Ave N
Station Ave
456
7th St N
Fisher Rd
Elk Rd
5th St S
6th St S
7th St S
8th St S
9th St S
10th St S
11th St S
12th St S
13th St S
14th St S
5th Ave S
7th Ave S
9th Ave S
10 Ave S
Golden
Kicking Horse River
Mt 7 Forest Se
Maple Dr
Columbia River
95

0 100 200 400 600 800
Meters

Regional Location of Site



ECOSCAPE

FIGURE 2
Site Plan and Sample Locations

Project:	Annual Monitoring Report
Location:	CSRD
Project No.:	19-2850
Prepared for:	CSRD
Prepared by:	Ecoscape Environmental Consultants Ltd. Mike Schutten, M.A.Sc., P.Geo
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Map Date:	February 14, 2023

LEGEND

- Gas Probe
- Town Well
- Monitoring Well
- Domestic Well
- BC Well Database (WTN)
- Approximate RDF Boundary
- ENV Mapped Aquifer

ECOSCAPE Environmental Consultants Ltd.

FIGURE 3
Inferred Groundwater Flow Direction

Project:	Annual Monitoring Report
Location:	CSRD
Project No.:	19-2850
Prepared for:	CSRD
Prepared by:	Ecoscape Environmental Consultants Ltd. Mike Schutten, M.A.Sc., P.Geo.
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Map Date:	February 14, 2023

LEGEND

- Inferred GW Flow Direction
- Monitoring Well (GW Elev. Aug 2022)
- Domestic Well
- BC Well Database (WTN)
- Groundwater Contours (Aug 2022)
- Approximate RDF Boundary
- ENV Mapped Aquifer

MW10-08 905.75
Golden Donald Upper Rd
MW09-6S 884.34
MW09-6D 883.55
885
865
845
825
805
MW18-11
MW18-10 886.77
116635
116634
DMW-1b
DMW-4
99638
N
0 15 30 60 90 120
Meters

503000 503050 503100 503150 503200 503250 503300 503350 503400 503450 503500 503550 503600 503650 503700 503750
5684500 5684450 5684400 5684350 5684300 5684250 5684200 5684150 5684100 5684050 5684000 5683950

DISCLAIMER
The data displayed is for conceptual purposes only and should not be interpreted as a legal survey or for legal purposes. If discrepancies are found between the data portrayed in this report and that of a legal survey, the legal survey will supersede any data presented herein.

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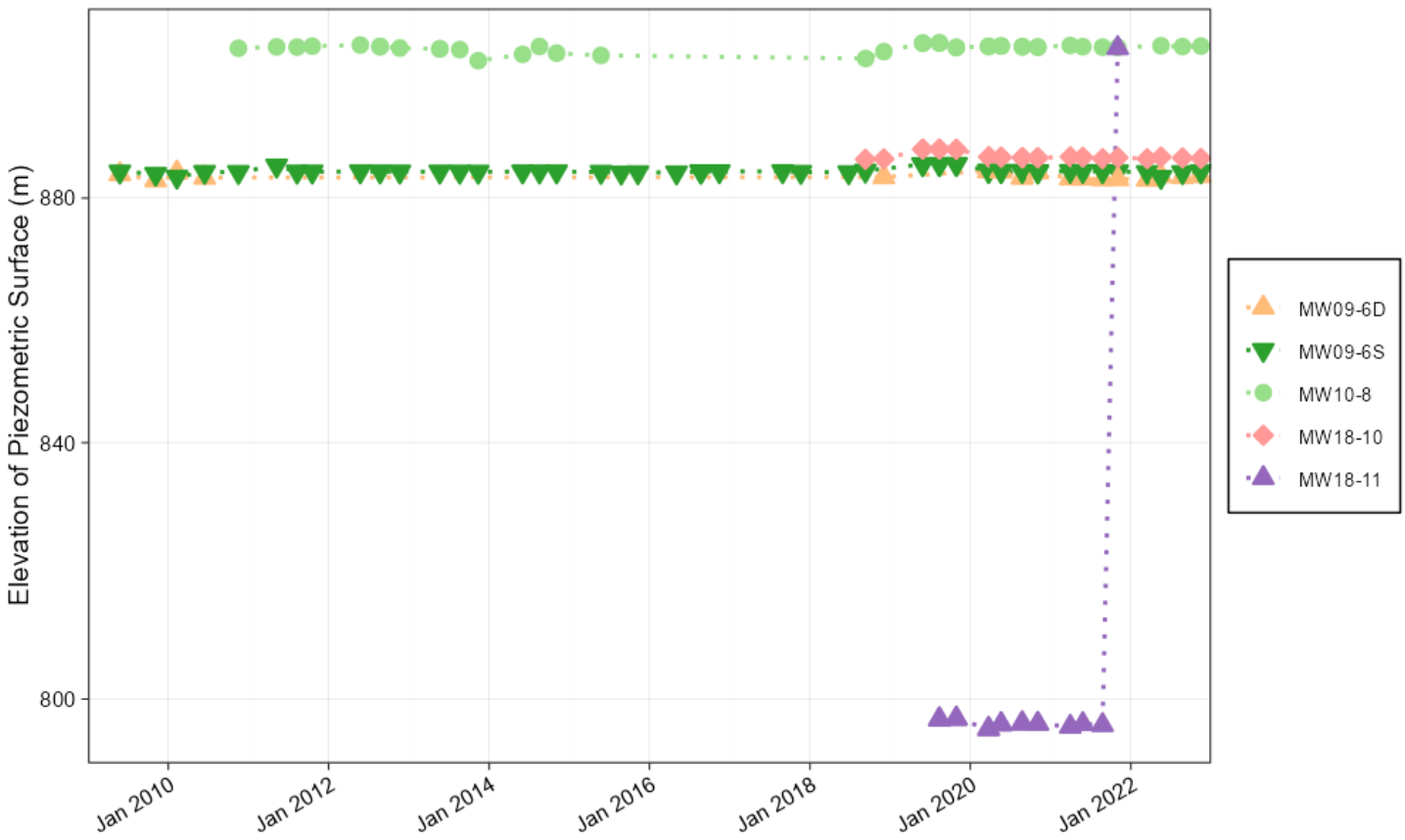
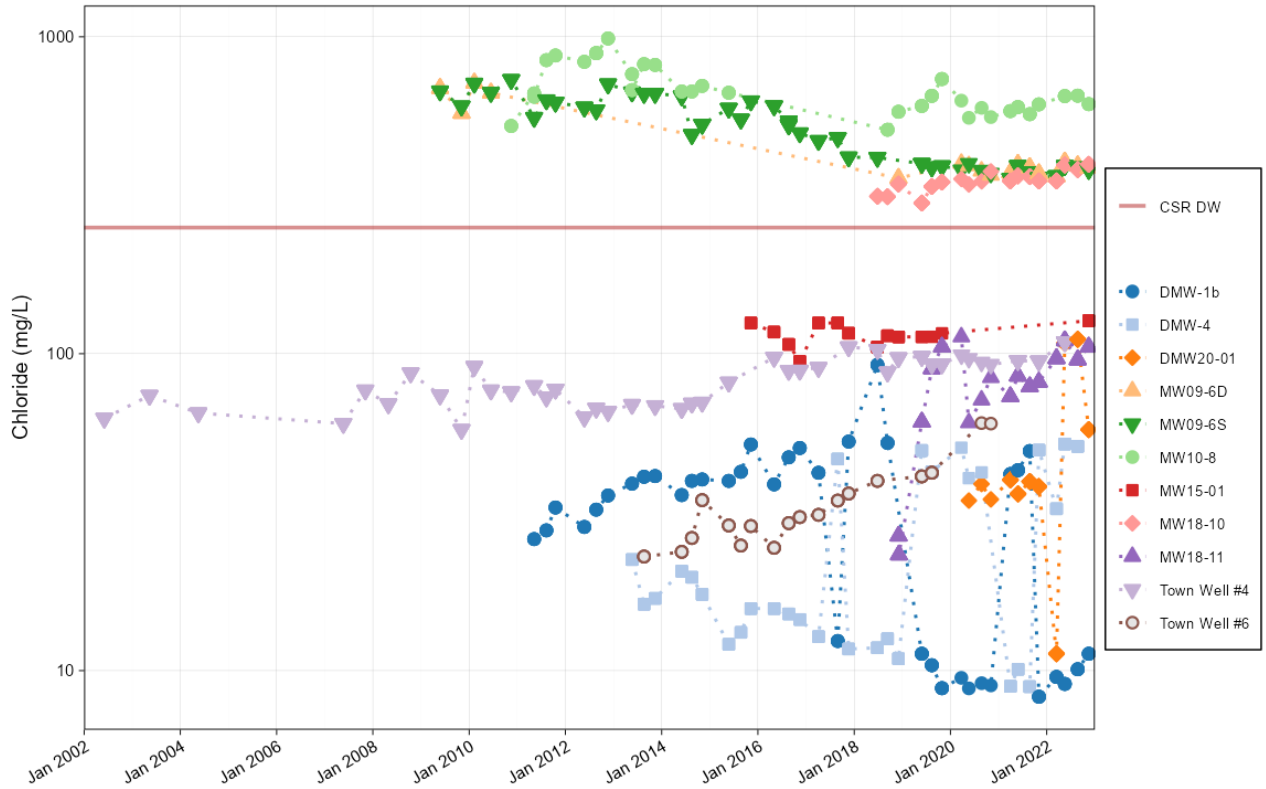


Figure 4: Groundwater Elevation Time Series Plot

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A



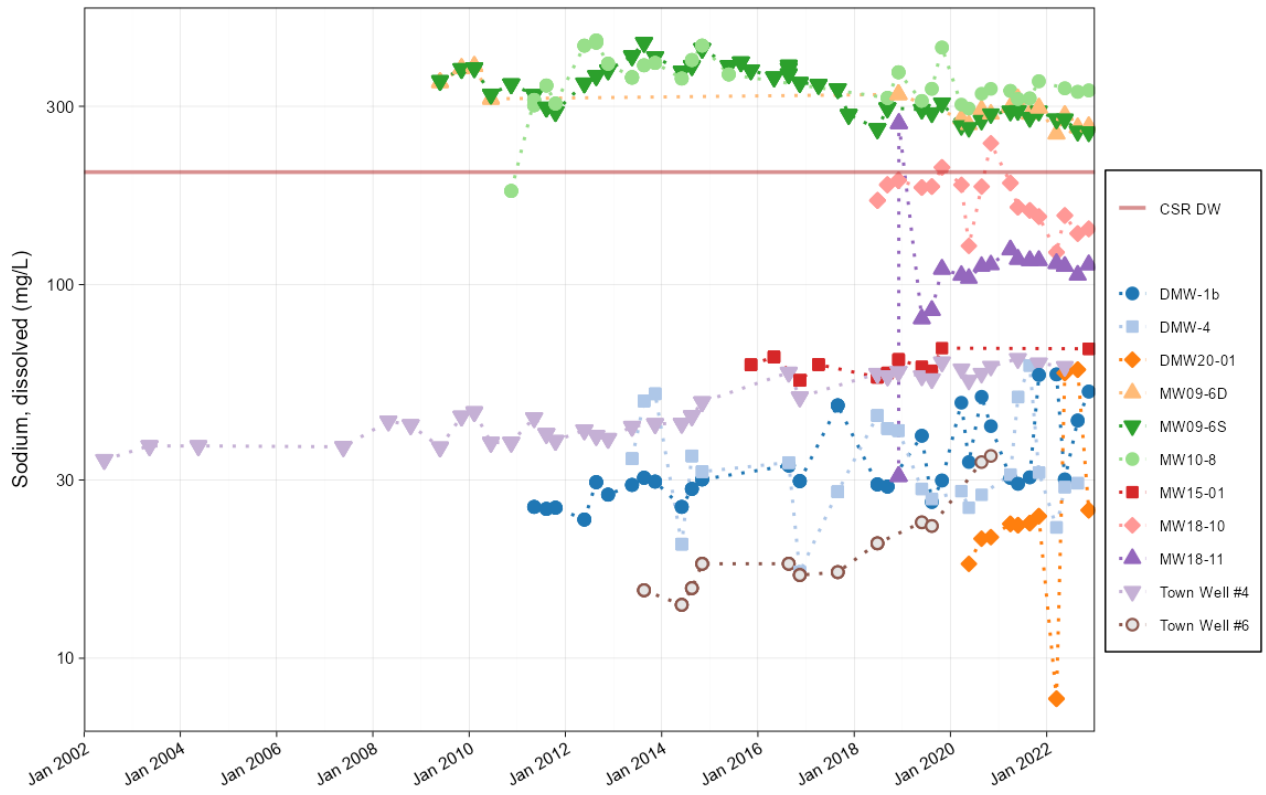


Figure 5: Chloride and Dissolved Sodium in Groundwater Time Series Plot

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A

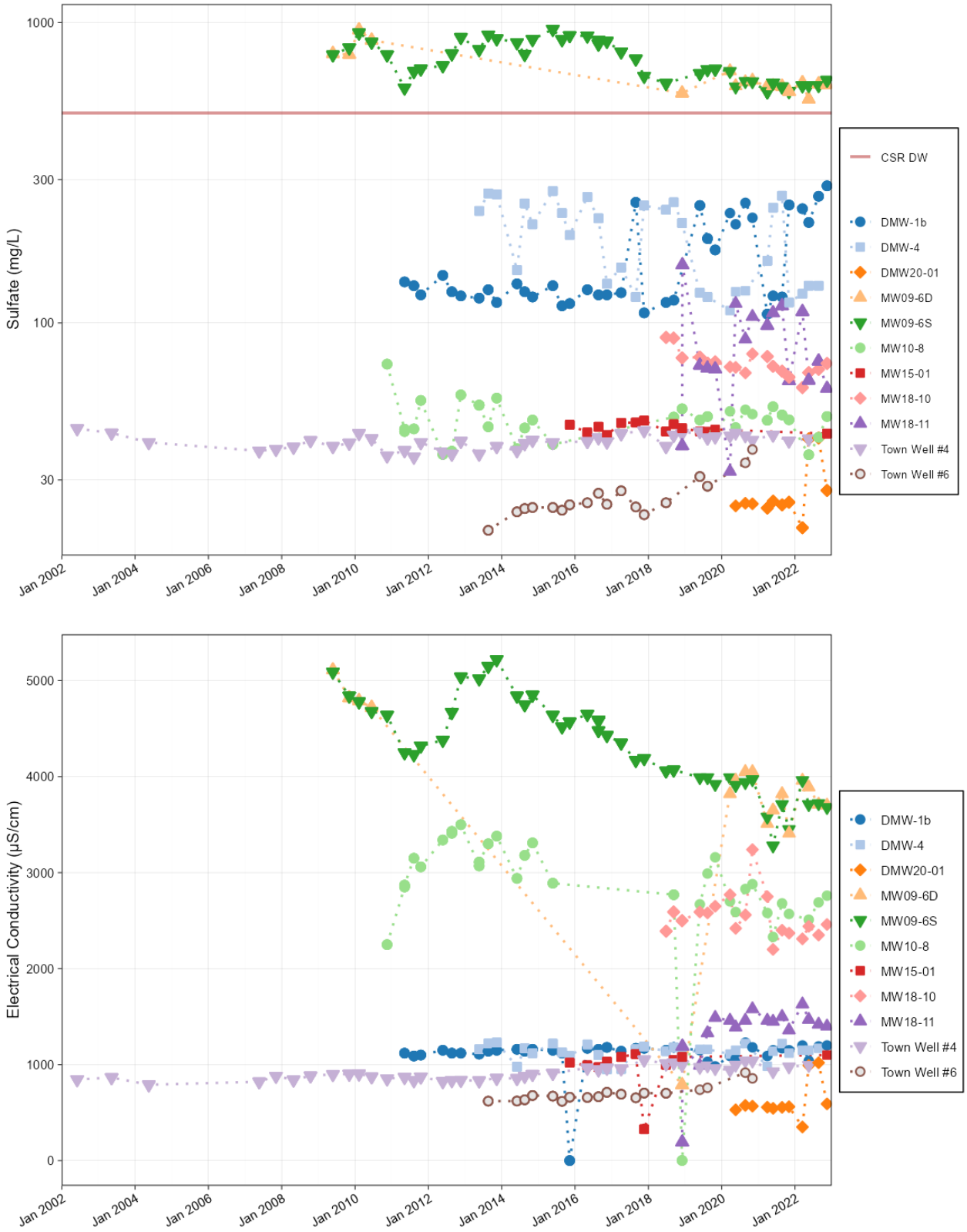


Figure 6: Sulfate and Electrical Conductivity in Groundwater Time Series Plot

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A

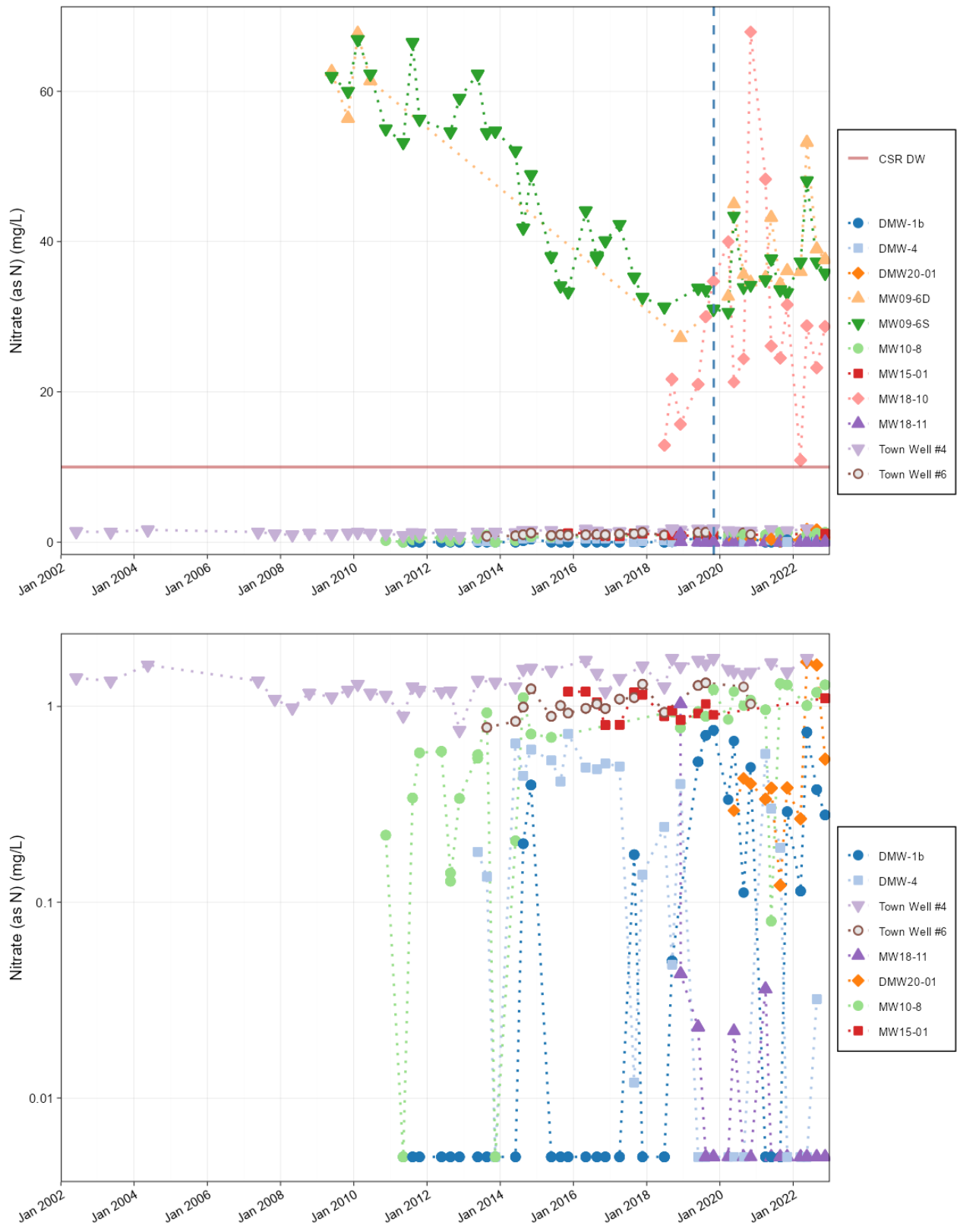
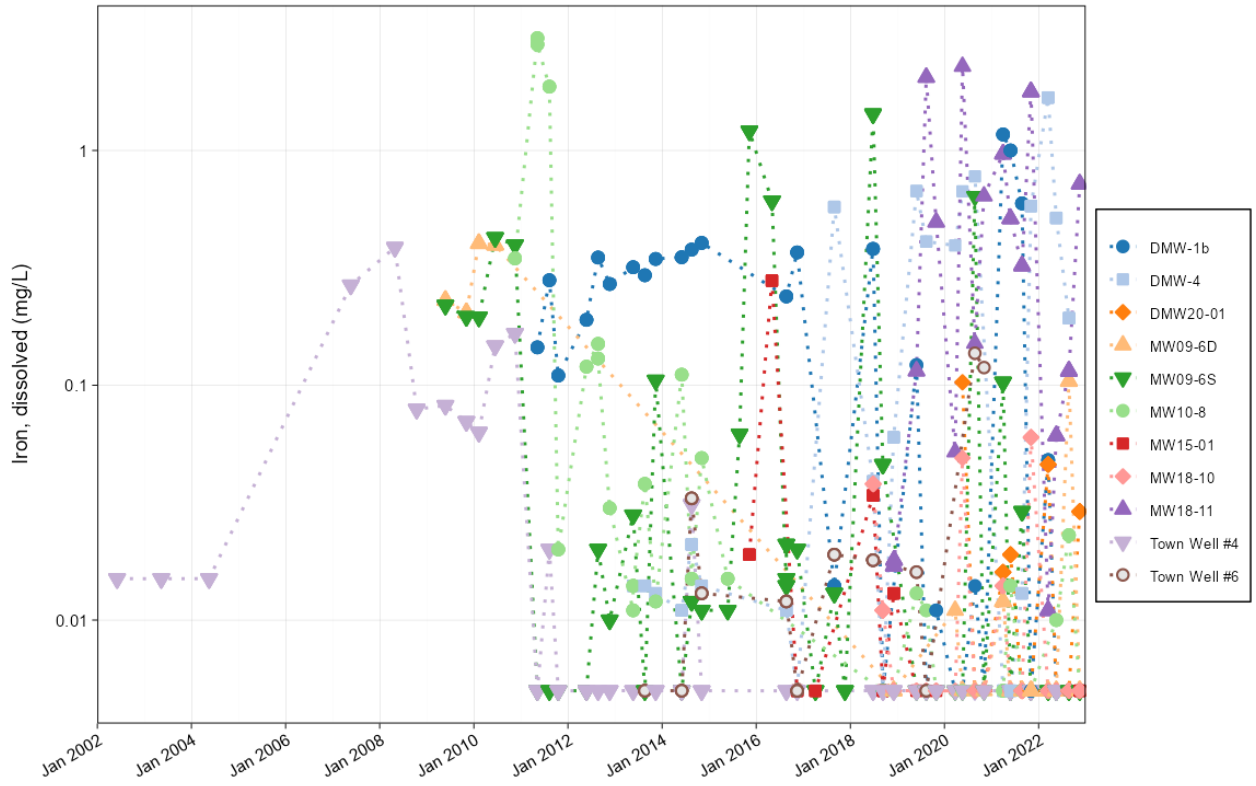


Figure 7: Nitrate in Groundwater Time Series Plot

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A



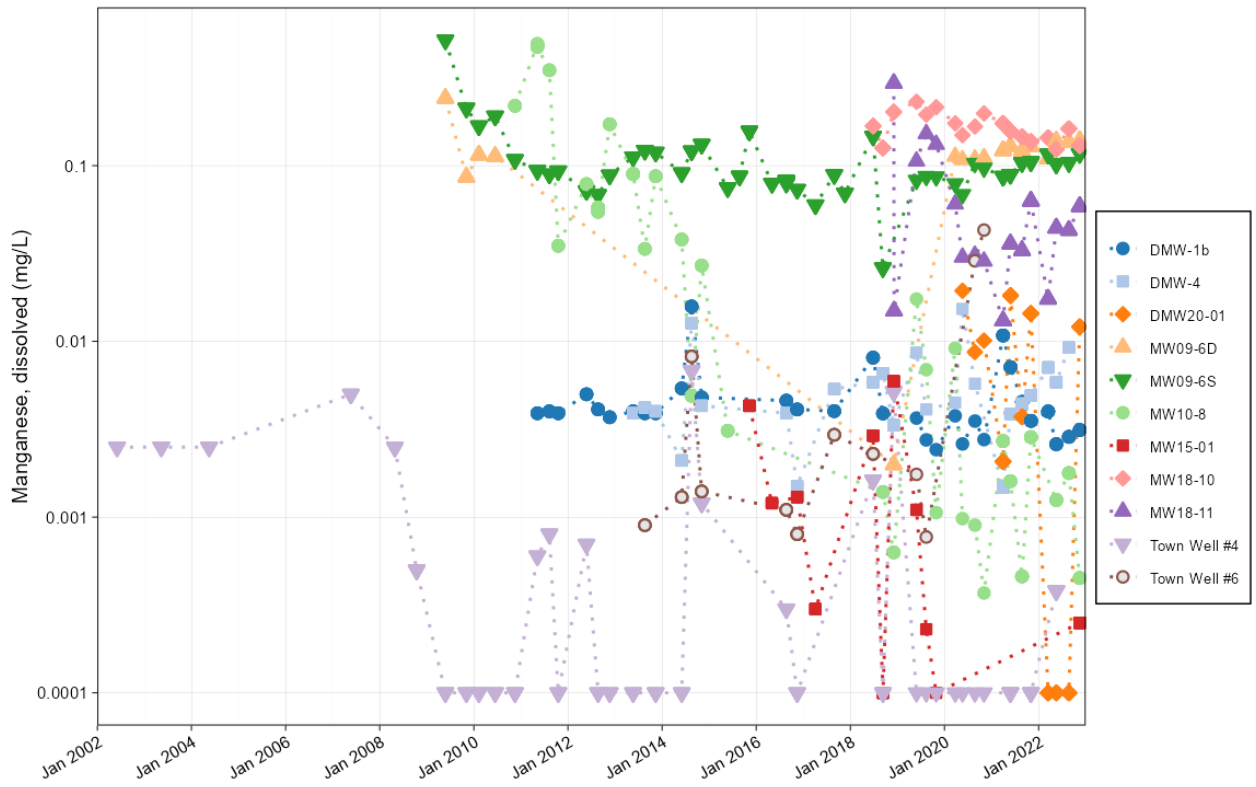


Figure 8: Dissolved Iron and Dissolved Manganese in Groundwater Time Series Plot

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A

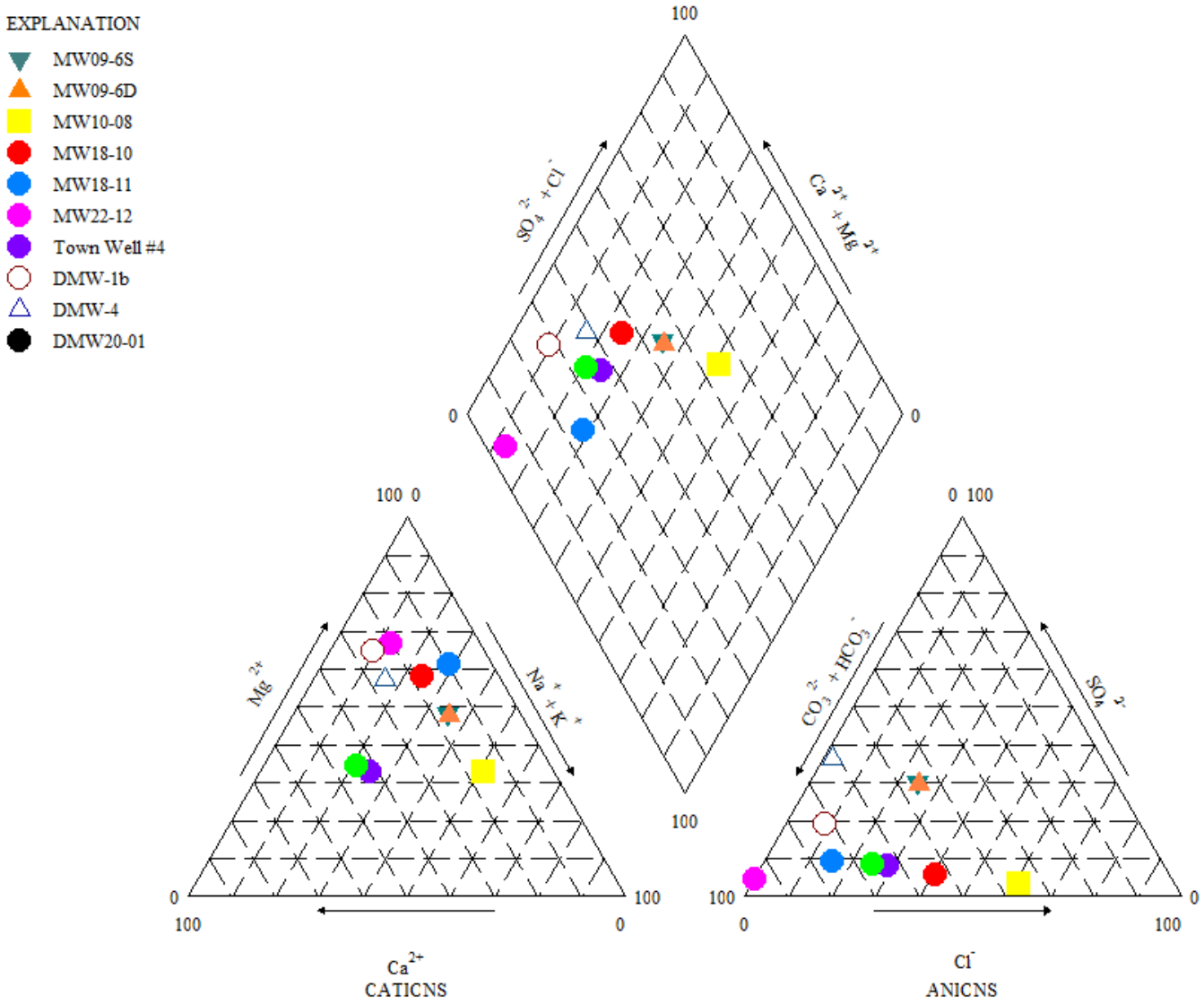


Figure 9: Piper Diagram

Project: 2022 Environmental Monitoring Report			
Client: Columbia Shuswap Regional District			
Location: Golden RDF			File No: 19-2850
Date: January 6, 2023	Dwn by: MPS	Ckd by: LR	Scale: N/A

APPENDIX A: General Terms and Conditions

GENERAL CONDITIONS

This report applies and is subject to these "General Conditions".

1.0 Use of Report

This report concerns a specific site and a specific scope of work, and is therefore not applicable to any other sites or any other developments not referred to in the report. Any deviation from the specific site or scope or work would require a supplementary investigation and assessment.

Conclusions and recommendations contained in this report are solely intended for the use of Ecoscape's client. Ecoscape bears no responsibility for the accuracy of information, the analysis of data or recommendations contained or referenced in this report when the report is utilized by or relied upon by any party other than Ecoscape's client, unless otherwise authorized in writing by Ecoscape. Any unauthorized application of this report is at the discretion and sole risk of its user.

This report is subject to copyright, and therefore shall not be reproduced in part or in whole without prior written consent by Ecoscape. Additional copies of this report may be available upon request, if required, and will be supplied after receipt of payment for expenses associated with report production.

2.0 Limitations of Report

This report was derived solely from the conditions that were present on site during Ecoscape's investigation. The client, and any other parties making use of this report with the express written consent of the Ecoscape and the client, are aware that conditions affecting the environmental condition of the site can vary both temporally and spatially, and that the conclusions and recommendations included in this report are temporally sensitive.

The client, and any other parties making use of this report with the express written consent of the Ecoscape and the client, are also aware that conclusions and recommendations included within this report emanate from limited observations and information, and that both on-site and off-site conditions may vary, which in turn could affect the conclusions and recommendations that were made.

The client is aware that Ecoscape is not qualified to, nor is it making any recommendations in terms of purchase, sale, investment or development of the subject property, as such decisions are the sole responsibility of the client.

2.1 Information Provided to Ecoscape by Others

During the extent of the preparation and work carried out in this report, Ecoscape may have relied upon information provided by parties other than the client. While Ecoscape strives to validate the accuracy of such information when instructed to do so by the client, Ecoscape accepts no responsibility for the validity of such information which may affect the report.

3.0 Limitation of Liability

The client acknowledges that property containing hazardous wastes and contaminants poses a high risk of claims brought by third parties stemming from the presence of those materials. Accounting for these risks, and in consideration of Ecoscape providing the requested services, the client agrees that Ecoscape's liability to the client, with respect to any issues relating to hazardous wastes or contaminants located on the subject property shall be limited to the following:

(1) With respect to any claims brought against Ecoscape by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to Ecoscape under this Agreement, whether the action is based on breach of contract or tort;

(2) With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject property, the client agrees to indemnify, defend and hold harmless Ecoscape from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by Ecoscape, whether the claim be brought against Ecoscape for breach of contract or tort.

4.0 Disclosure of Information by Client

The client agrees to fully cooperate with Ecoscape with respect to the provision of all available information on the past, current, or proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for Ecoscape to properly provide the service, Ecoscape is relying on full disclosure and accuracy of any such information. Ecoscape does not accept any responsibility for conclusions drawn from erroneous, invalid, or inaccurate data provided to us by another party and used in the preparation of this report.

5.0 Standard of Care

Services performed by Ecoscape for this report have been completed in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgement has been applied in developing the conclusions and/or recommendations made in this report. No warranty or guarantee, express or implied, is made concerning the

results, comments, recommendations, or any other portion of this report.

6.0 Notification of Authorities

The client acknowledges that in certain instances the discovery of hazardous materials, contaminants or conditions and materials may require that regulatory agencies and other parties be informed and the client agrees that notification to such parties or persons as required may be done by Ecoscape in its reasonably exercised discretion. Further, Ecoscape reserves the right to notify Provincial agencies when rare or endangered flora or fauna are observed, whether the species classifications are identified as such at the local, Provincial, or Federal levels of government.

7.0 Ownership of Instruments of Professional Service

The client acknowledges that all reports, plans, and data generated by Ecoscape during the performance of the work and other documents prepared by Ecoscape are considered its professional work product and shall remain the copyright property of Ecoscape.

8.0 Interpretation of the Report

8.1 Soil Description

Soils, rocks and geological units have been identified and logged using commonly accepted methods in professional geoscience practice; however, soil, rock and geological unit classification and identification are subject to the observers' and Report author's judgement. As such, Ecoscape does not warrant or guarantee the exactness of the insitu subsurface conditions described in this Report.

8.2 Test Pit and Borehole Logs

Test pit and borehole logs are an interpretive record of field observations and in some cases laboratory testing of select samples. It is not uncommon for sample recovery to be incomplete, even when using normal sampling procedures. Soil, rock and geological units described on the logs are based on interpretation of available data, and may therefore vary from actual insitu subsurface conditions.

8.3 Geological Cross-sections

Geological cross-sections were constructed based on information provided in test pit and borehole logs, topographic information, and information available online. Stratigraphy between logged locations were inferred based on hydrogeological and geological principles; however, actual geology and stratigraphy may vary from that drawn on our cross-sections.

8.4 Hydrogeological Conditions

Groundwater conditions described in the report and shown on borehole and test pit logs are a record of observed conditions at the time of their measurement. Groundwater conditions may vary between tested locations, and are affected by natural seasonal fluctuations. Groundwater conditions can also be affected by anthropogenic activities.

9.0 Alternate Report Format

Where Ecoscape submits both an electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Ecoscape's instruments of professional service), the client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by Ecoscape shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the client agrees and waives all future right to dispute that the original hard copy signed version archived by Ecoscape shall be deemed to be the overall original for the Project.

The client agrees that both electronic file and hard copy versions of Ecoscape's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party other than Ecoscape. The client warrants that Ecoscape's instruments of professional service will be used only and exactly as submitted by Ecoscape.

The client recognizes and agrees that electronic files submitted by Ecoscape have been prepared and submitted using specific software and hardware systems. Ecoscape makes no representation about the compatibility of these files with the client's current or future software and hardware systems.

APPENDIX B: Operational Certificate

June 30, 2021

Tracking Number: 392781
Authorization Number: 17006

REGISTERED MAIL

Columbia Shuswap Regional District
Box 978
781 Marine Park Drive NE
Salmon Arm, BC V1E 4P1

Dear Operational Certificate Holder:

Enclosed is Amended Operational Certificate 17006 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the operational certificate. An annual fee will be determined according to the Permit Fees Regulation.

This operational certificate does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the operational certificate holder. It is also the responsibility of the operational certificate holder to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

...2

Ministry of Environment
Environmental Protection Division
401 - 333 Victoria St.
Nelson, BC V1L 4K3
Southern Interior Region - Kootenay
Telephone: (250) 354-6333
Facsimile: (250) 354-6332

Administration of this operational certificate will be carried out by staff from the Environmental Protection Division's Regional Operations Branch. Documents pertinent to the operational certificate are to be submitted by email or electronic transfer to the director, in accordance with the ministry Data & Report Submissions website at: http://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions, or as further instructed.

If you have any questions or concerns, please contact Authorizations - South at Authorizations.South@gov.bc.ca.

Yours truly,

Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Authorizations - South Region

MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE STRATEGY

OPERATIONAL CERTIFICATE

17006

Under the Provisions of the Environmental Management Act

Columbia Shuswap Regional District

Box 978
781 Marine Park Drive NE
Salmon Arm, BC V1E 4P1

is authorized to manage waste and recyclable material from the Columbia Shuswap Regional District and environs at the Facility located near Golden, 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 supersedes all previous versions of the Operational Certificate 17006 issued under the authority of the *Environmental Management Act.*

1. AUTHORIZED DISCHARGE REQUIREMENTS

1.1 Landfill

This section applies to the Landfill known as the GOLDEN LANDFILL. The site reference number for this discharge is E246600.

1.1.1 The maximum quantity of waste discharges must not exceed 7,050 tonnes per calendar year.

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(most recent)

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for Director, *Environmental Management Act*
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1.1.2 The characteristics of the waste discharge to the Landfill must be:

(a) municipal solid waste,

(b) controlled waste consisting solely of animal carcasses, with special handling and control measures, as specified in the most recent Design, Operations and Closure Plan (DOCP), or,

(c) other waste as authorized in writing by the director,

(d) soil in which the concentrations of all substances are less than the lowest applicable industrial land use standard specified for those substances in

(i) the generic numerical soil standards,

(ii) the matrix numerical soil standards, or

(iii) a director's interim standard for soil,

referred to in section 41(1)(a) of the Contaminated Sites Regulation, B.C. Reg. 375/96,

but does not include:

(i) hazardous waste except as authorized pursuant to the Hazardous Waste Regulation, and,

(ii) waste and/or recyclable material prohibited in writing by the director.

1.1.3 The waste discharge is authorized to the landfill footprint of the Landfill approximately located as shown on Site Plan A.

1.1.4 The authorized works are a landfill footprint with a maximum area of 16 ha, final cover, and related appurtenances, approximately located as shown on Site Plan A.

1.1.5 The operational certificate holder must not discharge under this authorization unless the authorized works are complete and fully operational (excluding final cover in active landfilling areas), as per the most recent Design and Operations and Closure Plan, acknowledged under Section 2.4.

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1.2 Stormwater Management Works

This section applies to the to the management of stormwater from the Landfill.

1.2.1 The operational certificate holder must manage stormwater from the Landfill with the authorized works.

1.2.2 The authorized works are berms, french drains, ditches, perimeter road, perimeter ditches, culverts, sediment traps, stormwater pond, and related appurtenances, as specified in the most recent Design, Operations and Closure Plan (DOCP).

1.2.3 The operational certificate holder must not discharge under this authorization unless the authorized works are complete and fully operational.

1.3 Facility Entrance

This section applies to the Facility Entrance.

1.3.1 The authorized works are sign(s), gate, weigh scale, scale hut, waste and recyclable material drop-off and storage facilities, and related appurtenances approximately located as shown on Site Plan A.

1.3.2 The operational certificate holder must not discharge under this authorization unless the authorized works are complete and fully operational.

1.4 Location of Facility

This section applies to the location of the Facility.

1.4.1 The legal description of the location of the Landfill and Stormwater Management Works is Subdivision 12 of Section 18, Township 27, Range 21, West of the 5th Meridian, Kootenay District.

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2. DESIGN AND PERFORMANCE REQUIREMENTS

2.1 Glossary

Capitalized terms referred to in this authorization are defined in the Glossary below. Other terms used in this authorization have the same meaning as those defined in the *Environmental Management Act*, applicable regulations, and the Landfill Criteria;

"Attractant" means food or food waste, compost, carcass or part of an animal, fish, or other meat, or other waste or garbage, that could attract bears, birds, rodents, insects, vectors or wildlife, but does not include grass, leaves, weeds, branches and woodwaste;

"Electric Enclosure" means a bear-proof electric fence and electric gate(s), that surround the Facility;

"Facility" means the Golden landfill including all facilities and works on the Facility Site including the Landfill, Stormwater Management Works, Facility Entrance, and Electric Enclosure;

"Facility Entrance" means sign(s), gate, weigh scale, scale hut, waste and recyclable material drop-off and storage facilities;

"Facility Site" means the location of the Facility of this operational certificate;

"Facility Site Boundary" means the perimeter boundaries of the Facility Site;

"Landfill" means the authorized discharge site in section 1.1.4 of this operational certificate;

"Landfill Criteria" means the Landfill Criteria for Municipal Solid Waste Second Edition June 2016, as amended or replaced from time to time;

"Province" means Her Majesty the Queen in right of British Columbia;

"Regulatory Document" means any document that the operational certificate holder is required to cause to be prepared, prepare or submit to the director or the Province, pursuant to: (i) this authorization; (ii) any regulation made under the *Environmental Management Act* that regulates the Facility

described in this authorization or the discharge of waste from that Facility; or (iii) any order issued under the *Environmental Management Act* directed against the operational certificate holder that is related to the Facility described in this authorization or the discharge of waste from that Facility;

"Significant Works" means the Landfill, and Stormwater Management Works;

"Stormwater" means runoff from rainfall and snow melt.

"Stormwater Management Works" means the authorized works in section 1.2.2 of this operational certificate.

2.2 General Provisions

Where this Authorization provides that the director may require an action to be carried out, the operational certificate holder must carry out the action in accordance with the requirements of the director.

2.3 Use of Qualified Professional(s)

The operational certificate holder must cause a Qualified Professional to:

(a) Design and inspect the construction of the Facility,

(b) Certify documents related to the Facility including plans, specifications, drawings, construction reports, assessments, reviews, investigations, studies, surveys, programs, reports and as-built record drawings, and,

(c) Submit a completed Declaration of Competency and a Conflict of Interest Disclosure Statement with each document.

2.4 Design, Operation, and Closure Plan (DOCP)

(a) Receipt of the DOCP dated January 17, 2020, by Golder Associates Ltd., is acknowledged.

(b) The operational certificate holder must cause a Qualified Professional to certify and submit an updated DOCP for the Facility to the director, as necessary to keep the DOCP up to date, on or before December 31, 2025, and at least once every five years thereafter.

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(c) The updated DOCP must comply with the requirements of this operational certificate, and include the information specified in all the items listed in the Landfill Criteria Section 10.3 Design, Operations and Closure Plan, for the Facility, and, if a Water Quality Improvement Plan (WQIP) is required pursuant to section 3.5 of this operational certificate, conform with the most recent version of the WQIP.

(d) The operational certificate holder must carry out the most recent DOCP and design, construct, operate, inspect, maintain, monitor, and close the Facility, in compliance with most recent DOCP and this operational certificate.

2.4.1 **Stormwater Management Works**

The Operational Certificate Holder must provide an Implementation Schedule prepared by a Qualified Professional to the director for the design and implementation of the stormwater management works identified in the January 17, 2020 DOCP, Section 5.2 – Surface Water Management. The Implementation Schedule must be provided to the director at least 30 days prior to the commencement of construction of works or by August 31, 2021, whichever comes first.

The Operational Certificate Holder must then carry out the Implementation Schedule for the surface water management works and report on implementation progress in the Annual Report required under Section 5.1 until fully implemented.

2.5 **Construction Report(s)**

(a) The operational certificate holder must cause a Qualified Professional to:
(i) carry out inspections before and during the construction or modification of Significant Works, and,
(ii) certify construction report(s), on or before 30 days after the completion of construction or modification of Significant Works.

(b) The construction report(s) must demonstrate that the Significant Works have been constructed in accordance with this operational certificate and the most recent DOCP, describe any technical concerns that arose from the inspections and testing and how they were addressed, and include as-built record drawings of the constructed Significant Works, all the inspection and testing reports and results including geologic inspection report, quality

control and quality assurance testing, soil test data including field and laboratory data, as described in the Landfill Criteria section 10.2 Construction Report(s).

2.6 **Final Cover**

The operational certificate holder must ensure that:

(a) For final cover with a synthetic barrier layer:

(i) final cover slope grades for the Landfill are between 4% and 33%, and,

(ii) The final cover system includes from bottom to top a barrier layer consisting of a double sided textured geomembrane of minimum 1.0 mm thickness, or a geosynthetic clay liner, with hydraulic conductivity less than or equal to 1 x 10-7 cm/s, a drainage layer consisting of a non-woven geotextile or sand layer, a common fill layer of minimum 450 mm thickness, a topsoil layer of minimum 150 mm thickness, and vegetative cover.

(b) For final cover with a soil barrier layer:

(i) Final cover slope grades for the Landfill are between 10% and 33%, and,

(ii) The final cover system includes from bottom to top a soil barrier layer of minimum 600 mm thickness and hydraulic conductivity of less than or equal to 1 x 10-7 cm/s, a topsoil layer of minimum 150 mm thickness, and vegetative cover.

2.7 **Buffer Zone**

No new waste must be landfilled within 50 meters of the landfill site boundary.

2.7.1 **Screening**

The 30 meters closest to the landfill site boundary must be reserved for natural or landscaped screening (berm or vegetative screen).

2.8 Additional Requirements

The director may require the operational certificate holder to:

(a) Cause a Qualified Professional to certify and submit to the director additional, amended or improved documents of the Facility including plans, specifications, drawings, construction reports, assessments, reviews, investigations, studies, surveys, programs, reports and as-built record drawings.

(b) Carry out actions in accordance with the additional, amended or improved documents submitted, and additional actions as specified.

(c) Repair, alter, remove, improve or add to existing facilities and works, or construct new facilities and works, at the Facility.

3. OPERATING AND PERFORMANCE REQUIREMENTS

3.1 Multiple and/or Spare Works and Auxiliary Power Facilities

The operational certificate holder must provide and install multiple and/or spare works and auxiliary power facilities to ensure that the Facility is complete and fully operational as specified in this operational certificate, including during maintenance, breakdowns and electrical power outages.

3.2 Maintenance of the Facility

(a) The operational certificate holder must cause persons that are qualified and trained, to operate, regularly inspect, and maintain the Facility, in good working order. If components of the Facility have a manufacturer's recommended maintenance schedule, then those components must, at a minimum, be maintained in accordance with that schedule.

(b) The operational certificate holder must prepare documents of the qualification and training of the persons operating, inspecting and maintaining the Facility, and of Facility inspections, operation and maintenance.

3.3 Facility Manager and Operator Certification

(a) The operational certificate holder must ensure that at least one person responsible for the management of the Facility is certified, and maintains certification, by The Solid Waste Association of North America (SWANA) as a Manager of Landfill Operations, and at least one person responsible for the operation of the Facility has, within the preceding five years, successfully completed the SWANA Landfill Operations Basics course, on or before March 31, 2021, and at all times thereafter.

(b) The operational certificate holder must prepare documents of the SWANA certification and training of the person(s) responsible for the management and operation of the Facility.

3.4 Electric Enclosure

(a) The operational certificate holder must not allow a bear to access Attractants at the Facility or to enter the Electric Enclosure.

(b) The operational certificate holder must ensure that the Electric Enclosure are fully operational at all times bears may be present including April 15 – November 30 or otherwise specified by the director, except during temporary short-term periods during daylight, for maintenance, safety or operational reasons. If snow is present during the required operational period, any electrified strands above snow line must be isolated from the remainder of the system and energised.

(c) The operational certificate holder must operate the Electric Enclosure with a minimum voltage of 6,000 volts. The operational certificate holder must inspect the entire perimeter of the Electric Enclosure once per month including for evidence of bear activity (e.g. diggings, scat, etc.) and damage, and measure the voltage of the Electric Enclosure at a minimum of one point each day the Facility is open. If any measurements show a voltage of less than 6,000 volts, the operational certificate holder must immediately investigate the cause of the low voltage and immediately correct any issues that affect operation of the Electric Enclosure in accordance with the requirements of this authorization.

(d) The operational certificate holder must ensure that all gates are closed when the Facility is un-attended. The operational certificate holder may leave

a gate open while the Facility is continuously attended provided the gate is checked periodically for bear activity.

(e) The operational certificate holder must immediately report the presence of a bear within the Electric Enclosure, or any bear access to Attractants at the Facility, to the Conservation Officer Service, and immediately correct same.

(f) The operational certificate holder must prepare documents that demonstrate compliance with the preceding sub-sections including inspection logs, evidence of bear activity (e.g. diggings, scat, etc.), damage, voltage measurements, issues, causes, corrective actions, the presence of a bear within the Electric Enclosure, bear access to Attractants at the Facility, reports to the Conservation Officer Service.

3.5 **Water Quality Improvement Plan (WQIP)**

3.5.1 **Groundwater**

The operational certificate holder must include a WQIP in the Annual Operations and Monitoring Report required under section 5.4 of this operational certificate if the concentration of any substance in groundwater migrating from the Facility Site Boundary to a neighbouring site is greater than:

(a) the lowest Contaminated Sites Regulation Generic Numerical Water Standard, for the applicable water use(s), for that substance, or,

(b) if the local background concentration is greater than (a), the local background concentration of that substance.

3.5.1.1 The operational certificate holder must ensure that a Qualified Professional determines if the concentration of any substance in groundwater migrating from the Facility Site Boundary to a neighbouring site is greater than described in 3.5.1 (a) or (b).

3.5.1.2 The operational certificate holder must ensure that a Qualified Professional determines the applicable water use(s) in accordance with the latest approved version of Protocol 21 for Contaminated Sites, Water Use Determination.

3.5.1.3 If 3.5.1 (b) applies, the operational certificate must ensure that a Qualified Professional determines the local background

concentration of substance(s) in accordance with the latest approved version of Protocol 9 for Contaminated Sites, Determining Background Groundwater Quality or another method recommended by a Qualified Professional.

3.5.2 **Stormwater and Surface Water**

The operational certificate holder must include a WQIP in the Annual Operations and Monitoring Report required under section 5.4 of this operational certificate if the concentration of any substance in the stormwater or the surface water flowing from the Facility Site Boundary to a neighbouring site is of worse quality than:

(a) the applicable long-term average, short-term maximum, maximum allowable concentration, maximum acceptable concentration, or aesthetic objective, specified in the British Columbia Approved and Working Water Quality Guidelines, for the applicable water use(s), for that substance, or,

(b) if the local background concentration is of worse quality than (a), the local background concentration of that substance.

3.5.2.1 The operational certificate holder must ensure that a Qualified Professional determines if the concentration of any substance in the stormwater or the surface water flowing from the Facility Site Boundary to a neighbouring site is of worse quality than described in 3.5.2 (a) or (b).

3.5.2.2 The operational certificate holder must ensure that a Qualified Professional determines the applicable water use(s) and the applicable long-term average, short-term maximum, maximum allowable concentration, maximum acceptable concentration, and aesthetic objective, specified in the British Columbia Approved and Working Water Quality Guidelines, for the applicable water use(s), for substances.

3.5.2.3 If 3.5.2 (b) applies, the operational certificate holder must ensure that a Qualified Professional determines the local background concentration of substance(s).

3.5.3 **Plan and Implementation Schedule**

A WQIP must include a plan, details and implementation schedule to:

(a) investigate and determine the cause(s) of the water quality exceedances,
(b) investigate and determine the locations of the water quality exceedances at and beyond the Facility Site Boundary,
(c) assess and determine the environmental and human health impacts at and beyond the Facility Site Boundary,
(d) determine and carry out actions to improve water quality at and beyond the Facility Site Boundary,
(e) specify and carry out an environmental monitoring plan at and beyond the Facility Site Boundary, and,
(f) notify affected neighbouring site owners including a description of the WQIP.

3.5.4 **Implementation**

The operational certificate holder must implement the most recent WQIP.

3.6 **Water Quality Standards**

The operational certificate holder must ensure that groundwater migrating from the Facility Site Boundary to a neighbouring site, and stormwater and surface water flowing from the Facility Site Boundary to a neighbouring site, do not cause pollution, or adverse effects on human health, on a neighbouring site.

3.7 **Nuisance**

The operational certificate holder must ensure that the Facility does not cause a nuisance including with regard to birds, rodents, insects, odour, noise, dust, litter, vector and wildlife attraction.

3.7.1 **Litter, Birds, and Wildlife**

Litter fencing must be set up around the active face when waste is being deposited such that the spread of litter is minimized.

Daily cover must be adequate to prevent wildlife from accessing waste near the active face, after the landfill operating hours. Intermediate cover, of at

least 300 mm thickness, which may include the 150 mm required daily cover thickness, should be installed in areas not actively being filled to discourage wildlife from accessing the waste.

Records of litter collection efforts including photographs, must be kept on site for the past 2 years of operation. A summary of the collection efforts must also be included in the Annual Report required in Section 5.1.

The Operational Certificate holder must cause a Qualified Professional to conduct and certify an assessment of the issue of wildlife habituation within the landfill site boundary and litter dispersion at this landfill by August 31, 2021. The OC holder must carry out mitigating measures to address wildlife habituation and litter dispersion, assess their effectiveness and report on findings and ongoing recommendations, as applicable, in the Annual Report required in Section 5.4.

3.8 **Complaints**

The operational certificate holder must prepare documents of complaints with regard to matters relevant to this operational certificate, including environmental, bear, and nuisance complaints. These documents must include the source and nature of the complaint, actions, responses, and corresponding dates and times.

3.9 **Regulatory Documents**

(a) The operational certificate holder must retain all Regulatory Documents.

(b) The operational certificate holder must retain all Regulatory Documents for the last seven years at the Facility and such documents must be available for immediate inspection at the Facility by a director or an officer.

(c) If requested by a director or an officer, the operational certificate holder must submit the requested Regulatory Documents to the director or officer within 14 days of the request.

4. MONITORING REQUIREMENTS

4.1 Monitoring and Sampling Facilities

The operational certificate holder must install and maintain, measurement, monitoring and sampling facilities for waste, leachate, effluent, groundwater, stormwater, surface water and landfill gas, in compliance with, and including at locations specified in, the most recent DOCP and WQIP.

4.2 Monitoring and Sampling

The operational certificate holder must carry out measurement, monitoring and sampling of waste, leachate, effluent, groundwater, stormwater, surface water and landfill gas, in compliance with, and including at frequencies and for substances specified in, the most recent DOCP and WQIP.

4.3 Sampling Procedures

The operational certificate holder must carry out sampling in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2013 Edition (Permittee)" or most recent edition, or by alternative procedures as authorized by the director. A copy of the above manual is available on the Ministry web page at https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance.

4.4 Analytical Procedures

The operational certificate holder must carry out analyses in accordance with procedures described in the "British Columbia Laboratory Manual (2015 Permittee Edition)", or the most recent edition or by alternative procedures as authorized by the director. A copy of the above manual is available on the Ministry web page at https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance.

4.5 Quality Assurance

(a) The operational certificate holder must obtain from the analytical laboratory(ies) their precision, accuracy and blank data for each sample set

submitted by the operational certificate holder and an evaluation of the data acceptability, based on criteria set by such laboratory.

(b) The operational certificate holder must prepare and submit for analysis by the analytical laboratory(ies) a duplicate sample for each parameter sampled at each monitoring site and each monitoring period.

(c) The operational certificate holder must submit samples to analytical laboratory(ies) that meet the definition of a qualified laboratory under the Environmental Data Quality Assurance Regulation.

4.6 Data Uploading

The operational certificate holder must cause the analytical laboratory(ies) to upload monitoring and analytical data required by this operational certificate, to the Ministry's Environmental Monitoring System (EMS) database, on or before 30 days after the data is available, or as further instructed by the director.

5. REPORTING REQUIREMENTS

5.1 Electronic Reporting

The operational certificate holder must submit all data required to be submitted under this section by email to the Ministry's Routine Environmental Reporting Submission Mailbox (RERSM) at Envauthorizationsreporting@gov.bc.ca or as otherwise instructed by the director. For guidelines on how to properly name the files and email subject lines or for more information visit the Ministry website: https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions/routine-environmental-reporting-submission-mailbox.

5.2 Non-compliance Notification

The operational certificate holder must immediately notify the director by email at EnvironmentalCompliance@gov.bc.ca, or as otherwise instructed by the director of any non-compliance with the requirements of this Authorization and must immediately take remedial action to remedy any effects of such non-compliance.

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for Director, *Environmental Management Act*
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Potential non-compliances include but are not limited to fires, or detection of surfacing leachate on the property.

5.3 Non-compliance Reporting

The operational certificate holder must, within 30 days of any non-compliance event, submit to the director a written report that includes, but is not necessarily limited to, the following:

(a) all relevant test results obtained by the operational certificate holder related to the non-compliance,

(b) an explanation of the most probable cause(s) of the non-compliance, and

(c) a description of remedial action planned and/or taken by the operational certificate holder to prevent similar non-compliance(s) in the future.

The operational certificate holder must submit all non-compliance reporting required to be submitted under this section by email to the Ministry's Compliance Reporting Submission Mailbox (CRSM) at EnvironmentalCompliance@gov.bc.ca or as otherwise instructed by the director. For guidelines on how to report a non-compliance or for more information visit the Ministry website: http://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions/non-compliance-reporting-mailbox.

5.4 Annual Operations and Monitoring Report

(a) The operational certificate holder must cause a Qualified Professional to certify and submit an Annual Operations and Monitoring Report, for the preceding calendar year, to the director on or before March 31 of each year.

(b) The Annual Operations and Monitoring Report must include the following information:
Operations Report:

(i) Tonnages and categories of waste and recyclable material received at the Facility, and how they were managed,
(ii) Tonnages and categories of waste discharged to the Landfill,
(iii) Remaining volume and life of the Landfill;

(iv) Summary of DOCP implementation;
(v) Summary of screening/revegetation efforts;
(vi) Summary of construction report(s);
(vii) Summary of Electric Enclosure inspection logs, issues, causes, corrective actions, and reports to the Conservation Officer Service;
(viii) Summary of complaints and nuisances;
(ix) Summary of non-compliance notifications and non-compliance reporting;
(x) For the next calendar year, summary of planned DOCP implementation and construction of Significant Works,

Environmental Monitoring Plan Report:

(xi) Site plan(s), sampling locations, stormwater and surface water flow paths, groundwater elevations, gradients and flow directions;
(xii) Measurement, monitoring and sampling facilities, locations, frequencies, substances, sampling and analytical procedures, quality assurance and quality control;
(xiii) Data including laboratory analysis and quality assurance and quality control results;
(xiv) Data tabulation, trend analysis, graphs, diagrams, and interpretation;
(xv) Discussion and determinations required by section 3.5 of this operational certificate,
(xvi) Discussion and determination of compliance with section 3.6 of this operational certificate,
(xvii) Discussion and determination of compliance with section 3.7 of this operational certificate,
(xviii) Results, conclusions, recommendations and changes to the environmental monitoring plan.

Water Quality Improvement Plan (WQIP):

(xviii) If required by section 3.5 of this operational certificate, a WQIP, and implementation status, results, and a copy of any notification(s) to affected neighbouring site owner(s).

Date issued: May 5, 2003
Date amended: June 30, 2021
(most recent)

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for Director, *Environmental Management Act*
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5.5 **Publication of Documents**

The Ministry of Environment and Climate Change Strategy publishes Regulatory Documents on its website for the purpose of research, public education and to provide transparency in the administration of environmental laws. The operational certificate holder acknowledges that the Province may publish any Regulatory Documents submitted by the operational certificate holder, excluding information that would be exempted from disclosure if the document was disclosed pursuant to a request under section 5 of the *Freedom of Information and Protection of Privacy Act*, and the operational certificate holder consents to such publication by the Province.

Date issued: May 5, 2003
Date amended: June 30, 2021
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for Director, *Environmental Management Act*
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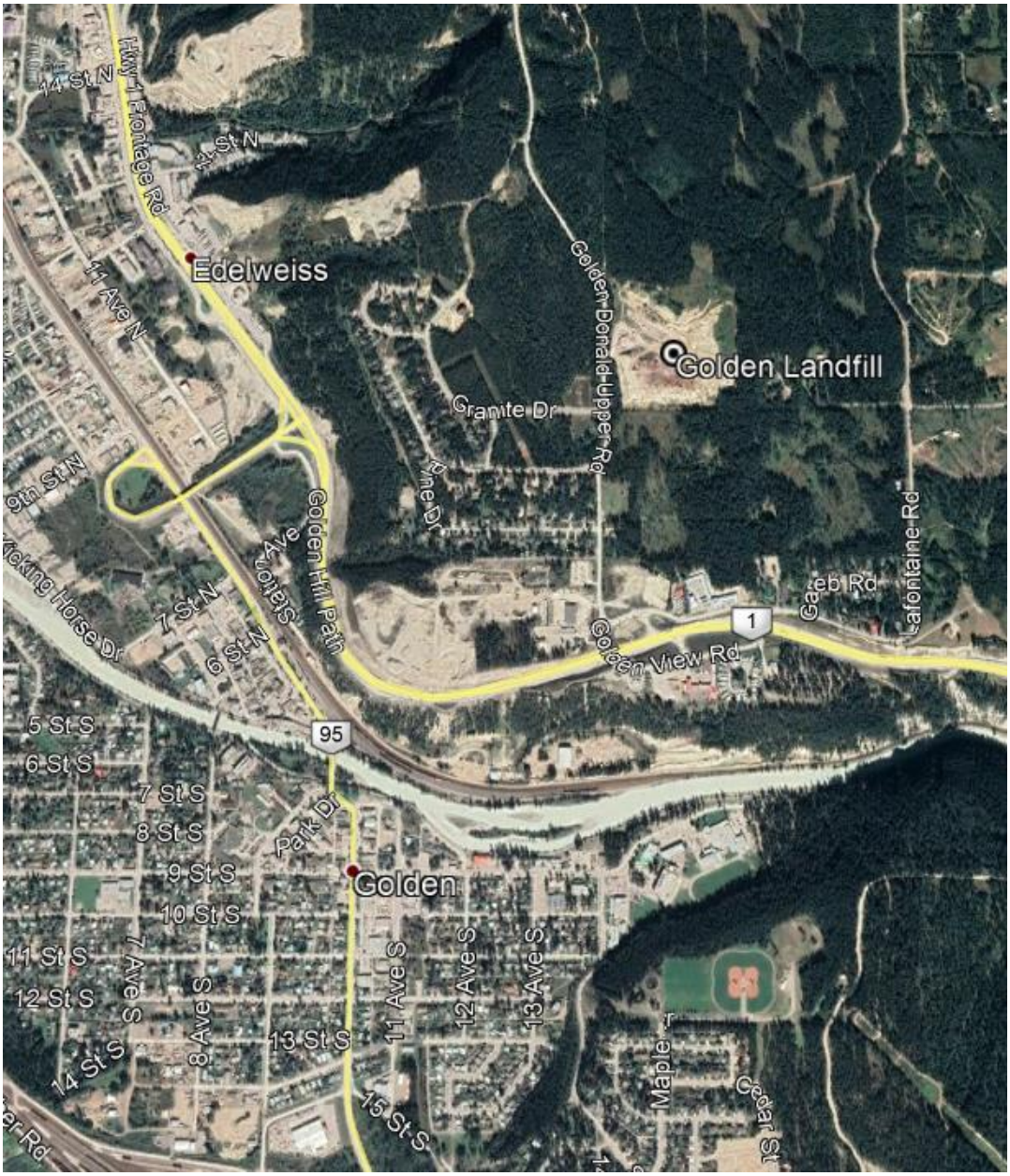
Area Map



Date issued: May 5, 2003
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(most recent)

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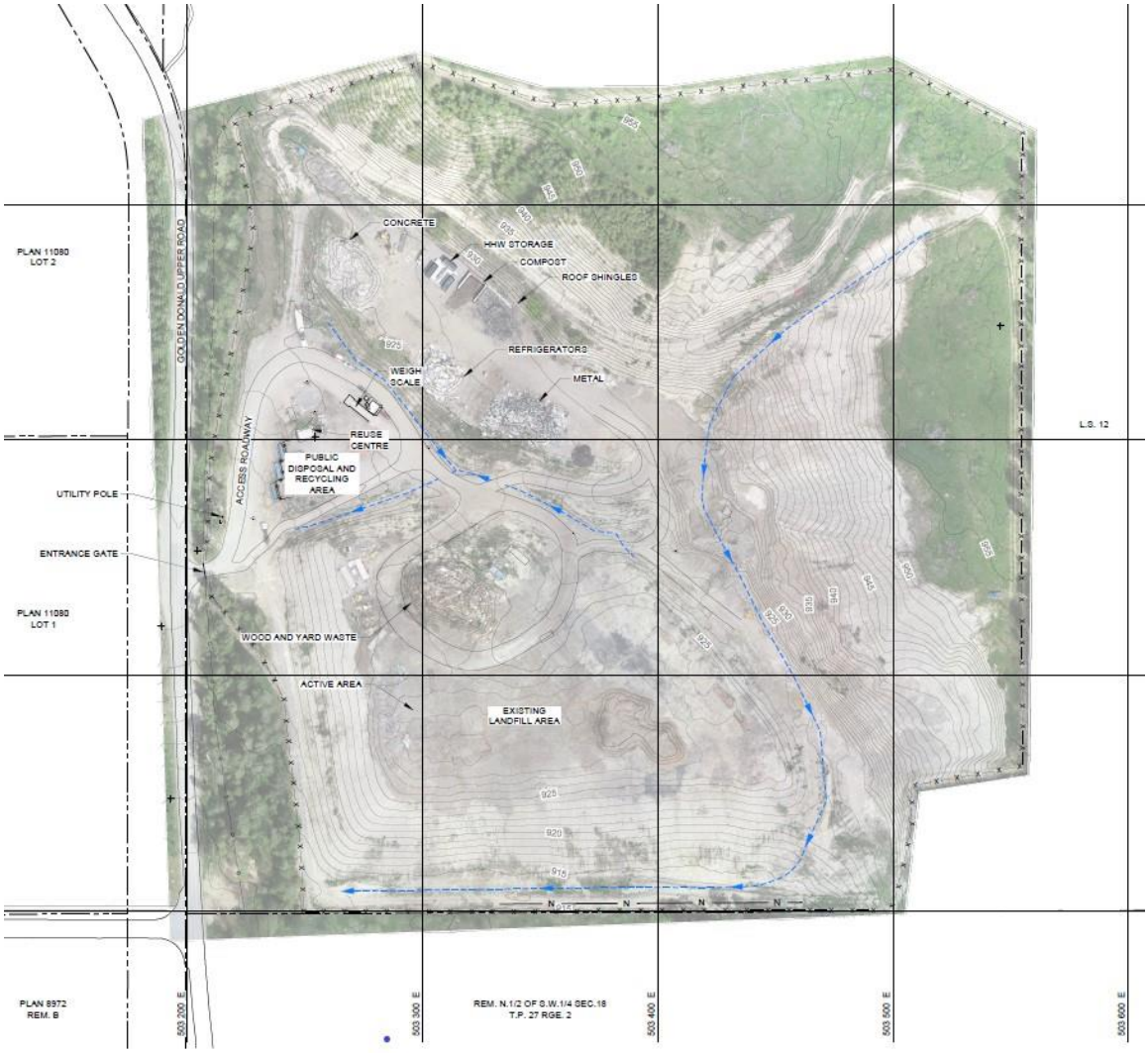
Authorizations - South

Site Plan A



Date issued: May 5, 2003
Date amended: June 30, 2021
(most recent)

Carol Danyluk, P.Eng.
for Director, *Environmental Management Act*
Authorizations - South

APPENDIX C: Well Logs

MODIFIED UNIFIED CLASSIFICATION SYSTEM FOR SOILS

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	COLOR CODE	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE-GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE GRAINS LARGER THAN NO 4 SIEVE)	CLEAN GRAVELS (LITTLE OR NO FINES)	GW		RED	WELL GRADED GRAVELS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 4$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			GP		RED	POORLY GRADED GRAVELS, AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY GRAVELS (WITH SOME FINES)	GM		YELLOW	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			GC		YELLOW	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
	SANDS (MORE THAN HALF FINE GRAINS SMALLER THAN NO 4 SIEVE)	CLEAN SANDS (LITTLE OR NO FINES)	SW		RED	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 6$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			SP		RED	POORLY GRADED SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY SANDS (WITH SOME FINES)	SM		YELLOW	SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE P.I. LESS THAN 4
			SC		YELLOW	CLAYEY SANDS, SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSES 200 SIEVE)	SILTS (BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT)	$W_L < 50\%$	ML		GREEN	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (see below)	
		$W_L > 50\%$	MH		BLUE	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS		
	CLAYS (ABOVE "A" LINE ON PLASTICITY CHART NEGLIGIBLE ORGANIC CONTENT)	$W_L < 30\%$	CL		GREEN	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAYS, LEAN CLAYS		
		$30\% < W_L < 50\%$	CI		GREEN-BLUE	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS		
		$W_L > 50\%$	CH		BLUE	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
	ORGANIC SILTS & CLAYS (BELOW "A" LINE ON CHART)	$W_L < 50\%$	OL		GREEN	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	WHENEVER THE NATURE OF THE FINE CONTENT HAS NOT BEEN DETERMINED, IT IS DESIGNATED BY THE LETTER "F", E.G. SF IS A MIXTURE OF SAND WITH SILT OR CLAY	
		$W_L > 50\%$	OH		BLUE	ORGANIC CLAYS OF HIGH PLASTICITY		
HIGHLY ORGANIC SOILS			Pt		ORANGE	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOR OR ODOR, AND OFTEN FIBROUS TEXTURE	

SPECIAL SYMBOLS

BEDROCK (Undifferentiated)

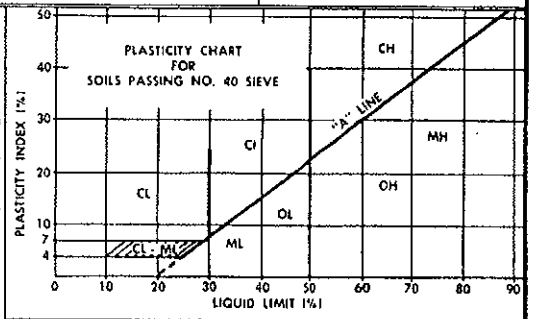
VOLCANIC ASH

SOIL COMPONENTS

FRACTION	U S STANDARD SIEVE SIZE		DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS	
	PASSING	RETAINED	PERCENT	DESCRIPTOR
GRAVEL			50 - 35	and
coarse	76 mm	19 mm		
fine	19 mm	No 4	35 - 20	some
SAND				
coarse	4.75 mm	2.00 mm	20 - 10	little
medium	2.00 mm	425 μm		
fine	425 μm	75 μm	10 - 1	trace
SILT (non plastic) or CLAY (plastic)	75 μm			

OVERSIZE MATERIAL

Rounded or subrounded	Not rounded
COBBLES 76 mm to 203 mm	ROCK FRAGMENTS > 76 mm
BOULDERS > 203 mm	ROCKS > 0·76 cubic metre in volume



1. ALL SIEVE SIZES MENTIONED ON THIS CHART ARE U.S. STANDARD, A.S.T.M. E.11.
2. BOUNDARY CLASSIFICATIONS POSSESSING CHARACTERISTICS OF TWO GROUPS ARE GIVEN COMBINED GROUP SYMBOLS, E.G. GW-GC IS A WELL GRADED GRAVEL SAND MIXTURE WITH CLAY BINDER BETWEEN 5% AND 12%.

Kala Groundwater Consulting Ltd.
Vernon Kamloops

Testhole Log - TH95-01	
Depth (m)	**Soil Description**
0-5.8	**Silt**-and fine sand, little gravel fine to coarse, iso. cobbles, non-plastic, dense, yellow/brown, moist.
5.8-6.71	**Silt**-and sand fine to medium, some gravel fine to coarse, non-plastic, hard, grey, moist.
6.71-8.54	**Silt**-and fine sand, trace coarse sand, trace gravel, fine to coarse, iso. cobbles, non-plastic, gre/brown, hard, moist.
8.54-11.3	**Silt**-and fine sand, trace gravel, fine to coarse, non-plastic, iso. cobbles, grey, hard, moist.
11.3-14.9	**Silt**-some fine sand, trace gravel, fine to coarse, occ. cobbles, non-plastic, red/brown, hard, damp.
14.9-18.9	**Clay**-and silt, trace fine sand, trace fine gravel, iso. cobbles, low to none plastic, grey, hard, moist.
	End of TH95-01 at 18.9m - No groundwater seepage - Monitoring Well installed

Testhole Log - TH95-02	
Depth (m)	**Soil Description**
0-9.76	**Sand**-fine and silt, some gravel fine to coarse, occ. cobbles, dense, light brown, damp. *Upper 0.3m fill*
9.76-12.8	**Sand**-afine and silt, some gravel fine to coarse, iso. cobbles, dense, red/brown, moist.
12.8-15.5	**Sand**-fine, some silt, some gravel fine to coarse, occ. cobbles. dense, red/brown, moist.
15.5-16.5	**Silt**-some fine sand, trace gravel, fine to coarse, non-plastic, iso. grey/brown, cobbles, stiff, moist.
16.5-20.1	**Silt**-little fine sand, trace clay, trace gravel, fine to coarse, occ. cobbles, non-plastic, red/brown, hard, damp.
20.1-22.9	**Silt** - some sand, fine to coarse, trace gravel fine to coasre, iso. cobbles, grey, very hard, non-plastic,
	End of TH95-02 at 22.9m - No groundwater seepage - Monitoring Well installed

Testhole Log - TH95-03	
Depth (m)	**Soil Description**
0-8.54	**Silt**-some fine sand, some gravel, fine to coarse, iso. cobbles, non-plastic, red/brown, dense, damp
8.54-11.3	**Silt**-and fine sand, trace gravel, fine to coarse, non-plastic, iso. cobbles, grey, hard, moist
11.3-15.5	**Silt**-some fine sand, trace gravel, fine to coarse, non-plastic, grey/brown, hard, moist
15.5-18.3	**Sand**-fine and silt, some gravel fine to coarse, occ. cobbles, dense, light brown, damp.
	End of TH95-03at 18.3m - No groundwater seepage -Monltoring Well installed

Testhole Log - TH95-04	
Depth (m)	**Soil Description**
0-3.35	**Silt**-and fine sand, trace gravel fine to coarse, occ. cobbles, non-plastic, dense, yellow/brown, damp.
3.35-5.49	**Gravel**-fine to coarse, and silt, trace sand fine to coarse, occ. cobbles, light brown, moist.
5.49-11.0	**Silt**-and fine sand, trace coarse sand, trace gravel, fine to coarse, iso. cobbles, non-plastic, gre/brown, hard, moist.
11.0-12.8	**Sand**-fine to medium, and gravel, fine to coarse, iso. cobbles, trace silt, dense, red/brown, moist.
12.8-17.7	**Sand**- fine to medium, and silt, little gravel fine to coarse, iso. cobbles, brown, hard, moist.
17.7-30.48	**Sand** - fine and silt, trace gravel, fine to coarse, brown, hard, moist.
	End of TH95-04 at 26.2m - No groundwater seepage - Monitoring Well installed

Testhole Log - TH95-05	
Depth (m)	**Soil Description**
0-1.3	**Silt**-and fine sand, little gravel fine to coarse, iso. cobbles, non- plastic, dense, yellow/brown, moist.
1.3-3.1	**Waste**-municipal debris, paper,tin plastics,mixed with soil, damp.
3.1-3.4	**Sand**-fine to medium, some silt, little gravel, fine to coarse, compact, brown, moist.
3.4-5.1	**Waste**-municipal debris, paper,tin plastics,mixed with soil, damp.
5.1-5.4	**Sand**-fine to medium, some silt, little gravel, fine to coarse, compact, brown, moist.
5.4-6.2	**Waste**-municipal debris, paper,tin plastics,mixed with soil, damp.
6.2-7.1	**Sand**-fine to medium, some silt, little gravel, fine to coarse, compact, brown, moist.
	End of TH5 at 7.1m no groundwater-temporary installation

KALA GROUNDWATER CONSULTING LTD. TESTHOLE LOG

CLIENT:	RCP	PROJECT:	Hydrogeologial	TESTHOLE:	BH95-02
LOCATION:	Golden Landfill		Assessment - Golden BC	PROJECT NO:	KE95-057
DRILL RIG:	Becker Hammer	SURF ELV:	914.0m ASL	CO-ORDINATES:	

DEPTH (m) ELV. (m)	INDEX: 0 20 40 60 80 100 120 140	Plot	SOIL DESCRIPTION	Lab Test	SAMPLES		COMPLETION DETAILS
Grass					Depth (m)	N	Stickup 1.2m
	0-9.76		**Sand**-fine and silt, some gravel fine to coarse, occ. cobbles, dense, light brown, damp. *Upper 0.3m fill*		AR1 1.5		50mm dia. Solid pipe
2.0 912							Bentonite Grout
					AR2 3.0		
4.0 910							
					AR3 4.5		
6.0 908							Top 6.0m
					AR4 6.0		
					D1 6.5/6.95	50	
8.0 906							
					AR5 7.5		
	9.76-12.8		**Sand**-fine and silt, some gravel fine to coarse, iso. cobbles, dense, grey, moist.				
10.0 904							Sand
					AR6 10.0		
12.0 902							
					AR7 11.5		
	12.8-15.5		**Sand**-fine, some silt, some gravel fine to coarse, occ. cobbles. dense, red/brown, moist.		AR8 13.0		0.010"
14.0 900					D2 13.5/13.9	50	slotted
					AR9 14.0		pipe
	15.5-16.5		**Silt**-some fine sand, trace gravel, fine to coarse, non-plastic, iso. grey/brown, cobbles, stiff, moist.				
16.0 898					AR10 15.0		
	16.5-20.1		**Silt**-little fine sand, trace clay, trace gravel, fine to coarse, occ. cobbles,. non-plastic, red/brown, hard, damp				
18.0 896					AR11 16.5		
					AR12 18.0		
20.0 894							
	20.1-22.9		Silt - some sand, fine to coarse, trace gravel fine to coarse, iso.cobbles, grey, very hard, non-plastic, moist. *End of TH95-01 at 18.9m - No groundwater seepage Well installed*		D3 20/20.45	80	
22.0 892							Well base 22.9m

Prepared by: Paul Blackett	Reviewed by:	Figure:
Groundwater Depth: no groundwater	Borehole Depth: 22.9m below surface	Date: 10/9/95

KALA GROUNDWATER CONSULTING LTD. TESTHOLE LOG

CLIENT: RCP	PROJECT: Hydrogeologial	TESTHOLE:	BH95-03
LOCATION: Golden Landfill	Assessment - Golden BC	PROJECT NO:	KE95-057
DRILL RIG: Becker Hammer	SURF ELV: 908.5m ASL.	CO-ORDINATES:	

DEPTH (m) ELV. (m)	INDEX: METHANE %	Plot	SOIL DESCRIPTION	Lab Test	SAMPLES		COMPLETION DETAILS
	0 5 10 15 20				Depth (m)	N	Stickup 1.2m
Gravel							
	0-8.54		**Silt**-some fine sand, some gravel, fine to coarse, iso. cobbles, non-plastic, red/brown, dense, damp		AR1 1.5		50mm dia. Solid pipe
2.0 906.5							Bentonite Grout
					AR2 3.0		
					D1 3.5/3.95	50	
4.0 904.5					AR3 4.5		
6.0 902.5							Top 6.0m
					AR4 6.0		
					D2 6.5/6.95	50	
8.0 900.2							
	8.54-11.3		**Silt**-and fine sand, trace gravel, fine to coarse, non-plastic, iso. cobbles, grey, hard, moist.		AR5 7.5		
10.0 898.2							Sand
	11.3-15.5		**Silt**-some fine sand, trace gravel, fine to coarse, non-plastic, grey/brown, hard, moist		AR6 10.0		
12.0 896.2							
					AR7 11.5		
14.0 894.2					AR8 13.0		0.010" slotted pipe
					D3 13.5/13.9	50	
					AR9 14.0		
16.0 892.2	15.5-18.3		**Sand**-fine and silt, some gravel fine to coarse, occ. cobbles, dense, light brown, damp.		AR10 15.0		
					D4 16/16.45	75	
18.0 890.2					AR11 16.5		
					AR12 18.0		
							18.3m
20.0 888.2			*End of TH95-01 at 18.3m - No groundwater seepage Monitoring Well installed*				
22.0							

Prepared by: Paul Blackett	Reviewed by:	Figure: 3
Groundwater Depth: no groundwater	Borehole Depth: 18.3m below surface	Date: 10/9/95

KALA GROUNDWATER CONSULTING LTD. TESTHOLE LOG

CLIENT:	RCP	PROJECT:	Hydrogeologial	TESTHOLE:	BH95-04
LOCATION:	Golden Landfill		Assessment - Golden BC	PROJECT NO:	KE95-057
DRILL RIG:	Becker Hammer	SURF ELV:	916.9m ASL.	CO-ORDINATES:	

DEPTH (m) ELV. (m)	INDEX: METHANE %	Plot	SOIL DESCRIPTION	Lab Test	SAMPLES		COMPLETION DETAILS
	0 5 10 15 20				Depth (m)	N	Stickup 1.2m
Grass							
	0-3.35		Silt-and fine sand, trace gravel fine to coarse, occ. cobbles, non-plastic, dense, yellow/brown, damp.		AR1 1.5		50mm dia. Solid pipe
2.0 914.9							
					AR2 3.0		Bentonite Grout & backfill
					D! 3.5/3.95	35	
4.0 912.9	3.35-5.49		Gravel-fine to coarse, and silt, trace sand fine to coarse, occ. cobbles, light brown, moist.		AR3 4.5		
6.0 910.9	5.49-11.0		Silt-and fine sand, trace coarse sand, trace gravel, fine to coarse, iso. cobbles, non-plastic, grey/brown, hard, moist.		AR4 6.0		
					D2 6.5/6.95	50	
8.0 908.9							
					AR5 7.5		
10.0 906.9							Sand
					AR6 10.0		
	11.0-12.8		Sand-fine to medium, and gravel, fine to coarse, iso. cobbles, trace silt, dense, red/brown, moist.		D3 10/10.45	45	
12.0 904.9							
					AR7 11.5		
	12.8-17.7		Sand- fine to medium, and silt, little gravel fine to coarse, iso. cobbles, brown, hard, moist.		AR8 13.0		0.010" slotted pipe
14.0 902.9					D2 13.5/13.9	50	
					AR9 14.0		
16.0 900.2					AR10 15.0		
					D4 15/15.45	70	
					AR11 16.5		
18.0 898.2	17.7-30.48		Sand - fine and silt, trace gravel, fine to coarse, brown, hard, moist.		AR12 18.0		
					AR13 22.0		
20.0 896.2							
					AR 14 25.0		Top 20.0m
			End of TH95-01 at 30.48m - No groundwater seepage		AR15 27.5		
30.0 894.2			*Monitoring Well installed*		AR 16 30.0		Bot 30.5m

Prepared by: Paul Blackett	Reviewed by:	Figure:
Groundwater Depth: no groundwater	Borehole Depth: 30.5m below surface	Date: 10/9/95

Symbol Legend

Common Symbols


Sand


Silty Sand


Sandy Silt


Clayey Sand


Sand and Gravel


Gravel


Silt


Clayey Silt


Clay


Silty Clay


Sandy Silty Clay


Silty Sand and Gravel


Silty Gravel


Silty Clay and Gravel


Topsoil


Peat


Limestone


Shale

Well Symbols

Pipe and Screen

NONE None


Pipe


Double Walled Pipe


Sealed Pipe


Fine Screen


Coarse Screen


Slotted Screen


Slotted Screen

Top Fittings

NONE None


Cap


Flush-mounted Cap


Above-ground Cap


Connector


Reducer


Pipe Break


Packer

Bottom Fittings

NONE None


Cap


Cone


Screw-on Cap


Connector


Enlarger


Pipe Break


Packer

Packing and Backfill

NONE None


Bentonite


Clay


Silt


Cement


Sand


Sand and Gravel

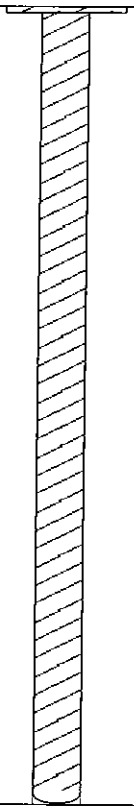

Gravel

Project No: 7130-010.01 | *Test Hole / Borehole I.D.:* TH3

Client: CSRD | *Well I.D.:* TH-3 (well closure)

Location: Golden, BC | *Location on site:* on Golden-Donald Upper Rd

Logged by/ Checked by: BRM/ MG | *Northing/ Easting/ Elevation:* 0

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Symbol	Description	Type	I.D.	Flag for analysis	Well Details	Well Completion Details / Remarks
0 ft / 0 m		Ground Surface					
10 ft / 3 m						TH-3 was replaced by MW-7. TH-3 was decommissioned according to the Groundwater Protection Regulation. The surface casing was removed, the 2" piezometer was cut approximately 4" below ground surface and bentonite chips were poured into the casing. Bentonite was poured around the outer annulus of the piezometer to bring the hole to ground surface.	
20 ft / 6 m							
30 ft / 10 m							
40 ft							
50 ft							
60 ft		End of Borehole					
70 ft / 20 m							

SUMMIT ENVIRONMENTAL CONSULTANTS LTD.

Contractor: JR Drilling

Operator(s): Jerry

Drill Method:

Ground conditions: bare

Date: April 20, 2009

Time:

Temperature: 10 degC

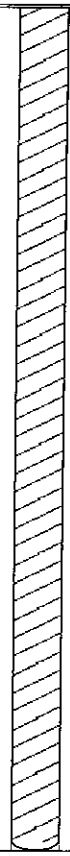
Sheet: 1 of 1

Project No: 7130-010.01 | *Test Hole / Borehole I.D.:* TH4

Client: CSRD | *Well I.D.:* TH-4 (well closure)

Location: Golden, BC | *Location on site:* near weight scale

Logged by/ Checked by: BRM/ MG | *Northing/ Easting/ Elevation:* 0

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Symbol	Description	Type	I.D.	Flag for analysis	Well Details	Well Completion Details / Remarks
0 / 0		Ground Surface					
10 / 3						TH-4 was replaced by MW-6S. TH-4 was decommissioned according to the Groundwater Protection Regulation. The surface casing was removed, the 2" piezometer was cut approximately 4" below ground surface and bentonite chips were poured into the casing. Bentonite was poured around the outer annulus of the piezometer to bring the hole to ground surface.	
20 / 6							
30 / 10							
40 / 13							
50 / 16							
60 / 20							
70 / 23							
80 / 26							
90 / 30							
100 / 30		End of Borehole					
110 /							

SUMMIT ENVIRONMENTAL CONSULTANTS LTD.

Contractor: JR Drilling

Operator(s): Jerry

Drill Method:

Ground conditions: bare

Date: April 20, 2009

Time:

Temperature: 10 degC

Sheet: 1 of 1

Project No: 7130-010.01

Client: CSRD

Location: Golden, BC

Logged by/ Checked by: BRM/ MG

Test Hole / Borehole I.D.: TH-6 (6")

Well I.D.: MW-6S, MW-6D, GP-6S, GP-6D

Location on site: near weight scale (replaces TH4)

Northing/ Easting/ Elevation: 0

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Symbol	Description	Type	I.D.	Flag for analysis	Well Details	Well Completion Details / Remarks
0 / 0		Ground Surface					
0–10 / 0–3		Light brown, GRAVEL, w. sand, loose, dry					
10–30 / 3–10		Light brown, SILT w/ sand, trace gravel, loose, dry					
30–40 / 10–12		Grey, GRAVEL w/ sand and silt, loose, dry					
40–60 / 12–20		Grey, GRAVEL w/ sand and silt, loose, dry Note: larger gravel than above					
60–80 / 20–25		Light brown, (f.) SAND w/ silt and trace gravel, dense, moist					
80–90 / 25–30		Grey, (m.) SAND, w/ silt and gravel, dense, moist					
90–100 / 30–32		Grey, cemented GRAVEL, dense, dry					
100–110 / 32–34		Yellow, SILT w/ some angular gravel and m.-c. sand, dense, moist					
110–120 / 34–37		Black, Limestone bedrock					
220 / 67		End of Borehole				Casing height =	

Configuration:

- Two groundwater monitoring wells (each 2" diameter)
- Two gas monitoring probes (each 1" diameter)
- Schedule 40 PVC
- Gas piezos. are threaded
- 20/40 sand pack around each monitoring well

Screen Assembly:

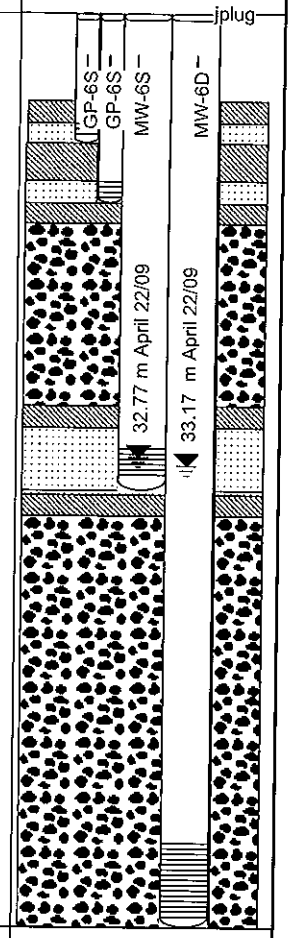
- No. 10 slot PVC

MW6D
-Screened in bedrock
- Screened btw 59.76 m (196 ft) and 65.85 (216 ft) bgs

MW6S
-Screened in surficial deposits (overburden)
-Screened btw 31.40 m (103 ft) and 34.45 m (113 ft) bgs

GP6D
-Screened btw 12.20 m (40 ft) and 16.77 m (55 ft) bgs

GP6S
-Screened btw 7.93 m (26 ft) and 9.45 m (31 ft) bgs



SUMMIT ENVIRONMENTAL CONSULTANTS LTD.

Contractor: JR Drilling Central Ltd.
Operator(s): Jerry Opper
Drill Method: Dual Air Rotary
Ground conditions: bare

Date: April 20, 2009
Time:
Temperature: 10 degC
Sheet: 1 of 1

Project No: 7130-010.01

Client: CSRD

Location: Golden, BC

Logged by/ Checked by: BRM/ MG

Test Hole / Borehole I.D.: TH-7 (6")

Well I.D.: MW-7, GP-7S, GP-7D (replaces TH3)

Location on site: Golden-Donald Upper Rd.

Northing/ Easting/ Elevation: 0

SUBSURFACE PROFILE			SAMPLE				
Depth (ft / m)	Symbol	Description	Type	I.D.	Flag for analysis	Well Details	Well Completion Details / Remarks
0 ft / 0 m		Ground Surface					
		Yellow/ brown, SILT, loose, damp					
10		Grey, SILTand clay, dense, moist					
20		Grey, SILT, dense, moist					
30 / 10							
40		Light brown, SILT w/ (f.) sand and gravel, loose, moist, fining upwards					
50		Grey, cemented GRAVEL w/ sand and silt, dense, damp					
60 / 20							
70		Grey, SILT trace sand, dense, moist					
80		Grey, GRAVEL w/ (m.) sand and silt, dense, moist					
90		Grey, (f.-m.) SAND w/ silt, dense, moist, coarsening upward					
100 / 30							
110		Grey, cemented GRAVEL, dense, dry					
120		Grey, (f.) angular GRAVEL w/ sand and silt, dense, dry,					
130 / 40		End of Borehole					
140							

Configuration:

- One groundwater monitoring well (2" diameter)
- Two gas monitoring probes (each 1" diameter)
- Schedule 40 PVC
- Gas probes are threaded
- 20/40 sand pack around each monitoring well

Screen Assembly:

- No. 10 slot PVC

MW-7

-Screened in the surficial deposits (overburden)
-Screened btw 25.6 m (84 ft) and 31.7 m (104 ft) bgs

GP-7D

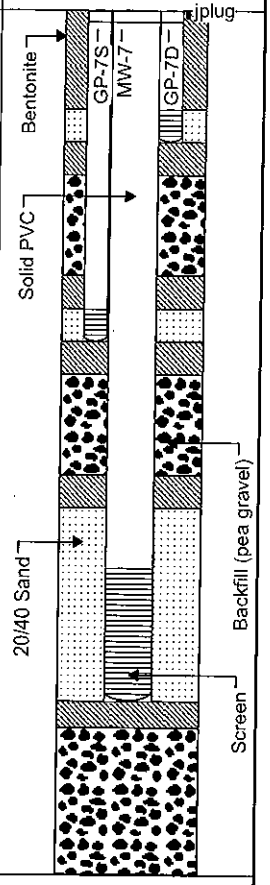
-Screened btw 13.72 m (45 ft) and 15.24 m (50 ft) bgs

GP-7S

-Screened btw 4.5 m (15 ft) and 6.10 m (20 ft) bgs

Casing Height:

1.2 m (3.9 ft)



SUMMIT ENVIRONMENTAL CONSULTANTS LTD.

Contractor: JR Drilling Central Ltd.

Operator(s): Jerry Opper

Drill Method: Dual Air Rotary

Ground conditions: bare

Date: April 23, 2009

Time:

Temperature: 7 deg C

Sheet: 1 of 1

Project No: 2010-8835.010.006 ***Well I.D.: TH-8***

Client: CSRD ***First Water:*** n/a ***Ground Elevation:*** Approx. 915 m asl

Location: Golden Landfill ***Stabilized Water Level:*** 14 m btoc ***Top of Casing Elevation:*** flush mount

Location on site: 150 m NW of landfill on Golden Donald Upper Road ***Reviewed by:*** Tilman Roschinski

Logged by: Bryer Manwell

Subsurface Geology			Well Details and Notes	Well Construction
Depth (ft / m)	Symbol	Description		
-1		Ground Surface		
4 / 1		**SAND AND GRAVEL** Sand and gravel, trace fines, light brown.	Flush mount casing, well sealed with j-plug	
9 / 2				
14 / 5				
19 / 6				
24 / 7				
29 / 8				
34 / 10				
39 / 12				
44 / 13				
49 / 15		**CLAYEY TILL** Clay matrix, some gravel, trace sand, dense, wet.		
54 / 16		**REGOLITH**		

Flush mount casing

Oct 7 2010

bentonite grout

SUMMIT ENVIRONMENTAL CONSULTANTS INC.
A Member of the Associated Engineering Group of Companies

Contractor: Target Drilling Inc.

Drill Method: Coring

Boring Diameter/ Depth: 6 in / 27.3 m

Operator(s):

Date: Oct 5-7 2010

Project No: 2010-8835.010.006 ***Well I.D.: TH-8***

Client: CSRD ***First Water:*** n/a ***Ground Elevation:*** Approx. 915 m asl

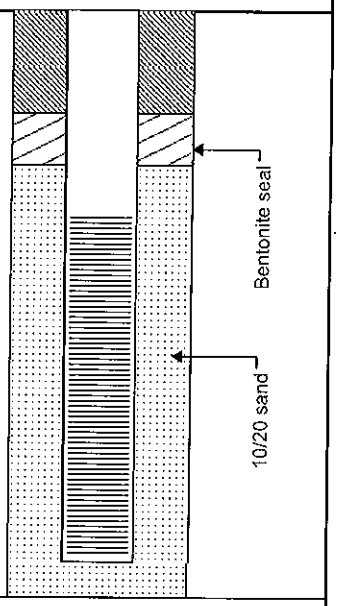
Location: Golden Landfill ***Stabilized Water Level:*** 14 m btoc ***Top of Casing Elevation:*** flush mount

Location on site: 150 m NW of landfill on Golden Donald Upper Road ***Reviewed by:*** Tilman Roschinski

Logged by: Bryer Manwell

Subsurface Geology

Depth	Symbol	Description	Well Details and Notes	Well Construction
60		**SLATE BEDROCK** Slaty bedrock, in places phyllitic, grey, fractured, some fractures filled with clay.	1 m bentonite seal	
65		**QUARTZ BEDROCK** Quartz, likely a large vein. Fluid mixing with sedimentary deposits on either end.		
70	21	**SLATE BEDROCK** Slaty bedrock, as above.	Screen depth: 67-87 ft (20.4 - 26.5 m)	
75		**QUARTZ BEDROCK** Quartz, as above.	Screen details: -10 slot PVC, 2 inch diameter -10/20 sand pack	
80		**SLATE BEDROCK** Slaty bedrock, as above		
85	26			
90		End of Borehole		
95				
100	31			
105				
110				



Contractor: Target Drilling Inc. **Operator(s):**

Drill Method: Coring **Date:** Oct 5-7 2010

Boring Diameter/ Depth: 6 in / 27.3 m

Project No: 2010-8835.010.006 | ***Well I.D.: BH9***

Client: CSRD | ***First Water:*** n/a | ***Ground Elevation:*** Approx. 928 m asl

Location: Golden Landfill | ***Stabilized Water Level:*** n/a | ***Top of Casing Elevation:*** 0

Location on site: 5 m SE of landfill | ***Reviewed by:*** Tilman Roschinski

Logged by: Bryer Manwell

Subsurface Geology			Well Details and Notes	Well Construction
Depth (ft / m)	Symbol	Description		
0 ft / 0 m		Ground Surface		
		SILT Silt, occasional cobbles, dry to moist, yellowish-grey.	No well installed.	Natural slough
55		End of Borehole		

Contractor: Target Drilling Inc.

Drill Method: Coring

Boring Diameter/ Depth: 6 in

Operator(s):

Date: Oct 8 2010

Sheet: 1 of 1

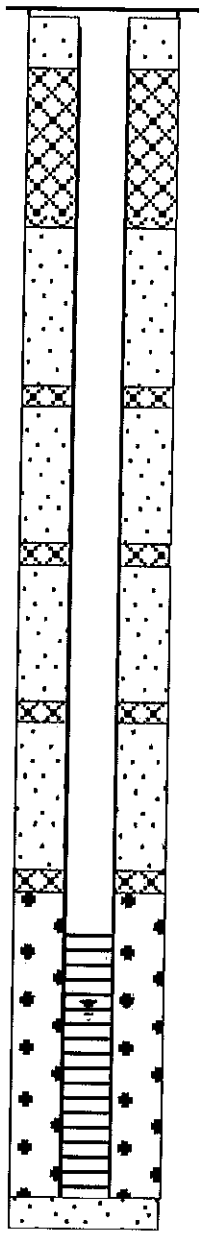
SUMMIT ENVIRONMENTAL CONSULTANTS INC.
A Member of the Associated Engineering Group of Companies

Monitoring Well ID: MW18-10

Project Number: 14-024-21 **Client:** CSRD

Project: Golden RDF Additional Drilling **Location:** Golden, BC

western water

Depth Below Ground Surface	Symbol	Lithology	Well Construction	Well Completion Details
ft / m		Ground Surface		Lockable steel wellcap with a 0.81 m (32") stick up
0 / 0		**Topsoil**		8" Steel casing from 0.81m (3 ft) above ground surface (ags) to 35.65 m (117 ft) below ground surface (bgs).
15		**Sand and gravel,** medium grained sand, sub angular gravel, moderately to poorly sorted, brown, dry.		Bentonite fill from 0 m (0 ft) to 6.1 m (20 ft) bgs, 10.7 m (35 ft) to 11.3 m (37 ft) bgs,15.2 m (50 ft) to 15.8 m (52 ft) bgs 19.8 m (65 ft) to 20.4 m (67 ft) bgs and from 24.7 m (81 ft) to 25.3 m (83 ft) bgs.
30				Natural fill from 6.1 m (20 ft) to 10.7 m (35 ft) bgs, 11.3 m (37 ft) to 15.2 m (50 ft) bgs, 15.8 m (52 ft) to 19.8 m (65 ft) bgs and from 20.4 m (67 ft) to 24.7 m (81 ft) bgs.
45 / 15		**Sand and gravel,** medium to coarse grained sand, sub angular gravel, grey, dry.		
		Sand and gravel, medium grained sand, sub angular gravel, moderately sorted, brown, moist at 58 ft.		
60		**Sand and gravel,** with silt, fine to medium grained sand, sub angular gravel, moderately sorted, grey, moist.		
75		**Bedrock,** grey, mapped as argillite, shale and limestone, dry.		Sand pack with 10 filter sand from 25.3 m (83 ft) to 35 m (115 ft) bgs.
90 / 30				Water Level 28.53 m (94 ft) bgs June 25, 2018.
105				3 m (10 ft) length of threaded 10 slot screen from 32 m (105 ft) bgs to 35.1 m (115 ft) bgs.
				0.3 m (1 ft) length sandpack from 35.4 m (116 ft) bgs to 35.7 m (117 ft) bgs.

Coordinates: 503411.92 m E 5684049.84 m N 11 U

Static Water Level: 28.53 m June 26, 2018

Ground Elevation: 919 m above sea level (asl)

Total Borehole Depth: 35.65 m (117 ft) bgs

Drawn By: RA **Checked By:** BRM

Drilling Contractor: JR Drilling

Drilling Method: Dual Air Rotary

Date of Completion: June 25, 2018

Logged By: RA

Sheet: 1 of 1

Monitoring Well ID: MW18-11

Project Number: 14-024-21 **Client:** CSRD

Project: Golden RDF **Location:** Golden, BC

western water

Depth Below Ground Surface	Symbol	Lithology	Well Construction	Well Completion Details
ft / m		Ground Surface		Lockable steel wellcap with 1.1 m (35") stick up
0 – 0		Silt, with tracel gravel, loose, brown, dry.		
15		Silt, loose, grey, dry.		4.6 m (15 ft) length bentonite surface seal from 0 m (0 ft) bgs to 4.6 m (15 ft) below ground surface (bgs)
30				
45 – 15		Silt with gravel, coarsening downwards, loose, brown, dry.		
60		Gravel, with trace sand and silt, fine grained sand, sub angular to sub rounded gravel, angular silt, loose, brown, moist at 44.2 m (145 ft) bgs.		6" Steel casing from 1.1 m (3.5 ft) above ground surface (ags) to 115.8 m (380 ft) bgs
75				
90				
105 – 30				
120				5" Steel casing from 0 m (0 ft) bgs to 125 m (410 ft) bgs
135				
150 – 45				
165				
180				
195 – 60				
210				
225		Silt, loose, brown, dry.		
		Gravel, with trace silt, sub angular to rounded silt, loose, brown, dry.		
240		Gravel, with trace sand, fine grained sand, loose, brown, dry.		
75				

Coordinates: 503205.13 m E 5684006.34 m N 11 U

Static Water Level: 114 m (374 ft) December 6, 2018

Ground Elevation: 915 m above sea level (masl)

Total Borehole Depth: 115.8 m (380 ft)

Drawn By: RA **Checked By:** BRM

Drilling Contractor: JR Drilling Kamloops

Drilling Method: Dual Air Rotary

Date of Completion: December 3 - 6, 2018

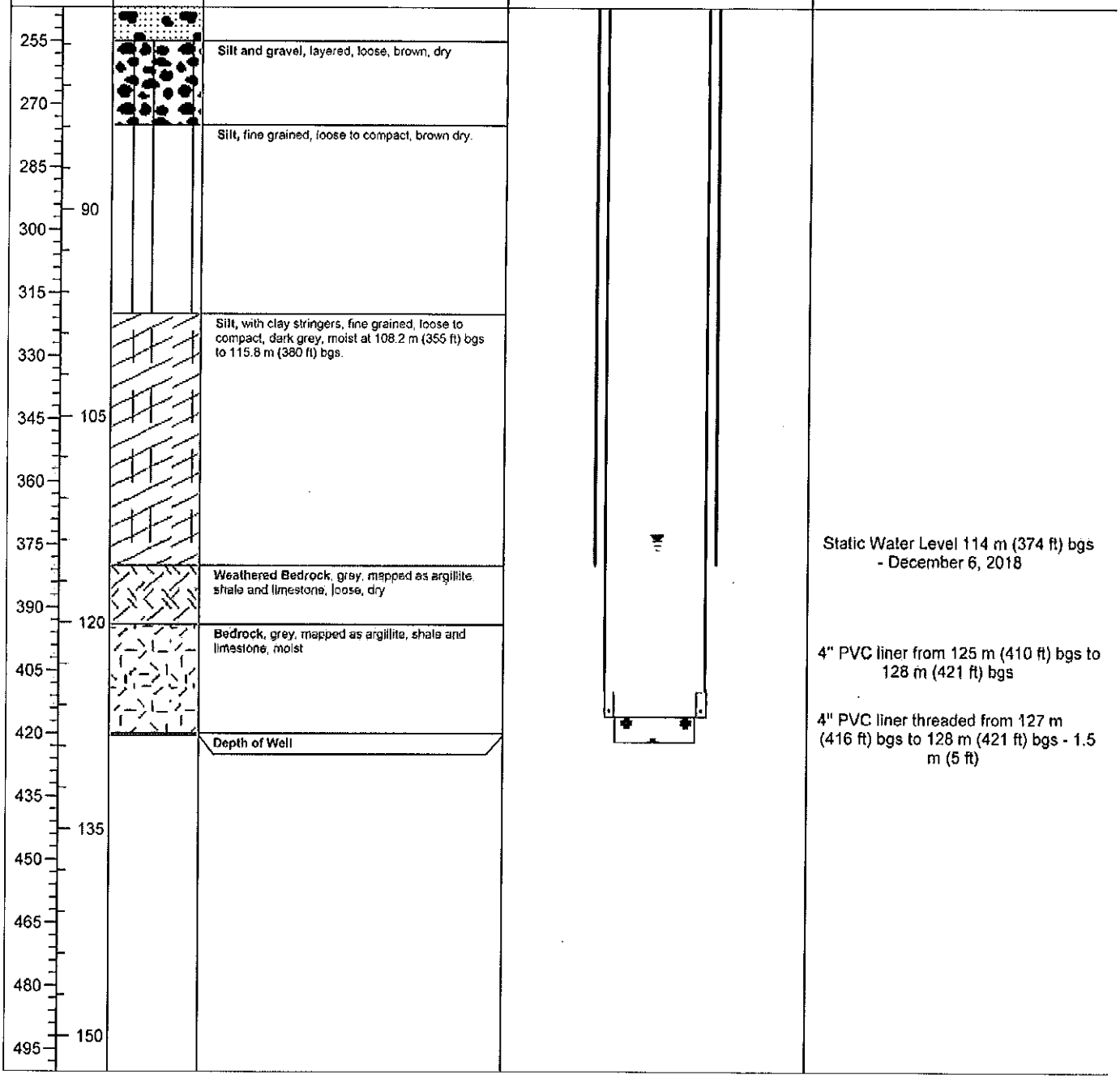
Logged By: RA/BRM

Monitoring Well ID: MW18-11

Project Number: 14-024-21 **Client:** CSRD

Project: Golden RDF **Location:** Golden, BC

western water



Coordinates: 503205.13 m E 5684006.34 m N 11 U

Static Water Level: 114 m (374 ft) December 6, 2018

Ground Elevation: 915 m above sea level (masl)

Total Borehole Depth: 115.8 m (380 ft)

Drawn By: RA **Checked By:** BRM

Drilling Contractor: JR Drilling Kamloops

Drilling Method: Dual Air Rotary

Date of Completion: December 3 - 6, 2018

Logged By: RA/BRM

BRITISH COLUMBIA

Report 1 - Detailed Well Record

Well Tag Number: 99638

Owner: KATS CONTRACTING

Address: 532 HIETALA ROAD

Area: GOLDEN

WELL LOCATION:
KOOTENAY Land District
District Lot: Plan: Lot:
Township: 27 Section: 18 Range: 21
Indian Reserve: Meridian: W5M Block: A
Quarter:
Island:
BCGS Number (NAD 27): 082N036121 Well:

Class of Well: Water supply
Subclass of Well: Domestic
Orientation of Well: Vertical
Status of Well: New
Well Use: Private Domestic
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: inches
Casing drive shoe: Y N
Well Depth: 276 feet
Elevation: feet (ASL)
Final Casing Stick Up: 6 inches
Well Cap Type: PLASTIC CAP
Bedrock Depth: 18 feet
Lithology Info Flag: N
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: N

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 2000-10-25 00:00:00.0

Driller: Owen's Drilling Ltd.
Well Identification Plate Number:
Plate Attached By:
Where Plate Attached:

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 6 (Driller's Estimate) U.S. Gallons per Minute
Development Method: Air lifting
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level: 50 feet

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEAM):

Water Utility:
Water Supply System Name:
Water Supply System Well Name:

SURFACE SEAL:
Flag: N
Material:
Method:
Depth (ft):
Thickness (in):
Liner from To: feet

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size

Casing from	to feet	Diameter	Material	Drive Shoe
0	36	6	Steel	Y
36	276	5.88	Open hole	N

GENERAL REMARKS:
260' OF PVC LINER. BOTTOM 40' PERFORATED. SHOE: 1X6" CARBIDE BOTTON. RECOMMENDED PUMP TYPE: SUB

LITHOLOGY INFORMATION:

From	0 to 18 Ft.	CLAY, GRAVEL, COBBLES		
From	18 to 36 Ft.	BEDROCK, BROKEN		
From	36 to 150 Ft.	2 Gallons per Minute	(U.S./Imperial)	bedrock
From	150 to 257 Ft.	2 Gallons per Minute	(U.S./Imperial)	bedrock
From	256 to 276 Ft.	1 Gallons per Minute	(U.S./Imperial)	bedrock

- Return to Main
- Return to Search Options
- Return to Search Criteria

BRITISH COLUMBIA
Ministry of Environment

☑ **Well Construction Report**
☐ **Well Closure Report**
☐ **Well Alteration Report**

Stamp company name/address/ phone/fax/e-mail here, if desired.

Ministry Well ID Plate Number: 22653
Ministry Well Tag Number: 116561
☐ Confirmation/alternative specs. attached
☐ Original well construction report attached

Red lettering indicates minimum mandatory information. **See reverse for notes & definitions of abbreviations.**

Owner name: WEIR CONSOLIDATED

Mailing address: Town GOLDEN Prov. BC Postal Code V0A 1H1

Well Location: Address: Street no. 911 Street name ILLECILLEWAET Town

(or) **Legal description:** Lot 1 Plan PRP 56372 D.L. Block Sec. 13 Twp. 27 Rg. 22 Land District KAMLOOPS

(or) **PID:** 027-963-371 (and) **Description of well location (attach sketch, if nec.):**

NAD 83: Zone: (see note 2) (and) **UTM Northing:** m **UTM Easting:** m (or) **Latitude (see note 3):** 51 18.389 **Longitude:** 116 58.252

Method of drilling: ☑ air rotary ☐ cable tool ☐ mud rotary ☐ auger ☐ driving ☐ jetting ☐ excavating ☐ other (specify):

Orientation of well: ☑ vertical ☐ horizontal Ground elevation: 2570 ft (asl) Method (see note 4):

Class of well (see note 5): **Sub-class of well:**

Water supply wells: indicate intended water use: ☐ private domestic ☐ water supply system ☐ irrigation ☑ commercial or industrial ☐ other (specify):

Lithologic description (see notes 7-14) or closure description (see notes 15 and 16)

From ft (bgl)	To ft (bgl)	Relative Hardness	Colour	Material Description (Use recommended terms on reverse. List in order of decreasing amount, if applicable)	Water-bearing Estimated Flow (USgpm)	Observations (e.g., fractured, weathered, well sorted, silty wash), closure details
0	41	M	BR.	COARSE GRAVEL + SAND		
41	73	M	BR.	COARSE SAND + GRAVEL		
73	82	S	BR	FINE GRAVEL + SAND		
82	84	S	GRY.	FINE SAND + CLAY	BLUE	
84	88		GRY	FINE SAND + CLAY	"	

Casing details

From ft (bgl)	To ft (bgl)	Dia in	Casing Material / Open Hole	Wall Thickness in	Drive Shoe
0	26	8	STEEL	261	B

Screen details

From ft (bgl)	To ft (bgl)	Dia in	Type (see note 18)	Slot Size
83	73	8	40 INCH RISER PIPE	40

Surface seal: Type: BENTONITE Depth: 15 ft
Method of installation: ☑ Poured ☐ Pumped Thickness: 2 in
Backfill: Type: Depth: ft
Liner: ☐ PVC ☐ Other (specify):
Diameter: in Thickness: in
From: ft (bgl) To: ft (bgl) Perforated: From: ft (bgl) To: ft (bgl)

Intake: ☐ Screen ☐ Open bottom ☐ Uncased hole
Screen type: ☑ Telescope ☐ Pipe size
Screen material: ☑ Stainless steel ☐ Plastic ☐ Other (specify):
Screen opening: ☐ Continuous slot ☐ Slotted ☐ Perforated pipe
Screen bottom: ☑ Bail ☐ Plug ☐ Plate ☐ Other (specify):
Filter pack: From: ft To: ft Thickness: in
Type and size of material:

Developed by:

☑ Air lifting ☐ Surging ☐ Jetting ☐ Pumping ☐ Bailing
☐ Other (specify): Total duration: hrs
Notes:

Well yield estimated by:

☐ Pumping ☑ Air lifting ☐ Bailing ☐ Other (specify):
Rate: 225 PLUS USgpm Duration: hrs
SWL before test: 12 ft (btoc) Pumping water level: ft (btoc)

Obvious water quality characteristics:

☐ Fresh ☐ Salty ☐ Clear ☐ Cloudy ☐ Sediment ☐ Gas
Colour/odour: Water sample collected: ☐

Well driller (print clearly):

Name (first, last) (see note 19): GLEN R. SURREY
Registration no. (see note 20): WA1607250
Consultant (if applicable; name and company): K. H. WILSON

DECLARATION: Well construction, well alteration or well closure, as the case may be, has been done in accordance with the requirements in the *Water Act* and the Ground Water Protection Regulation.

Signature of Driller Responsible

Final well completion data:

Total depth drilled: 88 ft Finished well depth: 83 ft (bgl)
Final stick up: 33 in Depth to bedrock: ft (bgl)
SWL: 12 ft (btoc) Estimated well yield: USgpm
Artesian flow: USgpm, or Artesian pressure: ft
Type of well cap: Well disinfected: ☐ Yes ☐ No
Where well ID plate is attached:

Well closure information:

Reason for closure:
Method of closure: ☐ Poured ☐ Pumped
Sealant material: Backfill material:
Details of closure (see note 17):

Date of work (YYYY/MM/DD):

Started: 18 05 24 **Completed:** 18 05 25
Comments:

PLEASE NOTE: The information recorded in this well report describes the works and hydrogeologic conditions at the time of construction, alteration or closure, as the case may be. Well yield, well performance and water quality are not guaranteed as they are influenced by a number of factors, including natural variability, human activities and condition of the works, which may change over time.

white: Customer copy
canary: Driller copy
pink: Ministry copy

Sheet ____ of ____

MONITORING WELL LOG MW22-12

PROJECT NUMBER 19-2850
PROJECT NAME Golden RDF
CLIENT CSRD
ADDRESS Golden Visitor Centre

DRILLING DATE October 19, 2022
CONTRACTOR Kicking Horse Water Services
EQUIPMENT MODEL Truck-mounted Drill Rig
BORING METHOD Air Rotary

LOGGED BY GF
CHECKED BY MPS

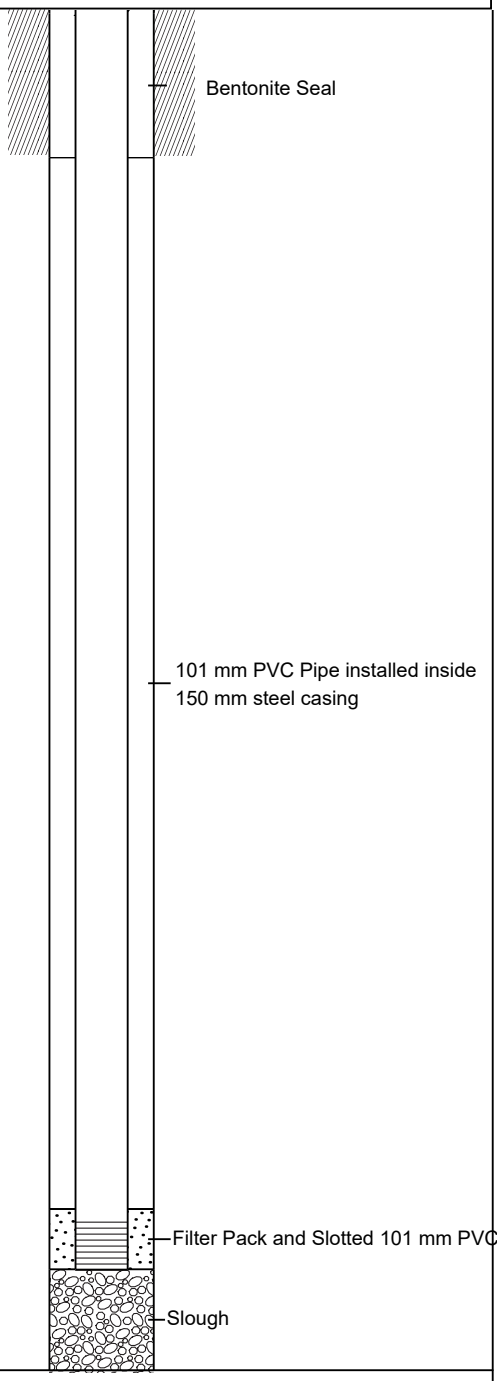
COMMENTS Dedicated submersible pump installed in well to facilitate future sampling.
Assigned Well Tag No. 127435

Depth (m)	USCS Classification	Soil Description
0	SM	Dry, brown, loose silty SAND with gravel.
6	GP	Dry, brown, loose, coarse, SAND and GRAVEL
14	CL	Dry, brown, stiff CLAY
16	CL	Dry, grey, hard CLAY
28	ML	Moist, grey, soft CLAY
32	PT	Moist, grey, Clayey SILT, with abundant woody debris
34	SM	Wet, grey, loose clayey, silty SAND
42		End of Borehole at 41.15 mbgs. Static Water Level = 17.37 mbgs on Oct 19, 2022

Graphic Log

Water Level

Well Diagram



WTN 127435

BRITISH COLUMBIA
The Best Place on Earth

Ministry of Environment

- ☑ Well Construction Report
- ☐ Well Closure Report
- ☐ Well Alteration Report

Kicking Horse Water Services
phone/fax/email here, if desired.

Ministry Well ID Plate Number: ______
Ministry Well Tag Number: 50870
☐ Confirmation/alternative specs. attached
☐ Original well construction report attached

Red lettering indicates minimum mandatory information. See reverse for notes & definitions of abbreviations.

Owner name: GOLDEN VISITOR CENTER

Mailing address: ______ Town ______ Prov. BC Postal Code ______

Well Location (see note 2): Address: Street no. 1111 Street name Trans Canada Highway Town Golden

(or) Legal description: Lot ______ Plan ______ D.L. ______ Block ______ Sec. ______ Twp. ______ Rg. ______ Land District ______

(or) PID: ______ (and) Description of well location (attach sketch, if nec.): ______

NAD 83: Zone: ______ (see note 3) (and) UTM Easting: ______ m UTM Northing: ______ m (or) Latitude (see note 4): 51 18 33 Longitude: 116 58 5

Method of drilling: ☐ air rotary ☑ dual rotary ☐ cable tool ☐ mud rotary ☐ auger ☐ driving ☐ jetting ☐ other (specify): ______

Orientation of well: ☑ vertical ☐ horizontal Ground elevation: ______ ft (asl) Method (see note 5): ______

Class of well (see note 6): ______ Sub-class of well: ______

Water supply wells: indicate intended water use: ☐ private domestic ☐ water supply system ☐ irrigation ☐ commercial or industrial ☐ other (specify): Monitor

Lithologic description (see notes 8-13) or closure description (see notes 14 and 15)

From ft (bgl)	To ft (bgl)	Surficial Material	Bedrock Material	Colour	Hardness	Water Content	Observations (e.g. other geological materials (e.g. boulders), est. water bearing flow (USgpm), or closure details)
0	15	Silt; Sand with gravel		Tan	Loose	Dry	
15	42	Sand with gravel		Tan	Loose	Dry	
42	50	Clay		Brown	Dense/Stiff	Dry	
50	89	Clay		Dark Grey	Very Hard	Dry	
89	105	Clay; Silt		Light Grey	Loose	Moist	
105	110	Clay; Silt		Light Grey	Loose	Moist	woody DEBRIS
110	135	Clay; Sand with clay/silt		Light Grey	Loose	Wet	

(Options — Surficial Material: Clay, Silt, Till, Sand with clay/silt, Sand, fine-med, Sand, med-coarse, Sand with gravel. Bedrock Material: Siltstone/shale, Sandstone, Conglomerate, Limestone, Basalt, Volcanic, Cyrstalline, Other Surficial/Bedrock. Colour: Red, Orange, Brown, Tan, Light Grey, Blue, Green, Dark Grey. Hardness: Very Hard, Hard, Dense/Stiff, Loose. Water Content: Dry, Moist, Wet, High Production, Lost circulation, Not Available.)

Casing details

From ft (bgl)	To ft (bgl)	Dia in	Casing Material/Open Hole (see note 17)	Wall Thickness in	Drive Shoe
0	125	6	STEEL	219	B

Surface seal: Type: Bentonite Depth: 15 ft
Method of installation: ☑ Poured ☐ Pumped Thickness: 1 in
Backfill: Type: ______ Depth: ______ ft
Liner: ☑ PVC ☐ Other (specify): ______
Diameter: 4 in Thickness: Sld 40 in
From: 120 ft (bgl) To: 5 ft (bgl) Perforated: From: 125 ft (bgl) To: 120 ft (bgl)

Screen details

From ft (bgl)	To ft (bgl)	Dia in	Type (see note 18)	Slot Size
125	120	4	PVC	10

Intake: ☑ Screen ☐ Open bottom ☐ Uncased hole
Screen type: ☑ Telescope ☐ Pipe size
Screen material: ☐ Stainless steel ☑ Plastic ☐ Other (specify): ______
Screen opening: ☑ Continuous slot ☐ Slotted ☐ Perforated pipe
Screen bottom: ☐ Bail ☑ Plug ☐ Plate ☐ Other (specify): ______
Filter pack: From: 125 ft To: 118 ft Thickness: 1 in
Type and size of material: ______

Developed by:

☐ Air lifting ☐ Surging ☐ Jetting ☑ Pumping ☐ Bailing
Other (specify): ______ Total duration: ______ hrs
Notes: ______

Well yield estimated by:

☐ Pumping ☑ Air lifting ☐ Bailing ☐ Other (specify): ______
Rate: 10 USgpm Duration: 2 hrs
SWL before test: ______ ft (btoc) Pumping water level: ______ ft (btoc)

Obvious water quality characteristics:

☐ Fresh ☑ Salty ☐ Clear ☐ Cloudy ☑ Sediment ☐ Gas
Colour/odour: ______ Water sample collected: ☐

Well driller (print clearly):

Name (first, last) (see note 19): GLEN FURLEY
Registration no. (see note 20): WD16072501
Consultant (if applicable; name and company): Kicking Horse Water

DECLARATION: Well construction, well alteration or well closure, as the case may be, has been done in accordance with the requirements in the Water Act and the Ground Water Protection Regulation.

Signature of Driller Responsible [signature]

Final well completion data:

Total depth drilled: 135 ft Finished well depth: 125 ft (bgl)
Final stick up: 18 in Depth to bedrock: ______ ft (bgl)
SWL: 57 ft (btoc) Estimated well yield: 10 USgpm
Artesian flow: ______ USgpm, or Artesian pressure: ______ ft
Type of well cap: Tinned Well disinfected: ☐ Yes ☑ No
Where well ID plate is attached: Side

Well closure information:

Reason for closure: ______
Method of closure: ☐ Poured ☐ Pumped
Sealant material: ______ Backfill material: ______
Details of closure (see note 16): ______

Date of work (YYYY/MM/DD):

Started: 22 10 18 Completed: 22 10 19
Comments: ______

PLEASE NOTE: The information recorded in this well report describes the works and hydrogeologic conditions at the time of construction, alteration or closure, as the case may be. Well yield, well performance and water quality are not guaranteed as they are influenced by a number of factors, including natural variability, human activities and condition of the works, which may change over time.

white: Customer copy
canary: Driller copy
pink: Ministry copy

Sheet ______ of ______

APPENDIX D: 2022 Water Quality Data

					Sampling Location	MW09-6S	DUP A	RPD	MW09-6S	MW09-6S	MW09-6S	DUP A	RPD	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW10-8	MW10-8	MW10-8	MW18-10	MW18-10	DUP A	RPD	MW18-10	MW18-10	MW18-11	MW18-11	MW18-11	MW18-11	MW22-12	DMW-4	DMW-4	DMW-4	DMW-4
					Date Sampled	2022-03-16	2022-03-16		2022-05-18	2022-08-24	2022-11-16	2022-11-16		2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-05-18	2022-08-24	2022-11-16	2022-03-16	2022-05-18	2022-05-18		2022-08-24	2022-11-16	2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-11-16	2022-03-16	2022-05-18	2022-08-24	2022-11-16
					Lab Sample ID	22C2624-02	22C2624-08		22E2873-01	22H3785-01	22K2189-01	22K2189-08		22C2624-07	22E2873-08	22H3785-07	22K2189-07	22E2873-02	22H3785-02	22K2189-02	22C2624-03	22E2873-03	22E2873-09		22H3785-03	22K2189-03	22C2624-04	22E2873-04	22H3785-04	22K2189-04	22K2189-05	22C2624-05	22E2873-06	22H3785-05	22K2189-06
					Sample Type																													
Analyte	Unit	GCDWQ MAC	GCDWQ AO	CSR DW																														
Field Parameters																																		
Depth to Water	m				32.71		-	33.52	32.72	32.59		-	33.91	33.28	33.45	33.29	13.71	13.85	13.77	28.21	27.92		-	28.07	28.16	-	-	-	-	-	-	-	-	-
Dissolved oxygen	mg/L				2.21		-	1.14	1.38	1.38		-	4.81	3.94	3.37	5.96	13.51	9.72	7.45	7.41	4.25		-	7.31	5.8	6.61	5.67	2.84	-0.09	1.25	3.01	2.16	3.91	1.6
Electrical Conductivity	µS/cm				3.641		-	3125	2659	2881		-	3.826	3130	2670	2802	1851	1925	1898	2.741	1771		-	1856	2172	2.648	1116	961	1055	372.7	1.177	785	793	849
Elevation of Piezometric Surface	m				884.347		-	883.537	884.337	884.467		-	883.094	883.724	883.554	883.714	905.888	905.748	905.828	886.627	886.917		-	886.767	886.677	-	-	-	-	-	-	-	-	-
Oxidation reduction potential	mV				123		-	94.5	93.3	87.5		-	117	100.3	88.7	87.2	88.6	105.1	69	104	92.9		-	84	78.6	102	-75.2	-89.7	-219.1	94.3	133.4	94.6	90.2	55.6
pH	pH unit		7 - 10.5		7.01		-	6.8	6.96	6.83		-	6.98	6.82	7.05	6.99	7.72	7.56	7.45	7.05	7.17		-	7.49	7.25	7.12	8.49	8.16	8.08	7.95	7.21	7.45	7.22	7.3
Temperature	°C		15		9.2		-	11.4	12.3	11		-	9.4	11.3	11.8	9.7	7.6	10	6.2	9	9.5		-	14.8	11.9	9.1	9.4	10.2	9.4	8.6	6.8	7.9	9.1	7.3
Anions																																		
Bromide	mg/L				1.97	1.89	4.1%	2.08	<0.10	<0.10	<0.10	-	1.93	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.68	<0.10	0.73	-	<0.10	0.37	0.25	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L		250	250	364	363	0.3%	392	388	381	373	2.1%	362	403	392	385	650	652	613	351	394	380	3.6%	381	396	96.6	110	95.7	105	0.84	9.55	9.08	10.1	11.3
Fluoride	mg/L	1.5		1.5	0.17	0.15	12.5%	0.11	0.13	0.16	0.15	6.5%	0.14	<0.10	0.12	0.12	0.12	0.14	0.17	0.1	<0.10	<0.10	-	<0.10	0.1	0.76	0.69	0.69	0.73	0.9	0.93	0.46	0.71	0.77
Nitrate (as N)	mg/L	10		10	37.3	35.2	5.8%	48.1	37.3	35.8	35.3	1.4%	36	53.2	39	37.6	1.01	1.18	1.29	10.9	28.8	17.3	49.9%	23.2	28.7	<0.010	<0.010	<0.010	<0.010	<0.010	0.114	0.739	0.376	0.279
Nitrite (as N)	mg/L	1		1	0.011	0.014	24.0%	0.022	<0.010	0.015	<0.010	-	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	-	<0.010	0.065	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010
Ammonia, Total (as N)	mg/L				1.92	1.81	5.9%	1.95	2.12	2.34	2.16	8.0%	1.64	2.2	2.37	2.64	<0.050	0.08	0.067	0.886	0.897	0.923	2.9%	0.706	0.978	0.24	0.204	0.255	0.231	1.53	0.913	0.096	0.614	0.856
Sulfate	mg/L		500	500	617	637	3.2%	618	618	643	641	0.3%	630	555	624	621	36.4	41.6	48.8	60.9	68.3	62.4	9.0%	70.1	73.3	109	64.4	74.6	60.5	17.7	240	216	264	286
Dissolved Metals																																		
Aluminum, dissolved	mg/L			9.5	0.0068	0.0195	-	<0.0050	<0.0050	<0.0050	<0.0050	-	0.0057	0.0089	0.148	<0.0050	0.0057	0.0131	<0.0050	0.0186	<0.0050	<0.0050	-	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	mg/L	0.006		0.006	<0.00020	<0.00020	-	<0.00020	<0.00020	0.00022	0.0002	9.5%	<0.00020	<0.00020	<0.00020	<0.00020	0.00032	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	0.00061	0.00081	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, dissolved	mg/L	0.01		0.01	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	0.00063	0.00109	<0.00050	0.00298	0.00198	0.00286	7e-04	0.00096	0.00105	9.0%	0.00109	0.00081	<0.00050	0.0103	0.00782	0.00745	0.0234	0.00127	0.00092	0.00098	0.0011
Barium, dissolved	mg/L	2		1	0.0392	0.0418	6.4%	0.0518	0.0488	0.049	0.0493	0.6%	0.0377	0.0464	0.0502	0.0473	0.197	0.199	0.204	0.256	0.274	0.287	4.6%	0.272	0.318	0.0274	0.0144	0.0138	0.0133	0.162	0.0136	0.0186	0.0166	0.0172
Beryllium, dissolved	mg/L			0.008	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, dissolved	mg/L				<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron, dissolved	mg/L	5		5	1.52	1.62	6.4%	1.75	1.82	1.72	1.89	9.4%	1.43	1.7	1.87	1.88	<0.0500	<0.0500	<0.0500	0.154	0.251	0.246	2.0%	0.267	0.306	0.202	0.214	0.232	0.263	<0.0500	0.421	0.224	0.395	0.485
Cadmium, dissolved	mg/L	0.007		0.005	<0.000010	<0.000010	-	1.1e-05	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	1.3e-05	2.1e-05	0.000018	15.4%	2.5e-05	1.6e-05	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	1.1e-05	<0.000010
Calcium, dissolved	mg/L				134	140	4.4%	161	141	143	144	0.7%	124	159	142	144	90.5	91.8	93	83	93.3	97.9	4.8%	92.6	99	52.8	27.3	29.5	22.3	24.9	63.1	73.3	74	75.5
Chromium, dissolved	mg/L	0.05		0.05	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	mg/L			0.02*	0.00164	0.00169	3.0%	0.00172	0.00149	0.00163	0.00171	4.8%	0.00158	0.00186	0.00168	0.00172	0.00013	0.00013	<0.00010	0.00416	0.00267	0.00289	7.9%	0.00224	0.00293	0.00016	<0.00010	<0.00010	<0.00010	0.00045	0.00037	0.00087	0.00053	0.00055
Copper, dissolved	mg/L	2	1	1.5	0.00193	0.00196	1.5%	0.00273	0.00184	0.00182	0.00182	0.0%	0.0019	0.00197	0.00192	0.0018	0.00192	0.00183	0.00086	0.00049	0.00055	0.00054	1.8%	0.00072	0.00067	0.00084	<0.00040	<0.00040	<0.00040	<0.00040	0.00585	0.0331	0.0053	0.00343
Iron, dissolved	mg/L		0.3	6.5	<0.010	0.011	-	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	0.104	<0.010	0.01	0.023	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	0.011	0.061	0.115	0.719	<0.010	0.048	<0.010	<0.010	<0.010
Lead, dissolved	mg/L	0.005		0.01	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00031	<0.00020	<0.00020	<0.00020
Lithium, dissolved	mg/L			0.008	0.0326	0.0354	8.2%	0.039	0.0388	0.0359	0.0391	8.5%	0.0309	0.0376	0.0395	0.0378	0.0178	0.0179	0.0194	0.017	0.0202	0.0194	4.0%	0.02	0.0207	0.0215	0.0249	0.0236	0.0259	0.0035	0.051	0.0325	0.0483	0.0546
Magnesium, dissolved	mg/L				245	249	1.6%	262	257	258	262	1.5%	222	250	256	260	108	110	117	174	183	193	5.3%	183	189	125	128	122	130	49.7	93.3	87.9	94.6	97.8
Manganese, dissolved	mg/L	0.12	0.02	1.5	0.116	0.122	5.0%	0.102	0.104	0.117	0.118	0.9%	0.11	0.138	0.136	0.139	0.00125	0.00178	0.00045	0.144	0.124	0.132	6.3%	0.162	0.13	0.0174	0.0442	0.0429	0.0586	0.0672	0.00399	0.0026	0.00286	0.00313
Mercury, dissolved	mg/L	0.001		0.001	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000017	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, dissolved	mg/L			0.25	3e-04	0.00031	3.3%	0.00033	0.00034	0.00033	0.0004	19.2%	0.00029	3e-04	0.00028	0.00034	5e-04	0.00047	0.00044	0.00088	0.00112	0.00113	0.9%	0.00105	0.00087	0.00043	0.001	0.00145	0.0014	0.00832	0.00039	0.00095	0.00056	0.00047
Nickel, dissolved	mg/L			0.08	0.0117	0.0119	1.7%	0.0111	0.01	0.0104	0.0104	0.0%	0.011	0.0113	0.0105	0.0109	0.00214	0.00296	0.00205	0.0384	0.0333	0.0349	4.7%	0.0325	0.0344	0.00771	0.00621	0.00509	0.00421	0.00221	0.00087	0.00146	0.001	0.00095
Phosphorus, dissolved	mg/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	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	mg/L				146	148	1.4%	155	155	150	153	2.0%	134	156	156	155	6.03	6.04	5.92	10.9	14.6	14.2	2.8%	16.6	18.6	5.02	5.02	5.35	5.83	1.22	9.61	5.52	8.32	9.41
Selenium, dissolved	mg/L	0.05		0.01	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050
Silicon, dissolved	mg/L				9.9	10.4	4.9%	11.5	11.6	12.2	12.2	0.0%	9.3	11.2	12.1	12.2	8.8	9.2	9.6	8.2	8.5	8.9	4.6%	9.3	9.7	3.5	2.9	3.2	3.1	5.3	5.9	6.5	6.4	6.9
Silver, dissolved	mg/L			0.02	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, dissolved	mg/L		200	200	277	286	3.2%	277	257	256	262	2.3%	253	284	263	265	335	328	331	122	153	154	0.7%	137	141	114	112	106	113	18.1	57.5	30.1	43.3	51.7
Strontium, dissolved	mg/L	7		2.5	1.35	1.41	4.3%	1.66	1.46	1.61	1.6	0.6%	1.26	1.6	1.45	1.6	1.33	1.22	1.37	1.21	1.47	1.51	2.7%	1.39	1.56	0.811	0.441	0.385	0.274	1.16	4.89	3.5	4.55	5.54
Sulfur, dissolved	mg/L				186	187	0.5%	230	228	241	241	0.0%	169	220	221	237	13.4	15.4	16.9	19.1	25.3	26.1	3.1%	24.3	25.2	30.7	21	26.4	20.2	5.8	70.6	72	87.7	93.4
Tellurium, dissolved	mg/L				<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	mg/L				7.7e-05	0.000072	6.7%	5.4e-05	5.2e-05	6e-05	0.00006	0.0%	6.9e-05	5.8e-05	6.3e-05	6.2e-05	2.1e-05	3e-05	3.1e-05	9.1e-05	7.6e-05	0.000081	6.4%	7.8e-05	0.000106	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, dissolved	mg/L				<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	mg/L			2.5	<0.00020	0.0003	-	0.00034	<0.00020	0.00032	0.00021	-	0.00032	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0029	<0.00020	<0.00020	<0.00020
Titanium, dissolved	mg/L				<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	mg/L			0.003	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	0.0034	0.0025	0.0026	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	mg/L	0.02		0.02	0.00673	0.00675	0.3%	0.0058	0.00683	0.00686	0.00643	6.5%	0.00593	0.00557	0.00705	0.00697	0.00174	0.00226	0.00212	0.00248	0.0031	0.00293	5.6%	0.00322	0.00304	6.4e-05	2.3e-05	2.3e-05	<0.000020	0.000678	0.000702	0.00163	0.00114	0.000856
Vanadium, dissolved	mg/L			0.02	<0.0010	<0.0010	-	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	<0.0050	<0.0050	<0.0050
Zinc, dissolved	mg/L		5	3	<0.0040	<0.0040	-	0.0042	<0.0040	<0.0040	<0.0040	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	-	<0.0040	<0.0040	0.014	<0.0040	<0.0040	<0.0040	<0.0040	0.0475	0.0304	0.0328	0.0143
Zirconium, dissolved	mg/L				0.00014	0.00013	7.4%	0.00021	0.00018	0.00019	0.00017	11.1%	0.00012	0.00019	0.00033	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	0.00015	6.9%	0.00016	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00062	0.00037	0.00049	0.00055
General Parameters																																		
Alkalinity, Bicarbonate (as CaCO3)	mg/L				1040	1040	0.0%	943	1010	904	911	0.8%	1020	901	1040	914	523	550	509	731	687	638	7.4%	735	667	759	631	692	619	417	489	405	458	437
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	<1.0	<1.0	<1.0	<1.0	9.2	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L				<1.0	1040	-	<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	<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	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	4.6	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L				1040	<1.0	-	943	1010	904	911	0.8%	1020	901	1040	914	523	550	509	731	687	638	7.4%	735	667	759	631	692	629	417	489	405	458	437
Bicarbonate (HCO3)	mg/L				1270	1270	0.0%	1150	1230	1100	1110	0.9%	1250	1100	1270	1120	638	671	620	892	838	778	7.4%	897	814	926	770	844	756	509	596	494	559	533
Carbonate (CO3)	mg/L				<0.600	<0.600	-	<0.600	<0.600	<0.600	<0.600	-	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	-	<0.600	<0.600	<0.600	<0.600	<0.600	5.52	<0.600	<0.600	<0.600	<0.600	<0.600
BOD, 5-day	mg/L				<7.5	<7.5	-	6.8	<6.6	<5.9	<5.9	-	<7.5	<6.7	<6.6	<5.9	<6.7	<6.6	<5.9	<7.5	<6.7	<6.7	-	<6.6	<5.9	<7.5	8.2	<6.6	<5.9	7.8	<7.5	<6.7	<6.6	<5.9
Chemical Oxygen Demand	mg/L				59	73	21.2%	79	3.1	60	87	36.7%	76	51	4.09	76	<20	0.392	25	32	23	32	32.7%	1.39	44	<20	<20	0.507	<20	168	<20	<20	0.876	<20
Electrical Conductivity	µS/cm				3960	3980	0.5%	3710	3720	3680	3700	0.5%	3960	3890	3710	3700	2510	2690	2760	2310	2440	2320	5.0%	2350	2460	1630	1470	1420	1400	538	1200	1040	1190	1200
Hardness, Total (as CaCO3)	mg/L				1350	1380	2.2%	1480	1410	1420	1440	1.4%	1220	1430	1410	1430	670	681	713	923	988	1040	5.1%	985	1030	646	594	575	590	267	542	545	575	592
Hydroxide (OH)	mg/L				<0.340	<0.340	-	<0.340	<0.340	<0.340	<0.340	-	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	-	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340
pH	pH unit		Calculated		7.58	7.62	0.5%	7.15	7.76	7.78	7.91	1.7%	7.63	7.08	7.74	7.89	7.54	8.01	8.04	7.86	7.62	7.45	2.3%	7.94	7.93	7.95	8.16	8.28	8.32	8.09	8.02	7.37	8.1	8.11
				GCDWQ AO- GCDWQ	Not applied	292		Not applied	Not applied	Not applied	Not applied		Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied			Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	Not applied	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5
Total dissolved solids	mg/L		500		2940	3010	2.4%	2630	2530	2240	2310	3.1%	2910	2620	2390	2190	1610	1430	1500	1710	1820	1440	23.3%	1280	1380	1040	875	794	819	290	834	713	800	773
Totals suspended solids	mg/L				224	292	26.4%	1590	320	941	1060	11.9%	322	426	1170	936	499	229	532	116	78.8	110	33.1%	140	435	13.7	28.9	54	5.5	79000	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU				140	151	7.6%	1220	220	770	768	0.3%	184	578	2260	1540	325	126	310	58.9	52.1	83.3	46.1%	129	250	7.35	55.7	59	15.6	> 4000	0.39	0.19	0.11	0.13

Analyte	Unit	GCDWQ MAC	GCDWQ AO	CSR DW	Sampling Location	MW09-6S	DUP A	RPD	MW09-6S	MW09-6S	MW09-6S	DUP A	RPD	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW10-8	MW10-8	MW10-8	MW18-10	MW18-10	DUP A	RPD	MW18-10	MW18-10	MW18-11	MW18-11	MW18-11	MW18-11	MW22-12	DMW-4	DMW-4	DMW-4	DMW-4
					Date Sampled	2022-03-16	2022-03-16		2022-05-18	2022-08-24	2022-11-16	2022-11-16		2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-05-18	2022-08-24	2022-11-16	2022-03-16	2022-05-18	2022-05-18		2022-08-24	2022-11-16	2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-11-16	2022-03-16	2022-05-18	2022-08-24	2022-11-16
					Lab Sample ID	22C2624-02	22C2624-08		22E2873-01	22H3785-01	22K2189-01	22K2189-08		22C2624-07	22E2873-08	22H3785-07	22K2189-07	22E2873-02	22H3785-02	22K2189-02	22C2624-03	22E2873-03	22E2873-09		22H3785-03	22K2189-03	22C2624-04	22E2873-04	22H3785-04	22K2189-04	22K2189-05	22C2624-05	22E2873-06	22H3785-05	22K2189-06
					Sample Type																													
Volatile Organic Compounds (VOC)																																		
1,1-Dichloroethane	µg/L			30		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,1-Dichloroethylene	µg/L	15		14		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,1,1-Trichloroethane	µg/L			8000		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,1,2-Trichloroethane	µg/L			3		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,1,2,2-Tetrachloroethane	µg/L			0.8		-	-	-	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	<0.5	-	-	-	<0.5
1,2-Dibromoethane	µg/L			0.5		-	-	-	-	-	<0.3	<0.3	-	-	-	-	<0.3	-	-	<0.3	-	-	-	-	<0.3	-	-	-	<0.3	<0.3	-	-	-	<0.3
1,2-Dichlorobenzene	µg/L	200	3	200		-	-	-	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	<0.5	-	-	-	<0.5
1,2-Dichloroethane	µg/L	5		5		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,2-Dichloropropane	µg/L			4.5		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,3-Dichlorobenzene	µg/L					-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,3-Dichloropropene (cis + trans)	µg/L			1.5		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
1,4-Dichlorobenzene	µg/L	5	1	5		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Benzene	µg/L	5		5		-	-	-	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	<0.5	-	-	-	<0.5
Bromodichloromethane	µg/L	100		100		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Bromoform	µg/L	100		100		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Carbon tetrachloride	µg/L	2		2		-	-	-	-	-	<0.5	<0.5	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	<0.5	-	-	-	<0.5	<0.5	-	-	-	<0.5
Chlorobenzene	µg/L			80		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Chloroethane	µg/L					-	-	-	-	-	<2.0	<2.0	-	-	-	-	<2.0	-	-	<2.0	-	-	-	-	<2.0	-	-	-	<2.0	<2.0	-	-	-	<2.0
Chloroform	µg/L	100		100		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
cis-1,2-Dichloroethylene	µg/L			8		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Dibromochloromethane	µg/L			100		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Dibromomethane	µg/L					-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Dichloromethane	µg/L	50		50		-	-	-	-	-	<3.0	<3.0	-	-	-	-	<3.0	-	-	<3.0	-	-	-	-	<3.0	-	-	-	<3.0	<3.0	-	-	-	<3.0
Ethylbenzene	µg/L	140	1.6	140		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Methyl tert-butyl ether	µg/L		15	95		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Styrene	µg/L			800		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Tetrachloroethylene	µg/L	10		30		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Toluene	µg/L	60	24	60		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	1.8	-	-	-	<1.0
trans-1,2-Dichloroethylene	µg/L			80		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Trichloroethylene	µg/L			5		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Trichlorofluoromethane	µg/L			1000		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Vinyl chloride	µg/L	2		2		-	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	<1.0	-	-	-	<1.0	<1.0	-	-	-	<1.0
Xylenes (total)	µg/L	90	20	90		-	-	-	-	-	<2.0	<2.0	-	-	-	-	<2.0	-	-	<2.0	-	-	-	-	<2.0	-	-	-	<2.0	<2.0	-	-	-	<2.0
Polycyclic Aromatic Hydrocarbons (PAH)																																		
1-Methylnaphthalene	µg/L			5.5		-	-	-	-	-	<0.100	<0.100	-	-	-	-	<0.100	-	-	<0.100	-	-	-	-	<0.100	-	-	-	<0.100	<0.100	-	-	-	<0.100
2-Chloronaphthalene	µg/L			300		-	-	-	-	-	<0.100	<0.100	-	-	-	-	<0.100	-	-	<0.100	-	-	-	-	<0.100	-	-	-	<0.100	<0.100	-	-	-	<0.100
2-Methylnaphthalene	µg/L			15		-	-	-	-	-	<0.100	<0.100	-	-	-	-	<0.100	-	-	<0.100	-	-	-	-	<0.100	-	-	-	<0.100	<0.100	-	-	-	<0.100
Acenaphthene	µg/L			250		-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
Acenaphthylene	µg/L					-	-	-	-	-	<0.200	<0.200	-	-	-	-	<0.200	-	-	<0.200	-	-	-	-	<0.200	-	-	-	<0.200	<0.200	-	-	-	<0.200
Acridine	µg/L					-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
Anthracene	µg/L			1000		-	-	-	-	-	<0.010	<0.010	-	-	-	-	<0.010	-	-	<0.010	-	-	-	-	<0.010	-	-	-	<0.010	<0.010	-	-	-	<0.010
Benz[a]anthracene	µg/L			0.07		-	-	-	-	-	<0.010	<0.010	-	-	-	-	<0.010	-	-	<0.010	-	-	-	-	<0.010	-	-	-	<0.010	0.068	-	-	-	<0.010
Benzo(a)pyrene	µg/L	0.04		0.01		-	-	-	-	-	<0.010	<0.010	-	-	-	-	<0.010	-	-	<0.010	-	-	-	-	<0.010	-	-	-	<0.010	0.248	-	-	-	<0.010
Benzo(b+j)fluoranthene	µg/L			0.07		-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	0.282	-	-	-	<0.050
Benzo(g,h,i)perylene	µg/L					-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	0.218	-	-	-	<0.050
Benzo(k)fluoranthene	µg/L					-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
Chrysene	µg/L			7		-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	0.35	-	-	-	<0.050
Dibenz(a,h)anthracene	µg/L			0.01		-	-	-	-	-	<0.010	<0.010	-	-	-	-	<0.010	-	-	<0.010	-	-	-	-	<0.010	-	-	-	<0.010	0.052	-	-	-	<0.010
Fluoranthene	µg/L			150		-	-	-	-	-	<0.030	<0.030	-	-	-	-	<0.030	-	-	<0.030	-	-	-	-	<0.030	-	-	-	<0.030	<0.030	-	-	-	<0.030
Fluorene	µg/L			150		-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
Indeno(1,2,3-cd)pyrene	µg/L					-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
Naphthalene	µg/L			80		-	-	-	-	-	<0.200	<0.200	-	-	-	-	<0.200	-	-	<0.200	-	-	-	-	<0.200	-	-	-	<0.200	<0.200	-	-	-	<0.200
Phenanthrene	µg/L					-	-	-	-	-	<0.100	<0.100	-	-	-	-	<0.100	-	-	<0.100	-	-	-	-	<0.100	-	-	-	<0.100	<0.100	-	-	-	<0.100
Pyrene	µg/L			100		-	-	-	-	-	<0.020	<0.020	-	-	-	-	<0.020	-	-	<0.020	-	-	-	-	<0.020	-	-	-	<0.020	<0.020	-	-	-	<0.020
Quinoline	µg/L			0.05		-	-	-	-	-	<0.050	<0.050	-	-	-	-	<0.050	-	-	<0.050	-	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	-	<0.050
BCMOE Aggregate Hydrocarbons																																		
EPHw10-19	µg/L					-	-	-	-	-	<250	<250	-	-	-	-	<250	-	-	<250	-	-	-	-	<250	-	-	-	<250	341	-	-	-	<250
EPHw19-32	µg/L					-	-	-	-	-	<250	<250	-	-	-	-	<250	-	-	<250	-	-	-	-	<250	-	-	-	<250	786	-	-	-	<250
HEPHw	µg/L					-	-	-	-	-	<250	<250	-	-	-	-	<250	-	-	<250	-	-	-	-	<250	-	-	-	<250	786	-	-	-	<250
LEPHw	µg/L					-	-	-	-	-	<250	<250	-	-	-	-	<250	-	-	<250	-	-	-	-	<250	-	-	-	<250	341	-	-	-	<250

Notes

<	Less than reported detection limit
>	Greater than reported upper detection limit
-	not analyzed or calculated
*	ENV Province-wide interim background concentration for cobalt
CSR	BC Contamianted Sites Regulation
DW	DW - standard or guideline for the protection of Drinking Water
GCDWQ	Guidelines for Canadian Drinking Water Quality
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AO	Aesthetic Objective
20	Red text value exceeds CSR DW
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GCDWQ MAC	Blue highlighted text value exceeds GCDWQ MAC

					Sampling Location	DMW-1B	DMW-1B	DMW-1B	DMW20-01	DMW20-01	DMW20-01	DMW20-01	Town Well #4
					Date Sampled	2022-03-16	2022-05-18	2022-08-24	2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-05-18
					Lab Sample ID	22C2624-06	22E2873-07	22H3785-06	22C2624-09	22E2873-10	22H3785-08	22K2189-09	22E2873-05
					Sample Type								
Analyte	Unit	GCDWQ MAC	GCDWQ AO	CSR DW									
Field Parameters													
Depth to Water	m					-	-	-	-	-	-	-	-
Dissolved oxygen	mg/L					3.32	9.6	2.58	7.8	-	2.88	7.47	4.22
Electrical Conductivity	µS/cm					1.134	869	765	0.621	-	827	417.7	760
Elevation of Piezometric Surface	m					-	-	-	-	-	-	-	-
Oxidation reduction potential	mV					-58	-18.3	81	46	-	63.3	21.7	104.1
pH	pH unit		7 - 10.5			7.25	7.27	6.91	8.04	-	7.39	7.92	7.53
Temperature	°C		15			8.1	9.1	8.4	7.4	-	16.7	7.3	8.4
Anions													
Bromide	mg/L					<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L		250	250		32.4	51.9	51	11.3	108	111	57.6	109
Fluoride	mg/L	1.5		1.5		1.14	1.2	1	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (as N)	mg/L	10		10		<0.010	<0.010	0.032	0.267	1.69	1.63	0.538	1.76
Nitrite (as N)	mg/L	1		1		<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010
Ammonia, Total (as N)	mg/L					0.298	0.236	0.234	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		500	500		125	133	133	20.8	41.1	41.4	27.7	41.1
Dissolved Metals													
Aluminum, dissolved	mg/L			9.5		0.0094	<0.0050	<0.0050	0.0069	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	mg/L	0.006		0.006		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic, dissolved	mg/L	0.01		0.01		0.081	0.0485	0.0227	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium, dissolved	mg/L	2		1		0.0212	0.0257	0.03	0.0738	0.218	0.224	0.124	0.226
Beryllium, dissolved	mg/L			0.008		0.00011	0.00011	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth, dissolved	mg/L					<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron, dissolved	mg/L	5		5		0.101	0.117	0.125	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Cadmium, dissolved	mg/L	0.007		0.005		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium, dissolved	mg/L					60.9	71.3	68.6	36.8	91	92.3	53	89.2
Chromium, dissolved	mg/L	0.05		0.05		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	mg/L			0.02*		<0.00010	1e-04	0.00016	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
Copper, dissolved	mg/L	2	1	1.5		<0.00040	<0.00040	<0.00040	0.00828	0.0322	0.0173	<0.00040	0.00084
Iron, dissolved	mg/L		0.3	6.5		1.68	0.516	0.193	0.046	<0.010	<0.010	0.029	<0.010
Lead, dissolved	mg/L	0.005		0.01		<0.00020	<0.00020	<0.00020	<0.00020	0.00089	0.00041	<0.00020	<0.00020
Lithium, dissolved	mg/L			0.008		0.0189	0.0239	0.0226	0.00111	0.00211	0.00229	0.00167	0.00222
Magnesium, dissolved	mg/L					101	105	104	16.7	40.2	41.7	30.4	41.8
Manganese, dissolved	mg/L	0.12	0.02	1.5		0.0071	0.00585	0.00921	<0.00020	<0.00020	<0.00020	0.0121	0.00038
Mercury, dissolved	mg/L	0.001		0.001		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum, dissolved	mg/L			0.25		0.00023	0.00027	0.00031	0.00064	0.00021	0.00018	0.00067	2e-04
Nickel, dissolved	mg/L			0.08		0.00126	0.00165	0.00165	<0.00040	0.00042	<0.00040	<0.00040	<0.00040
Phosphorus, dissolved	mg/L					<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	mg/L					4.11	4.67	4.82	0.76	1.67	1.98	1.14	1.75
Selenium, dissolved	mg/L	0.05		0.01		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	mg/L					6.1	7.2	6.9	2.5	4.4	4.7	3.5	4.4
Silver, dissolved	mg/L			0.02		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, dissolved	mg/L		200	200		22.4	28.7	29.4	7.79	58	59.2	24.9	60.3
Strontium, dissolved	mg/L	7		2.5		1.41	1.83	1.65	0.291	0.522	0.46	0.379	0.504
Sulfur, dissolved	mg/L					34.7	45.7	44.3	7.8	14.1	14.1	8.9	14.3
Tellurium, dissolved	mg/L					<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	mg/L					<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium, dissolved	mg/L					<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	mg/L			2.5		0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium, dissolved	mg/L					<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	mg/L			0.003		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	mg/L	0.02		0.02		0.000202	8.6e-05	0.00013	0.000571	0.000972	0.00127	0.000678	0.00109
Vanadium, dissolved	mg/L			0.02		<0.0010	<0.0050	<0.0050	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050
Zinc, dissolved	mg/L		5	3		0.0171	<0.0040	<0.0040	0.007	0.0311	0.0073	<0.0040	<0.0040
Zirconium, dissolved	mg/L					0.00214	0.00164	0.00152	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
General Parameters													
Alkalinity, Bicarbonate (as CaCO3)	mg/L					550	462	532	168	324	359	223	337
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
Alkalinity, Total (as CaCO3)	mg/L					550	462	532	168	324	359	223	337
Bicarbonate (HCO3)	mg/L					671	564	649	205	395	438	272	411
Carbonate (CO3)	mg/L					<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600
BOD, 5-day	mg/L					<7.5	<6.7	<6.6	<7.5	<6.7	<6.6	<5.9	<6.7
Chemical Oxygen Demand	mg/L					<20	<20	0.287	<20	<20	0.091	<20	<20
Electrical Conductivity	µS/cm					1150	1150	1170	351	992	1020	591	994
Hardness, Total (as CaCO3)	mg/L					570	612	601	161	393	402	258	395
Hydroxide (OH)	mg/L					<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340
pH	pH unit		Calculated			7.95	7.53	8.04	8.15	7.73	8.03	8.2	7.48
					GCDWQ AO- GCDWQ	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5	7.0-10.5
Total dissolved solids	mg/L		500			735	732	681	231	543	552	307	584
Totals suspended solids	mg/L					8.1	<2.0	6	<2.0	<2.0	<2.0	10.6	<2.0
Turbidity	NTU					7.59	4.59	6.27	0.14	0.12	<0.10	8.8	0.12

					Sampling Location	DMW-1B	DMW-1B	DMW-1B	DMW20-01	DMW20-01	DMW20-01	DMW20-01	Town Well #4
					Date Sampled	2022-03-16	2022-05-18	2022-08-24	2022-03-16	2022-05-18	2022-08-24	2022-11-16	2022-05-18
					Lab Sample ID	22C2624-06	22E2873-07	22H3785-06	22C2624-09	22E2873-10	22H3785-08	22K2189-09	22E2873-05
					Sample Type								
Analyte	Unit	GCDWQ MAC	GCDWQ AO	CSR DW									
Volatile Organic Compounds (VOC)													
1,1-Dichloroethane	µg/L			30	-	-	-	-	-	-	<1.0	-	
1,1-Dichloroethylene	µg/L	15		14	-	-	-	-	-	-	<1.0	-	
1,1,1-Trichloroethane	µg/L			8000	-	-	-	-	-	-	<1.0	-	
1,1,2-Trichloroethane	µg/L			3	-	-	-	-	-	-	<1.0	-	
1,1,2,2-Tetrachloroethane	µg/L			0.8	-	-	-	-	-	-	<0.5	-	
1,2-Dibromoethane	µg/L			0.5	-	-	-	-	-	-	<0.3	-	
1,2-Dichlorobenzene	µg/L	200	3	200	-	-	-	-	-	-	<0.5	-	
1,2-Dichloroethane	µg/L	5		5	-	-	-	-	-	-	<1.0	-	
1,2-Dichloropropane	µg/L			4.5	-	-	-	-	-	-	<1.0	-	
1,3-Dichlorobenzene	µg/L				-	-	-	-	-	-	<1.0	-	
1,3-Dichloropropene (cis + trans)	µg/L			1.5	-	-	-	-	-	-	<1.0	-	
1,4-Dichlorobenzene	µg/L	5	1	5	-	-	-	-	-	-	<1.0	-	
Benzene	µg/L	5		5	-	-	-	-	-	-	<0.5	-	
Bromodichloromethane	µg/L	100		100	-	-	-	-	-	-	<1.0	-	
Bromoform	µg/L	100		100	-	-	-	-	-	-	<1.0	-	
Carbon tetrachloride	µg/L	2		2	-	-	-	-	-	-	<0.5	-	
Chlorobenzene	µg/L			80	-	-	-	-	-	-	<1.0	-	
Chloroethane	µg/L				-	-	-	-	-	-	<2.0	-	
Chloroform	µg/L	100		100	-	-	-	-	-	-	<1.0	-	
cis-1,2-Dichloroethylene	µg/L			8	-	-	-	-	-	-	<1.0	-	
Dibromochloromethane	µg/L			100	-	-	-	-	-	-	<1.0	-	
Dibromomethane	µg/L				-	-	-	-	-	-	<1.0	-	
Dichloromethane	µg/L	50		50	-	-	-	-	-	-	<3.0	-	
Ethylbenzene	µg/L	140	1.6	140	-	-	-	-	-	-	<1.0	-	
Methyl tert-butyl ether	µg/L		15	95	-	-	-	-	-	-	<1.0	-	
Styrene	µg/L			800	-	-	-	-	-	-	<1.0	-	
Tetrachloroethylene	µg/L	10		30	-	-	-	-	-	-	<1.0	-	
Toluene	µg/L	60	24	60	-	-	-	-	-	-	<1.0	-	
trans-1,2-Dichloroethylene	µg/L			80	-	-	-	-	-	-	<1.0	-	
Trichloroethylene	µg/L			5	-	-	-	-	-	-	<1.0	-	
Trichlorofluoromethane	µg/L			1000	-	-	-	-	-	-	<1.0	-	
Vinyl chloride	µg/L	2		2	-	-	-	-	-	-	<1.0	-	
Xylenes (total)	µg/L	90	20	90	-	-	-	-	-	-	<2.0	-	
Polycyclic Aromatic Hydrocarbons (PAH)													
1-Methylnaphthalene	µg/L			5.5	-	-	-	-	-	-	<0.100	-	
2-Chloronaphthalene	µg/L			300	-	-	-	-	-	-	<0.100	-	
2-Methylnaphthalene	µg/L			15	-	-	-	-	-	-	<0.100	-	
Acenaphthene	µg/L			250	-	-	-	-	-	-	<0.050	-	
Acenaphthylene	µg/L				-	-	-	-	-	-	<0.200	-	
Acridine	µg/L				-	-	-	-	-	-	<0.050	-	
Anthracene	µg/L			1000	-	-	-	-	-	-	<0.010	-	
Benz[a]anthracene	µg/L			0.07	-	-	-	-	-	-	<0.010	-	
Benzo(a)pyrene	µg/L	0.04		0.01	-	-	-	-	-	-	<0.010	-	
Benzo(b+j)fluoranthene	µg/L			0.07	-	-	-	-	-	-	<0.050	-	
Benzo(g,h,i)perylene	µg/L				-	-	-	-	-	-	<0.050	-	
Benzo(k)fluoranthene	µg/L				-	-	-	-	-	-	<0.050	-	
Chrysene	µg/L			7	-	-	-	-	-	-	<0.050	-	
Dibenz(a,h)anthracene	µg/L			0.01	-	-	-	-	-	-	<0.010	-	
Fluoranthene	µg/L			150	-	-	-	-	-	-	<0.030	-	
Fluorene	µg/L			150	-	-	-	-	-	-	<0.050	-	
Indeno(1,2,3-cd)pyrene	µg/L				-	-	-	-	-	-	<0.050	-	
Naphthalene	µg/L			80	-	-	-	-	-	-	<0.200	-	
Phenanthrene	µg/L				-	-	-	-	-	-	<0.100	-	
Pyrene	µg/L			100	-	-	-	-	-	-	<0.020	-	
Quinoline	µg/L			0.05	-	-	-	-	-	-	<0.050	-	
BCMOE Aggregate Hydrocarbons													
EPHw10-19	µg/L				-	-	-	-	-	-	<250	-	
EPHw19-32	µg/L				-	-	-	-	-	-	<250	-	
HEPHw	µg/L				-	-	-	-	-	-	<250	-	
LEPHw	µg/L				-	-	-	-	-	-	<250	-	

Notes

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*	ENV Province-wide interim background concentration for cobalt
CSR	BC Contamianted Sites Regulation
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MAC	Maximum Acceptable Concentration
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20	Red text value exceeds CSR DW
GCDWQ AO	Orange highlighted text value exceeds GCDWQ AO
GCDWQ MAC	Blue highlighted text value exceeds GCDWQ MAC

ECOSCAPE Environmental Consultants Ltd.

APPENDIX E: Historical Water Quality Data

Sampling Location		DMW-1	DMW-1	DMW-1	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b
Date Sampled		2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2019-05-29	2019-08-13	2019-10-29	2020-03-24
Lab Sample ID		K0B0397-04	K0F0788-01	K0K0729-04	K1E0403-05	K1H0536-03	K1J0685-03	2051369-01	2081484-03	2111131-03	3051354-03	3081378-03	3110772-03	4060249-03	4081094-03	4110161-03	5051773-04	5081710-02	5110693-01	6050336-02	6081698-02	6111141-04	7040434-07	7090074-04	7111886-05	8062674-02	8090975-04	9052874-07	9081278-07	N000444-06	0032091-06
Analyte	Unit																													
Field Parameters																														
Depth to Water	m						9.89																							
Dissolved oxygen	mg/L													0.29	0.59	1.98	1.21	2.34	0.34	0.01	4.73			2.53	4.67		0.32	3.45	2.75	2.49	1.86
Electrical Conductivity	µS/cm	1120	1220	1150	1220	1000	1150	1170	1140	1070	870	750	1040	1075	1030	1118	1021	1142	1155	1134	1201	1127	1113	1128	1137	1033	1189	1056	987	1006	881
Elevation of Piezometric Surface	m																													
Oxidation reduction potential	mV		61	-18	-199	40	162	99	44	-12	124	8	19	-41	-86	-65	-28	-26	53	-35	97	29	83	17		-161	-182	-33.7	-16	161.7	42.3
pH	pH unit	7.31	7.28	7.3	7.4	7.31	7.23	7.15	7.54	7.4	7.36	7.22	7.16	7.3	7.3	7	7.5	7.2	6.3	7.3	7.3	7.4	7.7	7.4	7.3	7.34	7.28	7.3	7.26	7.47	7.58
Temperature	°C	6.5	9.9	6.2	8.8	9.5	6.1	8.2	10	8	8.7	7.7	8	7.8	9.1	8.2	9.8	8.5	8	8.1	7.9	9.1	6.8	9.6	7.9	8	7.8	8.8	11	6.4	4.9
Anions																														
Bromide	mg/L																<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.1
Chloride	mg/L	26.8	23.3	30.1	26	27.7	32.7	28.4	32.2	35.7	38.9	40.9	41.1	35.8	39.7	40.1	39.7	42.4	51.7	38.7	47.1	50.4	42.1	12.4	52.8	92.2	52.3	11.3	10.4	8.8	9.49
Fluoride	mg/L							1.1	0.81	1.05	1.23	1.31	1.02	1.13	0.84	1.15	1.25	1.28	1.31	1.28	1.28	1.25	1.25	0.73	1.3	1.35	1.38	0.83	0.47	0.63	0.72
Nitrate (as N)	mg/L	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.199	0.397	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.175	<0.010	<0.010	<0.100	0.522	0.712	0.756	0.334
Nitrite (as N)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.01	<0.01	<0.01	<0.01
Sulfate	mg/L	208	213	91.7	137	133	124	144	127	123	121	129	117	135	127	122	133	114	116	129	124	124	126	252	108	117	119	246	191	175	232
Metals																														
Aluminum, dissolved	mg/L	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.005	<0.005					<0.005	<0.005		<0.0050		0.0202	<0.0050	0.0141	<0.005	<0.005	<0.005
Aluminum, total	mg/L																0.005	<0.005	<0.05	<0.005			0.005		<0.0050						
Antimony, dissolved	mg/L	0.0002	0.0002	<0.0001	0.0002	0.0002	<0.0020	0.0001	0.0002	0.0004	0.0004	0.0004	0.0005	0.0003	0.0003	0.0002					<0.0001	<0.0001		<0.00020		<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002
Antimony, total	mg/L																<0.0001	<0.0001	<0.001	<0.0001			0.0003		<0.00020						
Arsenic, dissolved	mg/L	0.0043	0.007	0.0389	0.026	0.0362	0.0285	0.0196	0.0419	0.0392	0.0388	0.0397	0.0382	0.0351	0.0378	0.0436					0.0421	0.0407		0.00124		0.0434	0.0411	0.00107	0.0011	0.00082	0.00121
Arsenic, total	mg/L																0.0236	0.0489	0.042	0.0375			0.0326		0.0476						
Barium, dissolved	mg/L	0.0236	0.023	0.0269	0.0242	0.022	0.021	0.024	0.023	0.022	0.023	0.023	0.023	0.024	0.024	0.026					0.025	0.024		0.0149		0.0225	0.0222	0.0167	0.014	0.0152	0.0155
Barium, total	mg/L																0.022	0.026	<0.05	0.024			0.025		0.0246						
Beryllium, dissolved	mg/L	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0002	0.0001	0.0001					<0.0001	<0.0001		<0.00010		0.00011	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Beryllium, total	mg/L																<0.0001	0.0001	<0.001	0.0001			<0.0001		0.00011						
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth, total	mg/L																<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010						
Boron, dissolved	mg/L	0.171	0.233	0.174	0.143	0.135	0.104	0.138	0.137	0.133	0.145	0.166	0.158	0.153	0.138	0.134					0.191	0.172		0.386		0.156	0.134	0.321	0.204	0.275	0.394
Boron, total	mg/L																0.146	0.139	0.14	0.146			0.137		0.101						
Cadmium, dissolved	mg/L	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001					0.00003	0.00001		<0.000010		<0.000010	<0.000010	0.000011	<0.00001	0.000011	0.00001
Cadmium, total	mg/L																<0.00001	<0.00001	<0.0001	<0.00001			<0.00001		<0.000010						
Calcium, dissolved	mg/L	73.9	70.9	73.5	71.9	63.2	65.9	61.2	63.9	64	68.7	71.8	73.4	74	73.1	70.5					74.5	70.8		75.4		71.2	70.8	75.7	74.4	69.6	73.5
Calcium, total	mg/L																74.3	75.8	75.1	79.2			77.3		65.9						
Chromium, dissolved	mg/L	0.0146	0.0014	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	<0.00050	0.00108	<0.0005	<0.0005	<0.0005
Chromium, total	mg/L																<0.0005	<0.0005	<0.005	<0.0005			<0.0005		<0.00050						
Cobalt, dissolved	mg/L	0.00063	0.00075	0.00012	0.00011	0.00009	<0.00005	0.00017	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00013	0.00012	0.00008					0.00007	<0.00005		0.00075		0.00011	<0.00010	0.00108	0.00077	0.00082	0.00069
Cobalt, total	mg/L																0.00014	<0.00005	<0.0005	<0.00005			0.0005		<0.00010						
Copper, dissolved	mg/L	0.0297	0.0392	0.0004	0.0006	0.0008	0.002	0.0002	0.0002	0.0014	0.0004	<0.0002	<0.0002	0.0007	<0.0002	0.0004					0.0004	0.0185		0.00361		0.00069	<0.00040	0.006	0.015	0.0264	0.00384
Copper, total	mg/L																0.0078	0.0009	<0.002	0.0003			0.0079		0.00073						
Iron, dissolved	mg/L	0.053	0.26	0.418	0.145	0.28	0.11	0.19	0.35	0.27	0.318	0.294	0.345	0.351	0.378	0.404					0.239	0.368		0.014		0.381	<0.010	0.122	<0.01	0.011	<0.01
Iron, total	mg/L																0.23	0.38	0.42	0.55			0.43		0.437						
Lead, dissolved	mg/L	0.0001	0.0004	<0.0001	0.0002	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0002	<0.0001					<0.0001	0.0003		<0.00020		<0.00020	<0.00020	0.0003	0.00026	0.00034	<0.0002
Lead, total	mg/L																0.0022	0.0003	<0.001	0.0003			0.0002		<0.00020						
Lithium, dissolved	mg/L	0.0232	0.031	0.026	0.0238	0.0218	0.0209	0.0196	0.0228	0.0227	0.0251	0.0251	0.0259	0.0264	0.0252	0.0252					0.0222	0.024		0.0477		0.024	0.0245	0.0455	0.0301	0.0344	0.0532
Lithium, total	mg/L																0.0243	0.0244	0.026	0.0265			0.0236		0.0217						
Magnesium, dissolved	mg/L	96.7	92.5	104	116	104	94.7	122	111	104	111	113	111	123	114	104					124	113		98.8		106	106	92.7	87.4	91	91.2
Magnesium, total	mg/L																112	119	111	122			117		101						
Manganese, dissolved	mg/L	0.0022	0.0032	0.0042	0.0039	0.004	0.0039	0.005	0.0041	0.0037	0.004	0.0039	0.0039	0.0054	0.0158	0.0048					0.0046	0.0041		0.00401		0.00808	0.00389	0.00366	0.00275	0.00242	0.00377
Manganese, total	mg/L																0.0047	0.0046	0.005	0.0057			0.011		0.00419						
Mercury, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	0.00033	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000010		<0.000010	<0.000040	<0.00001	<0.00001	<0.00001	<0.00001
Mercury, total	mg/L																<0.00002		<0.00002	<0.00002			<0.00002		<0.000010						
Molybdenum, dissolved	mg/L	0.0011	0.0008	0.0004	0.0003	0.0004	0.0017	0.0006	0.0004	0.0004	0.0004	0.0002	0.0004	0.0003	0.0004	0.0004					0.0004	0.0004		0.00058		0.00027	0.00036	0.00082	0.00105	0.00097	0.00058
Molybdenum, total	mg/L																0.0004	0.0004	<0.001	0.0003			0.0003		0.00035						
Nickel, dissolved	mg/L	0.0034	0.0046	0.0036	0.0011	0.0014	0.0011	<0.0002	0.0014	0.0012	0.0014	0.0015	0.0016	0.0012	0.0021	0.0016					0.0017	0.0022		0.00115		0.00199	0.00201	0.00205	0.00146	0.00148	0.00169
Nickel, total	mg/L																0.0006	0.0026	<0.002	0.0016			0.002		0.00204						
Phosphorus, dissolved	mg/L	<0.020	<0.020	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02					<0.02	0.24		<0.050		<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Phosphorus, total	mg/L																<0.020	0.08	<0.2	<0.02			<0.05		<0.050						
Potassium, dissolved	mg/L	6.64	9.66	4.75	4.72	4.85	4.24	5.17	5.08	4.72	5.11	5.31	4.86	4.76	5.06	4.94					5.62	5.2		8.08		5.15	4.79	7.19	5.75	5.72	8.87
Potassium, total	mg/L																4.93	5.94	5.1	5.1			4.73		4.63						
Selenium, dissolved	mg/L	0.0005	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	<0.00050	<0.0005	0.00056	<0.0005	<0.0005
Selenium, total	mg/L																<0.0005	<0.0005	<0.005	<0.0005			<0.0005		<0.00050						
Silicon, dissolved	mg/L	10.4	6.09	4.55	7.93	8	7.3	7.6	7.9	8	7.9	8	7.4	7.4	8	8.4					8	8.3		6.4		7.7	7.6	6.3	7.2	7.9	7.2
Silicon, total	mg/L																7.9	9	8	8.3			7.5		7.6						
Silver, dissolved	mg/L	<0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005					<0.00005	<0.00005		<0.000050		<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005
Silver, total	mg/L																0.00005	0.00163	<0.0005	<0.00005			<0.00005		<0.000050						
Sodium, dissolved	mg/L	25.8	23.7	26.6	25.4	25.1	25.3	23.5	29.6	27.4	29.1	30.4	29.7	25.4	28.4	30.1					32.8	29.8		47.5		29.2	28.8	39.4	26.2	29.9	48.3
Sodium, total	mg/L																26.9	33.2	29.7	28.7			26.3		26.9						

	Sampling Location	DMW-1	DMW-1	DMW-1	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b
	Date Sampled	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2019-05-29	2019-08-13	2019-10-29	2020-03-24
	Lab Sample ID	K0B0397-04	K0F0788-01	K0K0729-04	K1E0403-05	K1H0536-03	K1J0685-03	2051369-01	2081484-03	2111131-03	3051354-03	3081378-03	3110772-03	4060249-03	4081094-03	4110161-03	5051773-04	5081710-02	5110693-01	6050336-02	6081698-02	6111141-04	7040434-07	7090074-04	7111886-05	8062674-02	8090975-04	9052874-07	9081278-07	N000444-06	0032091-06
Strontium, dissolved	mg/L	3.07	3.89	1.88	1.8	1.69	1.62	1.69	1.72	1.67	1.76	1.74	1.7	1.81	1.76	1.71					1.96	1.79		4.33		1.66	1.76	4.26	3.49	3.11	4.95
Strontium, total	mg/L																1.68	1.99	1.74	1.82			1.78		1.85						
Sulfur, dissolved	mg/L							55	50	46	46	45	37	52	46	47					52	44		80.3		44.1	41.4	82.7	70.7	71.2	85.7
Sulfur, total	mg/L																46	51	37	45			43		42.6						
Tellurium, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002					<0.0002	<0.0002		<0.00050		<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005
Tellurium, total	mg/L																<0.0002	<0.0002	<0.002	<0.0002			<0.0002		<0.00050						
Thallium, dissolved	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000020		<0.000020	<0.000020	<0.00002	<0.00002	<0.00002	<0.00002
Thallium, total	mg/L																<0.00002	<0.00002	<0.0002	<0.00002			<0.00002		<0.000020						
Thorium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Thorium, total	mg/L																<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010						
Tin, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0003					0.0002	<0.0002		<0.00020		<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002
Tin, total	mg/L																0.0004	<0.0002	<0.002	<0.0002			<0.0002		<0.00020						
Titanium, dissolved	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	<0.005		<0.0050		<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005
Titanium, total	mg/L																<0.005	<0.005	<0.05	<0.005			<0.005		<0.0050						
Tungsten, dissolved	mg/L																									<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Tungsten, total	mg/L																								<0.0010						
Uranium, dissolved	mg/L	0.00173	0.00165	0.00008	0.00013	0.00011	0.00009	0.00014	0.00007	0.00009	0.00009	0.00007	0.00008	0.00014	0.00014	0.00009					0.00005	0.00007		0.00103		0.00011	0.000071	0.00141	0.00178	0.00155	0.000917
Uranium, total	mg/L																0.00011	0.00007	<0.0002	0.00013			0.0002		0.000068						
Vanadium, dissolved	mg/L	0.0055	0.0028	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	<0.001		<0.0010		<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Vanadium, total	mg/L																<0.001	<0.001	<0.01	<0.001			<0.001		<0.0010						
Zinc, dissolved	mg/L	0.0096	0.0193	0.0097	0.0321	0.005	0.01	0.009	<0.004	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	0.005					<0.004	0.067		0.038		0.0066	<0.0040	0.037	0.0276	0.0435	0.0282
Zinc, total	mg/L																<0.004	<0.004	<0.04	<0.004			0.017		0.0084						
Zirconium, dissolved	mg/L	0.0006	0.0004	0.002	0.0015	0.0013	0.0011	0.0011	0.0013	0.0014	0.0011	0.001	0.0011	0.0012	0.0012	0.0015					0.0019	0.0015		0.00056		0.00155	0.00167	0.0005	0.00042	0.00034	0.00057
Zirconium, total	mg/L																0.0012	0.0019	0.001	0.0014			0.0012		0.00161						
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L																			481	482	480	504	432	481	477	522	435	401	415	443
Alkalinity, Carbonate (as CaCO3)	mg/L																			<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L																			<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L																			<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Total (as CaCO3)	mg/L	444	453	475	509	509	495	486	480	512	497	463	479	499	479	478	490	478	500	481	482	480	504	432	481	477	522	435	401	415	443
Ammonia, Total (as N)	mg/L	0.65	0.76	0.29	0.2	0.26	0.26	0.155	0.263	0.031	0.274	0.274	0.295	0.261	0.28	0.24	0.234	0.21	0.276	0.196	0.251	0.228	0.239	0.758	0.262	0.248	0.249	0.531	0.055	0.028	0.721
Bicarbonate (HCO3)	mg/L																			587	588	586	614	527	587	582	637	531	489	506	540
BOD, 5-day	mg/L																														<5.1
Carbonate (CO3)	mg/L																			<1	<0.6	<0.6	<0.600	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	<0.6	<0.6
Chemical Oxygen Demand	mg/L																														<20
Electrical Conductivity	µS/cm	1130	1140	1090	1120	1090	1100	1150	1120	1120	1110	1140	1150	1160	1140	1160	1150	1120	<2	1170	1160	1180	1140	1170	1170	1150	1180	1150	1030	982	1090
Hardness, Total (as CaCO3)	mg/L																649	678	645						582			571	546	549	560
Hydroxide (OH)	mg/L																			<1	<0.3	<0.3	<0.340	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	<0.34	<0.34
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	7.73	7.89	7.69	7.84	7.79	7.79	7.86	7.85	7.09	7.78	7.86	7.86	7.89	7.66	7.81	7.74	7.7	7.63	7.6	7.73	7.89	7.67	7.92	7.86	7.8	7.79	7.96	7.9	8.04	7.9
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L																														
Total dissolved solids	mg/L																														784
Total organic carbon	mg/L																														
Turbidity	NTU	0.8	0.5	3.6	2	3.4	1.8	1.6	3	3.4	3	3.4	3.2	4.3	3.7	4.3	1.5	3	4.5	4.8	1.68	1.49	2.4	0.63	5.34	4.61		0.27	0.27	0.18	0.12
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L																											<1		<1	<1
1,1-Dichloroethylene	µg/L																											<1		<1	<1
1,1,1-Trichloroethane	µg/L																											<1		<1	<1
1,1,2-Trichloroethane	µg/L																											<1		<1	<1
1,1,2,2-Tetrachloroethane	µg/L																											<0.5		<0.5	<0.5
1,2-Dibromoethane	mg/L																						<0.0002				<0.0003				
1,2-Dibromoethane	µg/L																											<0.3		<0.3	<0.3
1,2-Dichlorobenzene	µg/L																											<0.5		<0.5	<0.5
1,2-Dichloroethane	µg/L																											<1		<1	<1
1,2-Dichloropropane	mg/L																						<0.0010				<0.0010				
1,2-Dichloropropane	µg/L																											<1		<1	<1
1,3-Dichlorobenzene	µg/L																											<1		<1	<1
1,3-Dichloropropene (cis + trans)	µg/L																											<1		<1	<1
1,4-Dichlorobenzene	µg/L																											<1		<1	<1

	Sampling Location	DMW-1	DMW-1	DMW-1	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b
	Date Sampled	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2019-05-29	2019-08-13	2019-10-29	2020-03-24
	Lab Sample ID	K0B0397-04	K0F0788-01	K0K0729-04	K1E0403-05	K1H0536-03	K1J0685-03	2051369-01	2081484-03	2111131-03	3051354-03	3081378-03	3110772-03	4060249-03	4081094-03	4110161-03	5051773-04	5081710-02	5110693-01	6050336-02	6081698-02	6111141-04	7040434-07	7090074-04	7111886-05	8062674-02	8090975-04	9052874-07	9081278-07	N000444-06	0032091-06
Benzene	mg/L																						<0.0005				<0.0005				
Benzene	µg/L																											<0.5		<0.5	<0.5
Bromodichloromethane	mg/L																						<0.0010				<0.0010				
Bromodichloromethane	µg/L																											<1		<1	<1
Bromoform	mg/L																						<0.0010				<0.0010				
Bromoform	µg/L																											<1		<1	<1
Carbon tetrachloride	mg/L																						<0.0005				<0.0005				
Carbon tetrachloride	µg/L																											<0.5		<0.5	<0.5
Chlorobenzene	µg/L																											<1		<1	<1
Chloroethane	mg/L																						<0.0020				<0.0020				
Chloroethane	µg/L																											<2		<2	<2
Chloroform	mg/L																						<0.0010				<0.0010				
Chloroform	µg/L																											<1		<1	<1
cis-1,2-Dichloroethylene	µg/L																											<1		<1	<1
Dibromochloromethane	mg/L																						<0.0010				<0.0010				
Dibromochloromethane	µg/L																											<1		<1	<1
Dibromomethane	mg/L																						<0.0010				<0.0010				
Dibromomethane	µg/L																											<1		<1	<1
Dichloromethane	mg/L																						<0.0030				<0.0030				
Dichloromethane	µg/L																											<3		<3	<3
Ethylbenzene	mg/L																						<0.0010				<0.0010				
Ethylbenzene	µg/L																											<1		<1	<1
Methyl tert-butyl ether	mg/L																						<0.0010				<0.0010				
Methyl tert-butyl ether	µg/L																											<1		<1	<1
Styrene	mg/L																						<0.0010				<0.0010				
Styrene	µg/L																											<1		<1	<1
Tetrachloroethylene	µg/L																											<1		<1	<1
Toluene	mg/L																						<0.0010				<0.0010				
Toluene	µg/L																											<1		<1	<1
trans-1,2-Dichloroethylene	µg/L																											<1		<1	<1
Trichloroethylene	µg/L																											<1		<1	<1
Trichlorofluoromethane	mg/L																						<0.0010				<0.0010				
Trichlorofluoromethane	µg/L																											<1		<1	<1
Vinyl chloride	mg/L																						<0.0010				<0.0010				
Vinyl chloride	µg/L																											<1		<1	<1
Xylenes (total)	µg/L																											<2		<2	<2
Polycyclic Aromatic Hydrocarbons (PAH)																																
1-Methylnaphthalene	µg/L																															
2-Chloronaphthalene	µg/L																															
2-Methylnaphthalene	µg/L																															
Acenaphthene	µg/L																															
Acenaphthylene	µg/L																															
Acridine	µg/L																															
Anthracene	µg/L																															
Benz(a)anthracene	µg/L																															
Benzo(a)pyrene	µg/L																															
Benzo(b+j)fluoranthene	µg/L																															
Benzo(g,h,i)perylene	µg/L																															
Benzo(k)fluoranthene	µg/L																															
Chrysene	µg/L																															
Dibenz(a,h)anthracene	µg/L																															
Fluoranthene	µg/L																															
Fluorene	µg/L																															
Indeno(1,2,3-cd)pyrene	µg/L																															
Naphthalene	µg/L																															
Phenanthrene	µg/L																															
Pyrene	µg/L																															
Quinoline	µg/L																															
BCMOE Aggregate Hydrocarbons																																
EPHw10-19	µg/L																															
EPHw19-32	µg/L																															
HEPHw	µg/L																															
LEPHw	µg/L																															
VHw (6-10)	µg/L																															
VPHw	µg/L																															
VPHw	mg/L																															

Sampling Location		DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4
Date Sampled		2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-03	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2020-03-24	2020-05-20	2020-08-25
Lab Sample ID		0051806-07	0082459-07	20K0317-07	21D0069-05	21E3316-06	21H3053-05	21K0749-06	3051354-05	3081378-04	3110772-04	4060249-04	4081094-04	4110161-04	5051773-03	5081710-03	5110693-02	6050336-03	6081698-03	6111141-05	7040434-06	7090074-03	7111886-06	8062674-03	8090975-05	8120636-04	9052874-08	9081278-08	0032091-07	0051806-08	0082459-08
Analyte	Unit																													
Field Parameters																														
Depth to Water	m																													
Dissolved oxygen	mg/L	2	3.29	3.57	2.78	000000000000	7.92	2.27				2.33	0.3	3.22	2.98	2.04	0.4	0	9.12	4.63		0.54	4.21		4.34	3.79	2.39	3.68	3.7	5.15	2.83
Electrical Conductivity	µS/cm	1104	1331	1120	1184	984	1083	1195	900	1130	1100	914	1062	953	922	1043	1109	1271	1139	790	927	1159	1187	1214	1232	1000	1092	1129	880	1194	1374
Elevation of Piezometric Surface	m																													
Oxidation reduction potential	mV	110.6	127.1	234	-90.8	-27.3	-3.5	700000000000	235	68	204	78	77	-8	69	-5	37	80	206	152	235	-47		96	72	152	-70.4	-12.3	28.9	17.4	101
pH	pH unit	7.04	7.48	7.02	7.08	7.76	7.47	7.2	7.25	7.16	7.11	7.3	7.1	7.1	7.5	7.3	6.3	7.1	7.3	7.3	7.6	7.4	7.2	7.42	7.23	7.18	7.27	7.18	7.07	7.13	7.36
Temperature	°C	9	8.7	6.9	7	999999999999	000000000000	7.7	8.7	7.8	7.2	7.9	8.6	8.2	9	8.2	8	8.5	8.2	7.7	7.8	9.5	8	7.9	7.9	7.1	12	11.2	7.8	10.8	10.5
Anions																														
Bromide	mg/L	<0.1	<0.1	<0.1	<	<	<	<							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.1	<0.1	<0.1
Chloride	mg/L	8.79	9.13	8.98	41.7	42.9	49.3	8.27	22.4	16.2	16.9	20.6	19.7	17.4	12.1	13.2	15.7	15.7	15.1	14.5	12.8	46.5	11.7	11.8	12.6	10.9	49.5	42.4	50.5	40.5	42.2
Fluoride	mg/L	0.76	0.91	0.47	1.20	1.27	1.40	0.98	0.48	0.61	0.52	0.28	0.32	0.42	0.89	0.74	0.48	0.69	0.49	0.42	0.34	1.45	0.79	0.71	0.72	0.62	1.64	1.22	1.25	1.47	1.35
Nitrate (as N)	mg/L	0.666	0.112	0.489	<	<	<	0.290	0.181	0.135	<0.010	0.647	0.443	0.602	0.53	0.414	0.725	0.488	0.479	0.511	0.494	0.012	0.138	0.243	0.048	0.402	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite (as N)	mg/L	<0.01	<0.01	<0.01	<	<	<	<	<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	0.336	0.035	<0.01	<0.01	<0.01	0.039	<0.01
Sulfate	mg/L	213	251	224	107	123	122	247	236	270	268	150	250	213	275	232	196	263	223	135	153	122	246	238	252	215	126	122	110	127	128
Metals																														
Aluminum, dissolved	mg/L	<0.005	<0.005	<0.005	<	0.0055	<	<	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	<0.005		<0.0050		0.0128	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005
Aluminum, total	mg/L														<0.005	<0.005	<0.05	<0.005			<0.005		<0.0050			<0.0050					
Antimony, dissolved	mg/L	<0.0002	<0.0002	0.00025	<	<	<	<	0.0004	0.0005	0.0005	0.0004	0.0004	0.0003					<0.0001	0.0002		<0.00020		<0.00020	<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Antimony, total	mg/L														0.0002	0.0003	<0.001	0.0002			0.0001		<0.00020			<0.00020					
Arsenic, dissolved	mg/L	0.00104	0.00129	0.00117	0.116	0.0751	0.0529	0.00143	0.0013	0.0013	0.0014	0.0012	0.0014	0.0013					0.001	0.0009		0.0421		0.00124	0.00137	0.00146	0.0633	0.0414	0.047	0.0533	0.0525
Arsenic, total	mg/L														0.0014	0.0018	<0.005	<0.0005			0.001		0.00149			0.00161					
Barium, dissolved	mg/L	0.0173	0.0158	0.0159	0.0262	0.0268	0.0240	0.0157	0.015	0.014	0.015	0.015	0.017	0.017					0.017	0.015		0.0223		0.0159	0.0155	0.0224	0.0242	0.0229	0.0219	0.0245	0.024
Barium, total	mg/L														0.017	0.016	<0.05	0.019			0.016		0.0165			0.0154					
Beryllium, dissolved	mg/L	<0.0001	<0.0001	0.00022	0.00012	0.00014	0.00012	<	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		0.00011		<0.00010	<0.00010	<0.00010	0.00011	0.00011	0.00013	0.00012	0.00012
Beryllium, total	mg/L														<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010			<0.00010					
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth, total	mg/L														<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010			<0.00010					
Boron, dissolved	mg/L	0.289	0.448	0.352	0.164	0.146	0.135	0.579	0.263	0.415	0.465	0.07	0.286	0.218					0.267	0.092		0.148		0.355	0.336	0.33	0.13	0.136	0.185	0.19	0.145
Boron, total	mg/L														0.659	0.392	0.2	0.444			0.106		0.386			0.335					
Cadmium, dissolved	mg/L	<0.00001	0.000016	<0.00001	0.000062	<	<	<	0.00002	0.00003	<0.00001	0.00002	0.00001	0.00002					0.00003	0.00001		<0.000010		0.000014	0.000015	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Cadmium, total	mg/L														0.00001	<0.00001	<0.0001	<0.00001			<0.00001		<0.000010			0.00001					
Calcium, dissolved	mg/L	74.6	69.2	81.3	70.2	71.7	67.5	75.0	78.2	80.7	82.5	75.1	86.4	79.9					77.8	68.9		70.7		74.9	78.6	67.9	70.7	71.2	70.7	72.7	66.7
Calcium, total	mg/L														79	81.9	81.6	97			73.2		76.1			68.6					
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<	<	<	<	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	<0.00050	<0.00050	0.00088	<0.0005	<0.0005	<0.0005	<0.0005
Chromium, total	mg/L														<0.0005	<0.0005	<0.005	<0.0005			<0.0005		<0.00050			<0.00050					
Cobalt, dissolved	mg/L	0.00093	0.00068	0.00076	0.00012	0.00014	<	0.00048	0.00084	0.00075	0.00059	0.00126	0.00133	0.00106					0.00091	0.00088		<0.00010		0.0008	0.00112	0.00076	0.00029	<0.0001	<0.0001	0.00029	<0.0001
Cobalt, total	mg/L														0.00079	0.00083	0.0009	0.00125			0.00077		0.00068			0.00075					
Copper, dissolved	mg/L	0.0212	0.00484	0.0109	0.00053	<	<	0.00474	0.0036	0.003	0.0024	0.0668	0.006	0.0065					0.0043	0.0593		0.00044		0.00594	0.0263	0.00315	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Copper, total	mg/L														0.01	0.0027	0.006	0.0071			0.0394		0.00181			0.00488					
Iron, dissolved	mg/L	<0.01	0.014	<0.01	1.17	1.00	0.595	<	0.014	0.014	0.013	0.011	0.021	0.014					0.011	<0.010		0.575		0.039	<0.010	0.06	0.672	0.409	0.394	0.669	0.776
Iron, total	mg/L														0.04	0.02	<0.10	0.01			0.03		0.037			0.062					
Lead, dissolved	mg/L	0.00023	0.00047	0.00021	<	<	<	<	0.0003	0.0004	0.0002	0.0003	0.0002	0.0003					<0.0001	0.0004		<0.00020		0.00028	<0.00020	0.00032	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Lead, total	mg/L														0.0004	0.0003	<0.001	0.0003			0.0002		<0.00020			0.00078					
Lithium, dissolved	mg/L	0.0397	0.0529	0.045	0.0264	0.0279	0.0241	0.0632	0.0347	0.0478	0.0516	0.0178	0.0385	0.0317					0.0285	0.0173		0.0245		0.0456	0.0443	0.0429	0.0269	0.0249	0.0254	0.0248	0.0245
Lithium, total	mg/L														0.0696	0.0462	0.03	0.0547			0.0192		0.0508			0.0435					
Magnesium, dissolved	mg/L	88	100	95.8	106	116	108	100	103	107	106	93	102	93.3					105	85		115		93.5	94.7	92.6	106	107	102	109	114
Magnesium, total	mg/L														102	98.6	93.1	119			80.5		91.1			94.9					
Manganese, dissolved	mg/L	0.00261	0.00352	0.00276	0.0108	0.00713	0.00452	0.00353	0.0039	0.0042	0.004	0.0021	0.0127	0.0043					0.0039	0.0015		0.00535		0.00585	0.00658	0.00333	0.00864	0.0041	0.00448	0.0153	0.00574
Manganese, total	mg/L														0.0048	0.0037	0.004	0.0061			0.0017		0.00377			0.00392					
Mercury, dissolved	mg/L	<0.00001	<0.00001	<0.00001	<	<	<	<	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000010		<0.000010	<0.000040	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Mercury, total	mg/L														<0.00002		<0.00002	<0.00002			<0.00002		<0.000010			<0.000040					
Molybdenum, dissolved	mg/L	0.00087	0.00053	0.00073	0.00050	0.00033	0.00038	0.00040	0.0008	0.0004	0.0006	0.0014	0.0008	0.001					0.001	0.0012		0.00031		0.00062	0.00079	0.00077	0.00037	0.00034	0.00035	0.00027	0.00025
Molybdenum, total	mg/L														0.0006	0.0007	0.001	0.0009			0.0014		0.00049			0.0008					
Nickel, dissolved	mg/L	0.0014	0.00124	0.00154	0.00231	0.00213	0.00188	0.00104	0.0018	0.0015	0.0012	0.0027	0.0026	0.0019					0.0014	0.0017		0.00179		0.00127	0.00132	0.00116	0.0022	0.00217	0.00197	0.00182	0.00181
Nickel, total	mg/L														<0.0002	0.0025	<0.002	0.0018			0.0017		0.00105			0.00118					
Phosphorus, dissolved	mg/L	<0.05	<0.05	<0.05	<	<	<	<	<0.02	<0.02	<0.02	<0.02	0.02	<0.02					<0.02	<0.02		<0.050		<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus, total	mg/L														<0.020	<0.02	<0.2	<0.02			<0.05		<0.050			<0.050					
Potassium, dissolved	mg/L	6.87	8.94	8.64	5.58	4.98	4.81	10.6	7.63	9.49	9.36	3.66	7.73	6.8					7.23	4.01		4.69		8.51	8.04	7.11	4.62	4.68	4.79	4.82	4.71
Potassium, total	mg/L														11.7	9.42	6.2	9.74			4.15		8.59			7.38					
Selenium, dissolved	mg/L	0.00058	<0.0005	<0.0005	<	<	<	<	<0.0005	<0.0005	<0.0005	0.0008	0.0007	0.0007					0.0005	0.0007		<0.00050		<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium, total	mg/L														<0.0005	<0.0005	<0.005	<0.0005			0.0006		<0.00050			<0.00050					
Silicon, dissolved	mg/L	7.9	6.5	6.5	8.2	8.1	7.7	7.3	7.2	7	6.6	7.4	7.3	7.9					6.8	7.6		7.2		6.8	6.5	7	7.3	7.7	8.2	8.8	7.5
Silicon, total	mg/L														7	7.2	7	8.1			7.3		6.4			7.2					
Silver, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<	<	<	<	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005					<0.00005	<0.00005		<0.000050		<0.000050	<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver, total	mg/L														0.00005	0.00129	<0.0005	<0.00005			<0.00005		<0.000050			<0.000050					
Sodium, dissolved	mg/L	33.5	50.1	41.8	30.4	29.3	30.5	57.3	34.2	48.8	51	20.2	34.8	31.6					33.4	17		27.9		44.6	41.2	40.7	28.4	26.7	28	25.3	27.4
Sodium, total	mg/L														70.3	46.9	27.2	50			21.1		46.4			41.5					

	Sampling Location	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4
	Date Sampled	2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-03	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2020-03-24	2020-05-20	2020-08-25
	Lab Sample ID	0051806-07	0082459-07	20K0317-07	21D0069-05	21E3316-06	21H3053-05	21K0749-06	3051354-05	3081378-04	3110772-04	4060249-04	4081094-04	4110161-04	5051773-03	5081710-03	5110693-02	6050336-03	6081698-03	6111141-05	7040434-06	7090074-03	7111886-06	8062674-03	8090975-05	8120636-04	9052874-08	9081278-08	0032091-07	0051806-08	0082459-08
Strontium, dissolved	mg/L	3.96	5.33	4.76	1.68	1.77	1.73	5.49	4.26	5.03	5.11	2.07	4.53	3.8					4.11	2.09		1.59		4.49	4.8	4.1	1.73	1.76	1.73	1.75	1.82
Strontium, total	mg/L														6.04	5.09	3.55	5.47			2.3		5.49			4.14					
Sulfur, dissolved	mg/L	76.8	93.6	82.7	45.6	43.7	43.9	87.5	80	95	88	58	87	80					83	48		43		85.5	86.6	78.8	43.4	45.4	43	48.1	51.3
Sulfur, total	mg/L														98	87	67	98			46		88.3			81					
Tellurium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<	<	<	<	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002					<0.0002	<0.0002		<0.00050		<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tellurium, total	mg/L														<0.0002	<0.0002	<0.002	<0.0002			<0.0002		<0.00050			<0.00050					
Thallium, dissolved	mg/L	<0.00002	<0.00002	<0.00002	<	<	<	<	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000020		<0.000020	<0.000020	<0.000020	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Thallium, total	mg/L														<0.00002	<0.00002	<0.0002	<0.00002			<0.00002		<0.000020			<0.000020					
Thorium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thorium, total	mg/L														<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010			<0.00010					
Tin, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<	<	<	<	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002					<0.0002	<0.0002		<0.00020		<0.00020	<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin, total	mg/L														0.0003	<0.0002	<0.002	<0.0002			<0.0002		<0.00020			<0.00020					
Titanium, dissolved	mg/L	<0.005	<0.005	<0.005	<	<	<	<	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.005	<0.005		<0.0050		<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005
Titanium, total	mg/L														<0.005	<0.005	<0.05	<0.005			<0.005		<0.0050			<0.0050					
Tungsten, dissolved	mg/L	<0.001	<0.001	<0.001	<	<	<	<																<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001
Tungsten, total	mg/L																					<0.0010				<0.0010					
Uranium, dissolved	mg/L	0.00155	0.000947	0.00146	0.000118	0.000099	0.000071	0.000695	0.00155	0.00115	0.001	0.00262	0.00152	0.00175					0.00158	0.00206		0.000121		0.000954	0.00118	0.00134	0.000111	0.00014	0.000086	0.000161	0.000101
Uranium, total	mg/L														0.00051	0.00108	0.0017	0.00134			0.00225		0.000895			0.00131					
Vanadium, dissolved	mg/L	<0.001	<0.001	<0.001	<	<	<	<	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001					<0.001	<0.001		<0.0010		<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium, total	mg/L														<0.001	<0.001	<0.01	<0.001			<0.001		<0.0010			<0.0010					
Zinc, dissolved	mg/L	0.0262	0.041	0.0245	0.0161	<	<	0.0420	0.029	0.046	0.019	0.045	0.028	0.032					0.015	0.022		0.0061		0.0431	0.055	0.0189	0.0101	0.0045	<0.004	0.0065	<0.004
Zinc, total	mg/L														0.03	0.03	<0.04	0.018			0.024		0.0185			0.0192					
Zirconium, dissolved	mg/L	0.00047	0.00064	0.00052	0.00182	0.00186	0.00194	0.00065	0.0007	0.0007	0.0007	0.0004	0.0006	0.0006					0.0005	0.0003		0.0014		0.00057	0.00047	0.00053	0.00153	0.00162	0.00173	0.00155	0.00143
Zirconium, total	mg/L														0.0007	0.0008	<0.001	0.0008			0.0004		0.00058			0.00049					
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	431	449	429	522	519	518	470										419	410	396	399	489	439	409	452	411	504	516	500	516	465
Alkalinity, Carbonate (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<										<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<										<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<										<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1
Alkalinity, Total (as CaCO3)	mg/L	431	449	429	522	519	518	470	437	427	435	392	399	416	430	429	422	419	410	396	399	489	439	409	452	411	504	516	500	516	465
Ammonia, Total (as N)	mg/L	0.161	0.861	0.481	0.386	0.228	0.245	1.03	0.596	0.952	1.07	0.028	0.814	0.341	1.26	0.816	0.283	0.814	0.336	0.036	0.024	0.216	1.06	0.758	0.849	0.416	0.285	0.288	0.215	0.206	0.223
Bicarbonate (HCO3)	mg/L	525	548	523	637	633	632	574										511	500	483	486	596	536	499	552	502	615	630	610	629	567
BOD, 5-day	mg/L	<6.1	<6.1	<5.8	<	<	7.4	<																					<5.1	<6.1	<6.1
Carbonate (CO3)	mg/L	<0.6	<0.6	<0.6	<	<	<	<										<1	<0.6	<0.6	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	<0.6	<0.6	<0.6
Chemical Oxygen Demand	mg/L	<20	<20	<20	56	<	<	<																					<20	<20	<20
Electrical Conductivity	µS/cm	1060	1230	1180	1090	1150	1170	1150	1160	1220	1230	979	1170	1120	1220	1130	1090	1210	1100	951	955	1160	1190	1140	1180	1100	1160	1160	1110	1150	1220
Hardness, Total (as CaCO3)	mg/L	549	586	598	611	658	614	600							619	611	587						565				612	619	596	630	634
Hydroxide (OH)	mg/L	<0.34	<0.34	<0.34	<	<	<	<										<1	<0.3	<0.3	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	<0.34	<0.34	<0.34
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	8.03	7.95	8.08	7.84	7.96	7.88	7.99	7.76	7.84	7.77	7.9	7.64	7.81	7.79	7.74	7.72	7.66	7.72	7.87	7.76	7.87	7.95	7.89	7.8	7.83	7.99	7.96	7.9	8.02	7.98
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L																									<0.0020					
Total dissolved solids	mg/L	727	804	758	676	668	695	796																					726	712	739
Total organic carbon	mg/L																														
Turbidity	NTU	0.14	0.16	0.31	9.10	7.19	4.73	0.11	0.2	0.2	0.3	5.5	0.2	0.2	0.5	0.2	0.2	0.2	0.3	0.24	0.25	7.35	0.37	0.32		0.58	6.97	3.56	4.84	4.9	8.59
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,1-Dichloroethylene	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,1,1-Trichloroethane	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,1,2-Trichloroethane	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0.5	<0.5	<0.5		<																				<0.5			<0.5	<0.5	<0.5
1,2-Dibromoethane	mg/L																				<0.0002				<0.0003						
1,2-Dibromoethane	µg/L	<0.3	<0.3	<0.3		<																				<0.3			<0.3	<0.3	<0.3
1,2-Dichlorobenzene	µg/L	<0.5	<0.5	<0.5		<																				<0.5			<0.5	<0.5	<0.5
1,2-Dichloroethane	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,2-Dichloropropane	mg/L																				<0.0010				<0.0010						
1,2-Dichloropropane	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,3-Dichloropropene (cis + trans)	µg/L	<1	<1	<1		<																				<1			<1	<1	<1
1,4-Dichlorobenzene	µg/L	<1	<1	<1		<																				<1			<1	<1	<1

	Sampling Location	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-1b	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4	DMW-4
	Date Sampled	2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-03	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2020-03-24	2020-05-20	2020-08-25
	Lab Sample ID	0051806-07	0082459-07	20K0317-07	21D0069-05	21E3316-06	21H3053-05	21K0749-06	3051354-05	3081378-04	3110772-04	4060249-04	4081094-04	4110161-04	5051773-03	5081710-03	5110693-02	6050336-03	6081698-03	6111141-05	7040434-06	7090074-03	7111886-06	8062674-03	8090975-05	8120636-04	9052874-08	9081278-08	0032091-07	0051806-08	0082459-08
Benzene	mg/L																			<0.0005				<0.0005						
Benzene	µg/L	<0.5	<0.5	<0.5		<																				<0.5		<0.5	<0.5	<0.5
Bromodichloromethane	mg/L																			<0.0010				<0.0010						
Bromodichloromethane	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Bromoform	mg/L																			<0.0010				<0.0010						
Bromoform	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Carbon tetrachloride	mg/L																			<0.0005				<0.0005						
Carbon tetrachloride	µg/L	<0.5	<0.5	<0.5		<																				<0.5		<0.5	<0.5	<0.5
Chlorobenzene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Chloroethane	mg/L																			<0.0020				<0.0020						
Chloroethane	µg/L	<2	<2	<2		<																				<2		<2	<2	<2
Chloroform	mg/L																			<0.0010				<0.0010						
Chloroform	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
cis-1,2-Dichloroethylene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Dibromochloromethane	mg/L																			<0.0010				<0.0010						
Dibromochloromethane	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Dibromomethane	mg/L																			<0.0010				<0.0010						
Dibromomethane	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Dichloromethane	mg/L																			<0.0030				<0.0030						
Dichloromethane	µg/L	<3	<3	<3		<																				<3		<3	<3	<3
Ethylbenzene	mg/L																			<0.0010				<0.0010						
Ethylbenzene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Methyl tert-butyl ether	mg/L																			<0.0010				<0.0010						
Methyl tert-butyl ether	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Styrene	mg/L																			<0.0010				<0.0010						
Styrene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Tetrachloroethylene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Toluene	mg/L																			<0.0010				<0.0010						
Toluene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
trans-1,2-Dichloroethylene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Trichloroethylene	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Trichlorofluoromethane	mg/L																			<0.0010				<0.0010						
Trichlorofluoromethane	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Vinyl chloride	mg/L																			<0.0010				<0.0010						
Vinyl chloride	µg/L	<1	<1	<1		<																				<1		<1	<1	<1
Xylenes (total)	µg/L	<2	<2	<2		<																				<2		<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAH)																														
1-Methylnaphthalene	µg/L	<0.1				<																							<0.1	
2-Chloronaphthalene	µg/L	<0.1				<																							<0.1	
2-Methylnaphthalene	µg/L	<0.1				<																							<0.1	
Acenaphthene	µg/L	<0.05				<																							<0.05	
Acenaphthylene	µg/L	<0.2				<																							<0.2	
Acridine	µg/L	<0.05				<																							<0.05	
Anthracene	µg/L	<0.01				<																							<0.01	
Benz(a)anthracene	µg/L	<0.01				<																							<0.01	
Benzo(a)pyrene	µg/L	<0.01				<																							<0.01	
Benzo(b+j)fluoranthene	µg/L	<0.05				<																							<0.05	
Benzo(g,h,i)perylene	µg/L	<0.05				<																							<0.05	
Benzo(k)fluoranthene	µg/L	<0.05				<																							<0.05	
Chrysene	µg/L	<0.05				<																							<0.05	
Dibenz(a,h)anthracene	µg/L	<0.01				<																							<0.01	
Fluoranthene	µg/L	<0.03				<																							<0.03	
Fluorene	µg/L	<0.05				<																							<0.05	
Indeno(1,2,3-cd)pyrene	µg/L	<0.05				<																							<0.05	
Naphthalene	µg/L	<0.2				<																							<0.2	
Phenanthrene	µg/L	<0.1				<																							<0.1	
Pyrene	µg/L	<0.02				<																							<0.02	
Quinoline	µg/L	<0.05				<																							<0.05	
BCMOE Aggregate Hydrocarbons																														
EPHw10-19	µg/L	<250																											<250	
EPHw19-32	µg/L	<250																											<250	
HEPHw	µg/L	<250																											<250	
LEPHw	µg/L	<250																											<250	
VHw (6-10)	µg/L	<100	<100																										<100	<100
VPHw	µg/L	<100	<100																										<100	<100
VPHw	mg/L																													

Sampling Location		DMW-4	DMW-4	DMW-4	DMW-4	DMW-5	DMW-568	DMW-571	DMW-606	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	Hospital Creek	Kicking Horse	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D
Date Sampled		2021-03-31	2021-05-28	2021-08-25	2021-11-03	2018-06-25	2018-06-27	2018-06-27	2018-06-27	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-02	2018-12-04	2018-06-27	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2018-12-03	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-03
Lab Sample ID		21D0069-06	21E3316-07	21H3053-06	21K0749-07	8062668-01	8062808-02	8062808-03	8062808-01	0051806-06	0082459-11	20K0317-10	21D0069-09	21E3316-10	21H3053-09	21K0749-10	8120636-06	8062805-03	K9E0816-03	K9K0184-01	K0B0397-02	K0F0788-04	8120636-01	0032091-08	0051806-09	0082459-09	20K0317-08	21D0069-07	21E3316-08	21H3053-07	21K0749-08
Analyte	Unit																													
Field Parameters																														
Depth to Water	m																		32.972	34	32.69	33.55	33.47	33.71	33.765	34.788	33.862	5880000000007	12000000000	8250000000007	999999999995
Dissolved oxygen	mg/L	1.83	200000000000	7.92	1.43					10.06	8.87	9.45	8.44	6.03	8.39	999999999995	13.48		0.83	1.92			4.05	1.84	3.92	3.6	3.21	5.03	1.9	3.51	4.8
Electrical Conductivity	µS/cm	1026	1000	1083	1166	1051			1895	538	548	553	566	484	560	589	360	220	6700	4700	4400	4300	3780	3000	3960	3911	3871	3918	3286	3336	3801
Elevation of Piezometric Surface	m																							884.565	884.51	883.487	884.413	.31600000000	.29200000000	.17899999995	.20400000000
Oxidation reduction potential	mV	23.1	2.5	-3.5	599999999995	220			-113	225.7	177.6	259.3	599999999995	70.7	71	40		138					73	110	104.9	198.2	149.8	291.7	87.5	85.7	77.8	12.2
pH	pH unit	7.23	7.45	7.47	7.07	7.38			7.31	7.51	7.82	7.6	7.9	8.11	7.86	8000000000000	7.49	8.48	6.78	6.86	6.76	7.01	6.81	6.93	6.76	6.81	6.72	6.78	6.92	6.92	6.94
Temperature	°C	6.5	000000000000	000000000000	8.1	13.5			10.7	9.8	15.4	8.2	8.4	8.6	8.6	7.6	0.1	10.1	10.8	9.4	9.4	11.3	8.9	9.9	10.9	11	10.3	9.4	10.9	10.8	10.4
Anions																														
Bromide	mg/L	<	<	<	<					<0.1	<0.1	<0.1	<	<	<	<	<0.10						1.88	<0.1	0.36	1.15	1.84	<	1.54	0.99	1.43
Chloride	mg/L	8.92	10.1	8.90	49.6	1.75	51.1	20	32.7	34.4	38.8	34.7	40.0	36.1	39.5	38.1	0.97	4.04	688	574	715	665	358	399	392	377	366	372	396	387	370
Fluoride	mg/L	0.58	0.79	1.06	1.39	2.45	0.51	0.81	6.83	0.16	0.12	<0.1	0.15	0.15	0.18	0.14	<0.10						0.25	0.18	0.15	<0.1	<0.1	<	0.14	<	0.18
Nitrate (as N)	mg/L	0.573	0.301	0.190	<	0.109	0.673	<0.010	<0.010	0.294	0.429	0.403	0.336	0.383	0.122	0.384	0.052	0.096	62.6	56.4	67.7	61.4	27.2	32.7	45	35.6	34.6	35.2	43.2	34.3	36.1
Nitrite (as N)	mg/L	<	<	<	<	<0.010	<0.010	<0.010	0.011	0.05	<0.01	<0.01	<	<	<	<	<0.010		<0.01	<0.01	<0.01	0.03	<0.010	0.012	0.455	<0.01	<0.01	<	<	<	0.050
Sulfate	mg/L	161	242	265	117	72.9	98.2	120	123	24.6	25.1	25	24.2	25.5	24.8	25.3	28.9		788	783	945	873	582	690	615	634	642	612	615	613	589
Metals																														
Aluminum, dissolved	mg/L	<	<	<	0.0067					<0.005	<0.005	<0.005	<	<	<	<	<0.0050		0.006	<0.005	0.23	<0.005	0.0101	<0.005	<0.005	<0.005	<0.005	<	0.0056	<	<
Aluminum, total	mg/L					<0.0050	0.0079	<0.0050	0.0173								0.0088														
Antimony, dissolved	mg/L	<	<	<	<					<0.0002	<0.0002	<0.0002	<	<	<	<	<0.00020		0.0003	0.0003	0.0005	0.0005	0.00191	0.00036	0.00029	0.00034	0.00029	<	0.00024	0.00021	<
Antimony, total	mg/L					0.0006	0.00021	<0.00020	<0.00020								<0.00020														
Arsenic, dissolved	mg/L	0.00124	0.00142	0.00147	0.0510					<0.0005	<0.0005	<0.0005	<	<	<	<	<0.00050		0.0104	0.0029	0.003	0.0048	0.00063	0.00051	<0.0005	<0.0005	<0.0005	0.00085	<	<	0.00081
Arsenic, total	mg/L					0.0674	<0.00050	<0.00050	0.00239								<0.00050														
Barium, dissolved	mg/L	0.0152	0.0165	0.0150	0.0247					0.11	0.11	0.119	0.115	0.111	0.119	0.116	0.0555		0.101	0.0566	0.0822	0.062	0.0465	0.0503	0.0532	0.049	0.0457	0.0444	0.0538	0.0457	0.0469
Barium, total	mg/L					<0.0050	0.0953	0.0833	0.0253								0.0589														
Beryllium, dissolved	mg/L	<	<	<	0.00014					<0.0001	<0.0001	<0.0001	<	<	<	<	<0.00010		<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<
Beryllium, total	mg/L																<0.00010														
Bismuth, dissolved	mg/L	<	<	<	<					<0.0001	<0.0001	<0.0001	<	<	<	<	<0.00010		<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<
Bismuth, total	mg/L																<0.00010														
Boron, dissolved	mg/L	0.240	0.444	0.492	0.182					0.0617	0.0505	0.0534	0.182	<	0.0737	0.167	0.0091		1.12	1.05	1.28	1.08	1.95	1.63	1.73	1.97	1.75	1.82	2.10	1.74	2.02
Boron, total	mg/L					0.173	0.213	0.0545	0.961								0.0093														
Cadmium, dissolved	mg/L	<	0.000021	<	<					<0.00001	<0.00001	<0.00001	<	<	<	<	<0.000010		0.00006	0.00001	0.00002	0.00002	<0.000010	0.000012	0.000038	0.000012	<0.00001	0.000015	0.000014	0.000019	<
Cadmium, total	mg/L					<0.000010	<0.000010	<0.000010	0.000121								<0.000010														
Calcium, dissolved	mg/L	72.5	78.1	67.0	76.1					48.5	48.3	55.7	53.4	51.8	50.7	55.4	53.2		235	197	217	186	164	155	158	154	170	155	165	148	151
Calcium, total	mg/L					0.27	91.9	95.6	34.4								52.4														
Chromium, dissolved	mg/L	<	<	<	<					<0.0005	<0.0005	<0.0005	<	<	<	<	<0.00050		0.006	0.0065	0.0342	0.0109	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<	0.00051	<	<
Chromium, total	mg/L					<0.00050	0.00076	<0.00050	<0.00050								<0.00050														
Cobalt, dissolved	mg/L	0.00059	0.00054	0.00042	<					<0.0001	0.00011	0.00015	0.00028	0.00014	<	0.00016	<0.00010		0.00298	0.00108	0.00151	0.00142	0.00164	0.0018	0.00179	0.00189	0.00178	0.00190	0.00220	0.00173	0.00194
Cobalt, total	mg/L					<0.00010	0.00049	0.00445	0.00104								<0.00010														
Copper, dissolved	mg/L	0.0438	0.00436	0.00285	<					<0.0004	0.00189	0.00052	<	0.00048	0.00423	<	<0.00040		0.008	0.0055	0.0143	0.0097	0.00328	0.00261	0.00298	0.0024	0.0022	0.00216	0.00279	0.00202	0.00180
Copper, total	mg/L					0.00841	0.0582	0.00719	0.00196								0.00323														
Iron, dissolved	mg/L	<	<	0.013	0.580					0.103	<0.01	<0.01	0.016	0.019	<	<	<0.010		0.23	0.204	0.402	0.396	<0.010	0.011	<0.01	<0.01	<0.01	0.012	<	<	<
Iron, total	mg/L					0.059	0.466	0.552	3.6								<0.010														
Lead, dissolved	mg/L	0.00023	<	<	<					<0.0002	<0.0002	<0.0002	<	<	<	<	<0.00020		<0.0001	<0.0001	0.0002	<0.0001	0.00048	<0.0002	<0.0002	<0.0002	<0.0002	<	<	<	<
Lead, total	mg/L					0.00149	0.00124	<0.00020	0.00134								0.00096														
Lithium, dissolved	mg/L	0.0338	0.0566	0.0585	0.0283					0.00137	0.00123	0.0017	0.00172	0.00193	0.00159	0.00183	0.00102		0.0341	0.0359	0.054	0.0477	0.0443	0.04	0.0428	0.0416	0.0404	0.0434	0.0472	0.0376	0.0441
Lithium, total	mg/L																0.00107														
Magnesium, dissolved	mg/L	88.9	109	97.4	111					28.1	30.3	30.3	30.9	32.5	30.2	31.9	17.5		292	310	308	263	297	257	249	271	263	270	289	261	279
Magnesium, total	mg/L					2.05	107	118	19.7								18.1														
Manganese, dissolved	mg/L	0.00147	0.00387	0.00442	0.00492					0.0194	0.0087	0.0101	0.00207	0.0182	0.00372	0.0144	<0.00020		0.242	0.0862	0.115	0.113	0.00199	0.113	0.108	0.109	0.111	0.122	0.129	0.121	0.128
Manganese, total	mg/L					0.00103	0.0225	0.36	0.017								0.00048														
Mercury, dissolved	mg/L	<	<	<	<					<0.00001	<0.00001	<0.00001	<	<	<	<	<0.000040		<0.00005	<0.00005	<0.00005	<0.00005	<0.000040	<0.00001	<0.00001	<0.00001	<0.00001	<	<	<	<
Mercury, total	mg/L					<0.000010	<0.000010	<0.000010	<0.000010								<0.000010														
Molybdenum, dissolved	mg/L	0.00114	0.00062	0.00036	0.00030					0.00073	0.00077	0.00075	0.00080	0.00073	0.00080	0.00070	0.00036		0.0006	0.0003	0.0003	0.0003	0.00047	0.00034	0.00036	0.00032	0.0003	0.00037	0.00035	0.00035	0.00036
Molybdenum, total	mg/L					0.0009	0.00083	0.00107	0.00022								0.0004														
Nickel, dissolved	mg/L	0.00161	0.00121	0.00076	0.00213					<0.0004	0.00052	<0.0004	<	<	0.00054	<	<0.00040		0.0163	0.0085	0.0112	0.0132	0.012	0.0121	0.0121	0.0131	0.0129	0.0135	0.0143	0.0123	0.0127
Nickel, total	mg/L					0.00076	0.0032	0.00347	0.00109								<0.00040														
Phosphorus, dissolved	mg/L	<	<	<	<					<0.05	<0.05	<0.05	<	<	<	<	<0.050		0.039	<0.020	0.03	<0.020	<0.050	<0.05	<0.05	<0.05	<0.05	<	<	<	<
Phosphorus, total	mg/L																<0.050														
Potassium, dissolved	mg/L	5.92	9.32	10.2	4.80					1.01	1.09	1.23	1.19	1.21	1.11	1.12	0.47		131	149	153	147	186	166	173	169	168	161	173	158	167
Potassium, total	mg/L					1.07	8.26	10.6	14.5								0.45														
Selenium, dissolved	mg/L	0.00058	<	<	<					<0.0005	<0.0005	<0.0005	<	<	<	<	<0.00050		<0.0003	<0.0003	<0.0003	0.0018	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<
Selenium, total	mg/L					<0.00050	<0.00050	<0.00050	<0.00050								<0.00050														
Silicon, dissolved	mg/L	7.9	7.4	6.8	8.6					4	3.1	3.5	3.8	3.6	3.6	3.9	3.3		10	10.1	22.4	8.42	12.8	12.2	13.5	12	11.6	12.9	12.3	11.6	13.1
Silicon, total	mg/L																3.3														
Silver, dissolved	mg/L	<	<	<	<					<0.00005	<0.00005	<0.00005	<	<	<	<	<0.000050		<0.00005	<0.00005	<0.00005	<0.00005	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<	<	<	<
Silver, total	mg/L																<0.000050														
Sodium, dissolved	mg/L	31.0	50.0	60.7	31.4					17.9	20.9	21.1	22.9	22.7	23.0	24.0	1.89		348	379	384	314	323	278	268	294	286	298	314	286	297
Sodium, total	mg/L					282	46.6	22.3	484								1.86														

	Sampling Location	DMW-4	DMW-4	DMW-4	DMW-4	DMW-5	DMW-568	DMW-571	DMW-606	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	Hospital Creek	Kicking Horse	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D
	Date Sampled	2021-03-31	2021-05-28	2021-08-25	2021-11-03	2018-06-25	2018-06-27	2018-06-27	2018-06-27	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-02	2018-12-04	2018-06-27	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2018-12-03	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-03
	Lab Sample ID	21D0069-06	21E3316-07	21H3053-06	21K0749-07	8062668-01	8062808-02	8062808-03	8062808-01	0051806-06	0082459-11	20K0317-10	21D0069-09	21E3316-10	21H3053-09	21K0749-10	8120636-06	8062805-03	K9E0816-03	K9K0184-01	K0B0397-02	K0F0788-04	8120636-01	0032091-08	0051806-09	0082459-09	20K0317-08	21D0069-07	21E3316-08	21H3053-07	21K0749-08
Strontium, dissolved	mg/L	3.30	4.45	5.72	1.77					0.329	0.343	0.342	0.351	0.324	0.346	0.339	0.174		2.53	2.21	2.04	2.04	1.75	1.54	1.6	1.68	1.57	1.57	1.61	1.51	1.54
Strontium, total	mg/L					0.0123	1.19	1.29	1.65								0.173														
Sulfur, dissolved	mg/L	66.3	84.5	88.6	42.2					8.1	10.5	8.6	9.4	8.7	12.4	9.5	10.8						292	252	224	253	227	243	220	218	223
Sulfur, total	mg/L																10.1														
Tellurium, dissolved	mg/L	<	<	<	<					<0.0005	<0.0005	<0.0005	<	<	<	<	<0.00050		<0.0002	<0.0002	<0.0002	<0.0002	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<
Tellurium, total	mg/L																<0.00050														
Thallium, dissolved	mg/L	<	<	<	<					<0.00002	<0.00002	<0.00002	<	<	<	<	<0.000020		0.00009	0.00006	0.00006	0.00007	0.000048	0.000055	0.000041	0.000063	0.000055	0.000064	0.000067	0.000064	0.000066
Thallium, total	mg/L																<0.000020														
Thorium, dissolved	mg/L	<	<	<	<					<0.0001	<0.0001	<0.0001	<	<	<	<	<0.00010			<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<
Thorium, total	mg/L																<0.00010														
Tin, dissolved	mg/L	<	<	<	<					<0.0002	<0.0002	<0.0002	<	<	<	<	<0.00020		0.0002	0.0002	0.0002	0.0002	0.00151	0.00063	0.00039	0.00095	<0.0002	0.00030	0.00078	0.00032	<
Tin, total	mg/L																<0.00020														
Titanium, dissolved	mg/L	<	<	<	<					<0.005	<0.005	<0.005	<	<	<	<	<0.0050		<0.005	0.006	0.017	0.008	<0.0050	<0.005	<0.005	<0.005	<0.005	<	<	<	<
Titanium, total	mg/L																<0.0050														
Tungsten, dissolved	mg/L	<	<	<	<					<0.001	<0.001	<0.001	<	<	<	<	<0.0010						<0.0010	<0.001	<0.001	<0.001	<0.001	<	<	<	<
Tungsten, total	mg/L																<0.0010														
Uranium, dissolved	mg/L	0.00201	0.00115	0.000562	0.000072					0.000648	0.000669	0.000721	0.000737	0.000683	0.000680	0.000684	0.000797		0.00761	0.00751	0.00639	0.00741	0.00793	0.00728	0.00718	0.00723	0.00759	0.00730	0.00754	0.00699	0.00704
Uranium, total	mg/L					0.00141	0.00174	0.00277	0.000176								0.000856														
Vanadium, dissolved	mg/L	<	<	<	<					<0.001	<0.001	<0.001	<	<	<	<	<0.0010		0.0019	0.002	0.016	0.0062	<0.0010	<0.001	<0.001	<0.001	<0.001	<	<	<	<
Vanadium, total	mg/L																<0.0010														
Zinc, dissolved	mg/L	0.0390	0.0286	0.0328	0.0075					<0.004	0.0102	<0.004	<	<	0.0167	<	<0.0040		0.0063	0.0036	0.0086	0.0047	0.0057	0.0062	0.0089	0.0049	<0.004	<	0.0058	0.0062	<
Zinc, total	mg/L					0.0153	0.0447	0.0671	1.27								0.0065														
Zirconium, dissolved	mg/L	0.00044	0.00070	0.00086	0.00186					<0.0001	<0.0001	<0.0001	<	<	<	<	<0.00010		0.0008	0.0002	0.0004	0.0002	0.00021	0.00019	0.00018	0.00021	0.00017	0.00019	0.00020	0.00016	0.00019
Zirconium, total	mg/L																<0.00010														
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	454	454	471	520	477	504	546	932	233	220	195	235	224	228	232	189						939	958	934	947	946	1030	978	976	1010
Alkalinity, Carbonate (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<	<	<	<	<1.0						<1.0	<1	<1	<1	<1	<	<	<	<
Alkalinity, Hydroxide (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<	<	<	<	<1.0						<1.0	<1	<1	<1	<1	<	<	<	<
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<	<	<	<	<1.0						<1.0	<1	<1	<1	<1	<	<	<	<
Alkalinity, Total (as CaCO3)	mg/L	454	454	471	520	477	504	546	932	233	220	195	235	224	228	232	189		1380	762	768	787	939	958	934	947	946	1030	978	976	1010
Ammonia, Total (as N)	mg/L	<	0.727	1.23	0.256					<0.05	<0.05	<0.05	<	<	<	<	<0.020		0.29	0.08	0.3	0.09	0.79	1.24	1.53	1.85	1.9	1.75	1.90	1.76	1.43
Bicarbonate (HCO3)	mg/L	553	554	574	635	582	615	667	1140	284	269	238	287	273	278	283	230						1150	1170	1140	1160	1150	1250	1190	1190	1230
BOD, 5-day	mg/L	<	<	<	9.0					<6.1	<6.1	<5.8	<	<	<	8.0								5.9	<6.1	<6.1	<5.8	<	9.0	13.8	11.0
Carbonate (CO3)	mg/L	<	<	<	<	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	<0.6	<	<	<	<	<0.600						<0.600	<0.6	<0.6	<0.6	<0.6	<	<	<	<
Chemical Oxygen Demand	mg/L	<	<	<	<					<20	<20	<20	<	<	<	<								98	96	42	49	34	48	75	51
Electrical Conductivity	µS/cm	983	1140	1220	1120	1020	1200	1190	2010	530	576	568	557	545	555	562	382		5110	4820	4790	4720	789	3820	3960	4050	4050	3510	3650	3820	3410
Hardness, Total (as CaCO3)	mg/L	547	644	569	648	9.13	671	726	167	237	246	264	261	263	251	270								1450	1420	1500	1510	1500	1600	1440	1530
Hydroxide (OH)	mg/L	<	<	<	<	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	<0.34	<	<	<	<	<0.340						<0.340	<0.34	<0.34	<0.34	<0.34	<	<	<	<
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	7.73	7.86	7.84	7.92	7.88	7.89	7.97	8.02	8.14	8.22	8.23	8.03	8.20	8.15	8.13	8.21		7.4	7.28	7.32	7.55	7.32	7.65	7.71	7.77	7.89	7.55	7.76	7.62	7.73
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L																<0.0020						0.163								
Total dissolved solids	mg/L	648	728	801	700					293	308	302	302	290	281	309								2730	2500	2720	2460	2410	2690	2470	2600
Total organic carbon	mg/L																														
Turbidity	NTU	0.20	0.15	0.35	5.69	0.11	2.38	1.96	42.6	5.04	0.74	1.75	3.01	0.73	3.10	0.89	0.83			9.1	1600	3500	176	25.2	46.5	5.82	13.2	6.59	0.46	8.51	91.4
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL					<1	<1	<1	<1																						
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,1-Dichloroethylene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,1,1-Trichloroethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,1,2-Trichloroethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,1,2,2-Tetrachloroethane	µg/L		<							<0.5	<0.5	<0.5		<										<0.5	<0.5	<0.5	<0.5		<		
1,2-Dibromoethane	mg/L																														
1,2-Dibromoethane	µg/L		<							<0.3	<0.3	<0.3		<										<0.3	<0.3	<0.3	<0.3		<		
1,2-Dichlorobenzene	µg/L		<							<0.5	<0.5	<0.5		<										<0.5	<0.5	<0.5	<0.5		<		
1,2-Dichloroethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,2-Dichloropropane	mg/L																														
1,2-Dichloropropane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,3-Dichlorobenzene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,3-Dichloropropene (cis + trans)	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
1,4-Dichlorobenzene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		

	Sampling Location	DMW-4	DMW-4	DMW-4	DMW-4	DMW-5	DMW-568	DMW-571	DMW-606	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	DMW20-01	Hospital Creek	Kicking Horse	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D	MW09-6D
	Date Sampled	2021-03-31	2021-05-28	2021-08-25	2021-11-03	2018-06-25	2018-06-27	2018-06-27	2018-06-27	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-28	2021-08-25	2021-11-02	2018-12-04	2018-06-27	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2018-12-03	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-03
	Lab Sample ID	21D0069-06	21E3316-07	21H3053-06	21K0749-07	8062668-01	8062808-02	8062808-03	8062808-01	0051806-06	0082459-11	20K0317-10	21D0069-09	21E3316-10	21H3053-09	21K0749-10	8120636-06	8062805-03	K9E0816-03	K9K0184-01	K0B0397-02	K0F0788-04	8120636-01	0032091-08	0051806-09	0082459-09	20K0317-08	21D0069-07	21E3316-08	21H3053-07	21K0749-08
Benzene	mg/L																													
Benzene	µg/L		<							<0.5	<0.5	<0.5		<										<0.5	<0.5	<0.5	<0.5		<		
Bromodichloromethane	mg/L																													
Bromodichloromethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Bromoform	mg/L																													
Bromoform	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Carbon tetrachloride	mg/L																													
Carbon tetrachloride	µg/L		<							<0.5	<0.5	<0.5		<										<0.5	<0.5	<0.5	<0.5		<		
Chlorobenzene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Chloroethane	mg/L																													
Chloroethane	µg/L		<							<2	<2	<2		<										<2	<2	<2	<2		<		
Chloroform	mg/L																													
Chloroform	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
cis-1,2-Dichloroethylene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Dibromochloromethane	mg/L																													
Dibromochloromethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Dibromomethane	mg/L																													
Dibromomethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Dichloromethane	mg/L																													
Dichloromethane	µg/L		<							<3	<3	<3		<										<3	<3	<3	<3		<		
Ethylbenzene	mg/L																													
Ethylbenzene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Methyl tert-butyl ether	mg/L																													
Methyl tert-butyl ether	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Styrene	mg/L																													
Styrene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Tetrachloroethylene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Toluene	mg/L																													
Toluene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
trans-1,2-Dichloroethylene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Trichloroethylene	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Trichlorofluoromethane	mg/L																													
Trichlorofluoromethane	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Vinyl chloride	mg/L																													
Vinyl chloride	µg/L		<							<1	<1	<1		<										<1	<1	<1	<1		<		
Xylenes (total)	µg/L		<							<2	<2	<2		<										<2	<2	<2	<2		<		
Polycyclic Aromatic Hydrocarbons (PAH)																														
1-Methylnaphthalene	µg/L		<							<0.1				<										<0.1					<		
2-Chloronaphthalene	µg/L		<							<0.1				<										<0.1					<		
2-Methylnaphthalene	µg/L		<							<0.1				<										<0.1					<		
Acenaphthene	µg/L		<							<0.05				<										<0.05					<		
Acenaphthylene	µg/L		<							<0.2				<										<0.2					<		
Acridine	µg/L		<							<0.05				<										<0.05					<		
Anthracene	µg/L		<							<0.01				<										<0.01					<		
Benz(a)anthracene	µg/L		<							<0.01				<										<0.01					<		
Benzo(a)pyrene	µg/L		<							<0.01				<										<0.01					<		
Benzo(b+j)fluoranthene	µg/L		<							<0.05				<										<0.05					<		
Benzo(g,h,i)perylene	µg/L		<							<0.05				<										<0.05					<		
Benzo(k)fluoranthene	µg/L		<							<0.05				<										<0.05					<		
Chrysene	µg/L		<							<0.05				<										<0.05					<		
Dibenz(a,h)anthracene	µg/L		<							<0.01				<										<0.01					<		
Fluoranthene	µg/L		<							<0.03				<										<0.03					<		
Fluorene	µg/L		<							<0.05				<										<0.05					<		
Indeno(1,2,3-cd)pyrene	µg/L		<							<0.05				<										<0.05					<		
Naphthalene	µg/L		<							<0.2				<										<0.2					<		
Phenanthrene	µg/L		<							<0.1				<										<0.1					<		
Pyrene	µg/L		<							<0.02				<										<0.02					<		
Quinoline	µg/L		<							<0.05				<										<0.05					<		
BCMOE Aggregate Hydrocarbons																														
EPHw10-19	µg/L									<250														<250							
EPHw19-32	µg/L									<250														<250							
HEPHw	µg/L									<250														<250							
LEPHw	µg/L									<250														<250							
VHw (6-10)	µg/L									<100	<100													<100	<100						
VPHw	µg/L									<100	<100													<100	<100						
VPHw	mg/L																													

Sampling Location		MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S
Date Sampled		2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-10	2019-05-29	2019-08-13
Lab Sample ID		K9E0816-02	K9K0184-02	K0B0397-01	K0F0788-03	K0K0729-01	K1E0403-03	K1H0536-02	K1J0685-01	2051369-03	2081484-01	2111131-01	3051354-01	3081378-01	3110772-01	4060249-06	4081094-06	4110161-06	5051773-06	5081710-04	5110693-03	6050336-01	6081698-01	6111141-03	7040434-03	7090074-01	7111886-01	8062674-01	8090975-01	9052874-01	9081278-01
Analyte	Unit																														
Field Parameters																															
Depth to Water	m	32.619	33	33.49	32.68	32.7	31.618	32.625	32.625	32.59	32.605	32.624	32.629	32.64	32.651	32.6	32.61	32.6	32.67	32.78	32.74	32.76	32.59	32.57		32.56	32.68	32.73	32.47	32.588	32.574
Dissolved oxygen	mg/L	2.21	1.07													0.28	1.56	1.07	1.36	1.74	0.95	0.46	0.43	1.98		1.17	0.6		3.51	2.06	1.75
Electrical Conductivity	µS/cm	4600	4700	4400	4430	6600	4200	3600	4000	4100	4600	480	3300	4900	3700	4240	4030	4610	4710	4550	4530	4700	4520	2270	4150	4120	3630	4260	4160	3759	3660
Elevation of Piezometric Surface	m	006																												885.687	885.701
Oxidation reduction potential	mV				73	173	175	67	167	135	210	164	231	228	-24	96	116	44	-7	-55	45	151	182	186	217	158		168	168	-4.3	-8.3
pH	pH unit	6.87	6.84	6.79	6.86	6.91	6.75	6.87	6.73	6.86	6.97	6.9	6.87	6.63	6.64	4.8	7.3	6.7	6.5	6.7	6	6.7	6.7	7	7.3	7	7	7.03	7.02	6.89	6.72
Temperature	°C	12.5	10.5	10.9	11.6	10	12.2	12.4	11.1	11.2	12.5	12.2	12.4	12.1	12.2	13	13	12.3	14.1	12.8	12.5	12.5	13.5	12.2	11.8	12.6	12	13.1	11.6	11.7	11.9
Anions																															
Bromide	mg/L																		0.47	1.09	1.48	0.13	2.81	1.14	0.88	2.16	2.84	0.38	<10.0		
Chloride	mg/L	674	604	713	667	732	556	632	621	599	587	709	669	662	662	650	491	529	594	549	627	605	529	497	470	480	417	416		398	388
Fluoride	mg/L									0.11	0.31	0.14	0.12	0.14	<0.10	<0.10	0.11	0.25	0.14	0.1	0.23	0.17	0.16	0.33	0.14	<0.10	0.51	0.27	0.28	0.15	0.18
Nitrate (as N)	mg/L	62	60	66.9	62.3	55	53.2	66.5	56.3		54.6	59.1	62.3	54.5	54.7	52.1	41.8	48.9	38	34.1	33.3	44.1	37.7	40.1	42.3	35.3	32.6	31.3		33.8	33.6
Nitrite (as N)	mg/L	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<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	0.016	5.7	<0.010	<0.010	<0.010	<0.010	<0.01	0.154
Sulfate	mg/L	781	824	925	861	781	606	688	701	719	787	893	814	910	884	858	784	879	950	878	905	903	851	867	799	757	663	628		677	698
Metals																															
Aluminum, dissolved	mg/L	0.012	<0.005	0.009	0.006	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	0.024	0.859	<0.005	<0.005	0.007	0.006	0.0067	<0.0050	0.927	0.0081	<0.005	<0.005
Aluminum, total	mg/L																														
Antimony, dissolved	mg/L	0.0006	0.0002	0.0006	0.0004	0.001	0.0006	0.0004	<0.0020	0.0002	0.0009	0.0009	0.0009	0.0011	0.001	0.0003	0.0005	0.0003	0.0005	0.0005	0.0004	0.0006	<0.0001	0.0002	0.0001	<0.00020	<0.00020	0.00116	0.00076	0.00042	<0.0002
Antimony, total	mg/L																														
Arsenic, dissolved	mg/L	0.0033	0.0028	0.0021	0.0044	0.0057	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	0.0034	<0.0005	<0.0005	0.0007	0.00055	<0.00050	0.00117	0.00067	<0.0005	<0.0005
Arsenic, total	mg/L																														
Barium, dissolved	mg/L	0.087	0.0566	0.0831	0.0676	0.074	0.0595	0.059	0.051	0.062	0.066	0.067	0.067	0.065	0.061	0.059	0.054	0.058	0.062	0.062	0.071	0.055	0.058	0.057	0.057	0.051	0.05	0.0748	0.0491	0.0515	0.051
Barium, total	mg/L																														
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	0.003	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001
Beryllium, total	mg/L																														
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001
Bismuth, total	mg/L																														
Boron, dissolved	mg/L	1.09	0.921	1.24	1.14	1.48	1.31	1.18	1.26	1.23	1.29	1.43	1.47	1.53	1.64	1.67	1.6	1.61	2.04	1.9	1.77	2.12	2.08	1.76	2.03	1.86	1.57	1.7	1.6	1.8	1.85
Boron, total	mg/L																														
Cadmium, dissolved	mg/L	0.00005	0.00003	0.00004	0.00002	0.00002	0.00018	0.00001	0.00002	<0.00001	<0.00001	0.00002	0.00002	0.00003	0.00001	<0.00001	<0.00001	0.00001	0.00002	<0.00001	0.00003	<0.00001	0.00002	0.00003	<0.00001	<0.000010	<0.000010	0.000036	<0.000010	<0.00001	<0.00001
Cadmium, total	mg/L																														
Calcium, dissolved	mg/L	220	192	215	191	212	194	177	177	180	182	193	218	235	231	218	217	209	199	197	208	202	179	168	163	180	167	186	148	170	163
Calcium, total	mg/L																														
Chromium, dissolved	mg/L	0.004	0.0082	0.0341	0.0117	0.0019	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	0.0006	0.0009	<0.0005	0.0066	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	0.0057	0.0008	<0.0005	0.0006	0.00063	<0.00050	0.00169	<0.00050	0.00093	<0.0005
Chromium, total	mg/L																														
Cobalt, dissolved	mg/L	0.00415	0.0022	0.00258	0.00228	0.0014	0.00124	0.00116	0.00093	0.00136	0.00114	0.00108	0.00148	0.00128	0.00127	0.001	0.00118	0.00133	0.00141	0.00149	0.00204	0.00198	0.00164	0.00183	0.00164	0.00161	0.00164	0.00212	0.00162	0.00163	0.00165
Cobalt, total	mg/L																														
Copper, dissolved	mg/L	0.0091	0.0056	0.0157	0.0077	0.0048	0.0019	0.0015	0.017	0.0009	0.0018	0.0016	0.0014	0.0021	0.0013	0.0169	0.0017	0.0018	0.0028	0.042	0.2	0.0065	0.0051	0.217	0.0028	0.00681	0.00211	0.00664	0.00312	0.00252	0.00199
Copper, total	mg/L																														
Iron, dissolved	mg/L	0.219	0.196	0.195	0.425	0.396	<0.010	<0.01	<0.01	<0.01	0.02	0.01	0.028	<0.010	0.105	<0.010	0.012	0.011	0.011	0.062	1.21	0.609	0.021	0.02	<0.010	0.013	<0.010	1.43	0.046	<0.01	<0.01
Iron, total	mg/L																														
Lead, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	0.0014	0.0039	<0.0001	<0.0001	<0.0001	<0.0001	<0.00020	<0.00020	0.00191	<0.00020	<0.0002	<0.0002
Lead, total	mg/L																														
Lithium, dissolved	mg/L	0.0305	0.0278	0.0574	0.0488	0.042	0.0377	0.0364	0.0335	0.0361	0.0382	0.0395	0.045	0.0479	0.0486	0.052	0.0497	0.0501	0.0483	0.0513	0.0462	0.0519	0.0396	0.0438	0.0484	0.0452	0.042	0.045	0.0403	0.0448	0.0434
Lithium, total	mg/L																														
Magnesium, dissolved	mg/L	299	314	310	269	286	285	259	246	308	308	321	349	378	347	351	335	329	332	339	322	327	331	309	302	298	267	259	274	276	268
Magnesium, total	mg/L																														
Manganese, dissolved	mg/L	0.518	0.212	0.168	0.191	0.108	0.0937	0.0894	0.0932	0.072	0.0683	0.0882	0.112	0.122	0.119	0.0908	0.121	0.132	0.0747	0.087	0.157	0.0791	0.0793	0.0731	0.0597	0.0887	0.0697	0.147	0.0262	0.0826	0.0868
Manganese, total	mg/L																														
Mercury, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00002	<0.00002	0.00005	<0.00002	0.00008	0.00004	0.00002	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.000010	0.000041	<0.000010	<0.000040	<0.00001	<0.00001
Mercury, total	mg/L																														
Molybdenum, dissolved	mg/L	0.0023	0.0009	0.0004	0.0006	0.0005	0.0003	0.0003	0.0036	0.0003	0.0018	0.0005	0.0006	0.0003	0.0007	0.0003	0.0003	0.0003	0.0004	0.0004	0.0037	0.0003	0.0003	0.0012	0.0003	0.00031	0.00032	0.00027	0.00033	0.00036	0.00033
Molybdenum, total	mg/L																														
Nickel, dissolved	mg/L	0.0148	0.0094	0.0115	0.0137	0.0154	0.007	0.0067	0.0067	0.0073	0.008	0.008	0.0155	0.0097	0.0176	0.0078	0.0097	0.0103	0.0093	0.0109	0.0119	0.0139	0.0114	0.0116	0.011	0.0113	0.0116	0.0122	0.0123	0.0116	0.012
Nickel, total	mg/L																														
Phosphorus, dissolved	mg/L	0.043	0.02	0.031	0.024	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.05	<0.050	<0.050	0.053	<0.050	<0.05	<0.05
Phosphorus, total	mg/L																														
Potassium, dissolved	mg/L	109	133	153	146	157	167	160	148	170	161	178	202	228	210	222	232	246	215	217	199	209	213	211	209	200	184	189	180	172	173
Potassium, total	mg/L																														
Selenium, dissolved	mg/L	<0.0003	<0.0003	<0.0003	0.0006	0.0018	0.0006	0.0006	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	0.0006	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005
Selenium, total	mg/L																														
Silicon, dissolved	mg/L	9.21	9.1	17.6	10.8	8.95	12.4	11.5	10.2	12.2	11.4	11.9	11.9	12.5	11.1	12	12.3	13.7	12.7	12.7	12.9	13.3	11.2	12.1	12.6	11.6	11.2	13.8	11.3	11.3	12
Silicon, total	mg/L																														
Silver, dissolved	mg/L	0.00005	<0.00005	<0.00005	0.00006	0.00014	<0.00005	0.00012	0.00009	<0.00005	<0.00005	0.00011	0.0001	<0.00005	0.00008	<0.00005	<0.00005	<0.00005	0.00007	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.00005
Silver, total	mg/L																														
Sodium, dissolved	mg/L	351	378	380	323	344	322	298	290	346	362	375	409	444	407	372	385	428	385	394	375	359	366	347	343	334	285	261	297	294	288
Sodium, total	mg/L																														

	Sampling Location	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S
	Date Sampled	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-10	2019-05-29	2019-08-13	
	Lab Sample ID	K9E0816-02	K9K0184-02	K0B0397-01	K0F0788-03	K0K0729-01	K1E0403-03	K1H0536-02	K1J0685-01	2051369-03	2081484-01	2111131-01	3051354-01	3081378-01	3110772-01	4060249-06	4081094-06	4110161-06	5051773-06	5081710-04	5110693-03	6050336-01	6081698-01	6111141-03	7040434-03	7090074-01	7111886-01	8062674-01	8090975-01	9052874-01	9081278-01	
Strontium, dissolved	mg/L	2.42	2.09	2.07	2.12	2.25	1.95	1.88	1.74	1.91	2	2.11	2.18	2.28	2.1	2.15	2.06	2.04	1.92	2.05	1.9	1.95	1.84	1.76	1.74	1.62	1.73	1.65	1.65	1.7	1.7	
Strontium, total	mg/L																															
Sulfur, dissolved	mg/L									266	298	339	359	405	366	337	340	398	343	362	342	281	336	312	284	268	273	266	257	263	271	
Sulfur, total	mg/L																															
Tellurium, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	
Tellurium, total	mg/L																															
Thallium, dissolved	mg/L	0.00008	0.00006	0.00007	0.00007	0.00007	0.00006	0.00005	0.00006	0.00005	0.00005	0.00022	0.00005	0.00009	0.00007	0.00005	0.00007	0.00007	0.00007	0.00006	0.00007	0.00006	0.00006	0.00006	0.00006	<0.000020	0.000058	0.00006	0.000057	0.000061	0.000062	
Thallium, total	mg/L																															
Thorium, dissolved	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	0.00067	<0.00010	<0.0001	<0.0001	
Thorium, total	mg/L																															
Tin, dissolved	mg/L	0.0003	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	0.0013	<0.0002	0.0003	0.0003	<0.0002	0.00026	0.00023	0.00031	<0.00020	0.00028	<0.0002	
Tin, total	mg/L																															
Titanium, dissolved	mg/L	<0.005	0.005	0.005	0.008	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.038	0.014	<0.005	<0.005	<0.005	<0.0050	<0.0050	0.0525	<0.0050	<0.005	<0.005	
Titanium, total	mg/L																															
Tungsten, dissolved	mg/L																										<0.0010	<0.0010	<0.0010	<0.001	<0.001	
Tungsten, total	mg/L																															
Uranium, dissolved	mg/L	0.00886	0.00757	0.007	0.00757	0.0079	0.00607	0.00602	0.00607	0.0058	0.00698	0.00686	0.00779	0.00823	0.00765	0.00721	0.00777	0.00802	0.00729	0.00779	0.00804	0.00863	0.00753	0.00717	0.00734	0.00769	0.00796	0.00707	0.00763	0.00748	0.00775	
Uranium, total	mg/L																															
Vanadium, dissolved	mg/L	0.0014	0.0026	0.0134	0.009	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.0010	<0.0010	0.0013	<0.0010	<0.001	<0.001	
Vanadium, total	mg/L																															
Zinc, dissolved	mg/L	0.0063	0.0029	0.0103	0.005	0.0044	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.009	0.005	0.005	0.006	0.027	0.067	0.009	0.035	0.199	0.005	0.034	<0.0040	0.0229	0.0044	0.0048	<0.004	
Zinc, total	mg/L																															
Zirconium, dissolved	mg/L	0.001	0.0005	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0003	0.0001	0.0002	0.0002	0.0001	0.0001	0.0004	0.0004	0.0002	0.0001	0.0008	0.0002	0.0001	0.0001	0.0002	0.00014	0.00012	0.00083	0.00019	0.00014	0.00015	
Zirconium, total	mg/L																															
General Parameters																																
Alkalinity, Bicarbonate (as CaCO3)	mg/L																					857	878	907	902	878	929	1050	1140	963	915	
Alkalinity, Carbonate (as CaCO3)	mg/L																					<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	
Alkalinity, Hydroxide (as CaCO3)	mg/L																					<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	
Alkalinity, Phenolphthalein (as CaCO3)	mg/L																					<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	
Alkalinity, Total (as CaCO3)	mg/L	1590	780	794	778	757	801	800	784	805	813	790	902	771	798	818	802	832	855	865	897	857	878	907	902	878	929	1050	1140	963	915	
Ammonia, Total (as N)	mg/L	0.54	0.26	0.44	0.26	0.13	0.2	0.18	0.16	0.133	0.274	0.406	0.432	0.462	0.518	0.39	0.588	0.408	0.644	0.614	0.899	1.4	1.21	0.94	1.19	0.935	1.17	1.26	1.12	1.42	1.18	
Bicarbonate (HCO3)	mg/L																					1050	1070	1110	1100	1070	1130	1280	1390	1180	1120	
BOD, 5-day	mg/L																															
Carbonate (CO3)	mg/L																					<1	<0.6	<0.6	<0.600	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	
Chemical Oxygen Demand	mg/L																															
Electrical Conductivity	µS/cm	5090	4840	4780	4680	4640	4250	4230	4320	4380	4670	5040	5020	5150	5220	4840	4750	4850	4640	4520	4570	4650	4480	4430	4350	4170	4190	4060	4070	3990	3990	
Hardness, Total (as CaCO3)	mg/L																													1560	1510	
Hydroxide (OH)	mg/L																					<1	<0.3	<0.3	<0.340	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	
Nitrate + Nitrite (as N)	mg/L																															
Nitrogen, Total Kjeldahl	mg/L																															
pH	pH unit	7.4	7.29	7.49	7.57	7.35	7.5	7.39	7.35	7.45	7.35	6.96	7.4	7.46	7.36	7.65	7.39	7.49	7.37	7.34	7.3	7.55	7.42	7.68	7.42	7.6	7.51	7.39	7.45	7.61	7.61	
Phosphorus, Total (as P)	mg/L																															
Phosphorus, Total Dissolved	mg/L																															
Total dissolved solids	mg/L																															
Total organic carbon	mg/L																															
Turbidity	NTU	2400	2900	830	1500	730	188	79	155	437	267	32.2	448	163	84.6	3.7	47.2	196	6.9	1.6	205	1.6	1.89	220	1.03	46.9	387	2210		203	248	
Microbiological Parameters																																
Coliforms, Fecal	CFU/100 mL																															
Coliforms, Fecal	MPN/100 mL																															
Coliforms, Fecal (MPN)	MPN/100 mL																															
Coliforms, Total	MPN/100 mL																															
Coliforms, Total (MPN)	MPN/100 mL																															
E. coli (MPN)	MPN/100 mL																															
E. coli, Total	CFU/100 mL																															
Volatile Organic Compounds (VOC)																																
1,1-Dichloroethane	µg/L																													<1		
1,1-Dichloroethylene	µg/L																													<1		
1,1,1-Trichloroethane	µg/L																													<1		
1,1,2-Trichloroethane	µg/L																													<1		
1,1,2,2-Tetrachloroethane	µg/L																													<0.5		
1,2-Dibromoethane	mg/L																								<0.0002				<0.0003			
1,2-Dibromoethane	µg/L																													<0.3		
1,2-Dichlorobenzene	µg/L																													<0.5		
1,2-Dichloroethane	µg/L																													<1		
1,2-Dichloropropane	mg/L																								<0.0010				<0.0010			
1,2-Dichloropropane	µg/L																													<1		
1,3-Dichlorobenzene	µg/L																													<1		
1,3-Dichloropropene (cis + trans)	µg/L																													<1		
1,4-Dichlorobenzene	µg/L																													<1		

	Sampling Location	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S
	Date Sampled	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-10	2019-05-29	2019-08-13
	Lab Sample ID	K9E0816-02	K9K0184-02	K0B0397-01	K0F0788-03	K0K0729-01	K1E0403-03	K1H0536-02	K1J0685-01	2051369-03	2081484-01	2111131-01	3051354-01	3081378-01	3110772-01	4060249-06	4081094-06	4110161-06	5051773-06	5081710-04	5110693-03	6050336-01	6081698-01	6111141-03	7040434-03	7090074-01	7111886-01	8062674-01	8090975-01	9052874-01	9081278-01
Benzene	mg/L																							<0.0005				<0.0005		
Benzene	µg/L																												<0.5	
Bromodichloromethane	mg/L																							<0.0010				<0.0010		
Bromodichloromethane	µg/L																												<1	
Bromoform	mg/L																							<0.0010				<0.0010		
Bromoform	µg/L																												<1	
Carbon tetrachloride	mg/L																							<0.0005				<0.0005		
Carbon tetrachloride	µg/L																												<0.5	
Chlorobenzene	µg/L																												<1	
Chloroethane	mg/L																							<0.0020				<0.0020		
Chloroethane	µg/L																												<2	
Chloroform	mg/L																							<0.0010				<0.0010		
Chloroform	µg/L																												<1	
cis-1,2-Dichloroethylene	µg/L																												<1	
Dibromochloromethane	mg/L																							<0.0010				<0.0010		
Dibromochloromethane	µg/L																												<1	
Dibromomethane	mg/L																							<0.0010				<0.0010		
Dibromomethane	µg/L																												<1	
Dichloromethane	mg/L																							<0.0030				<0.0030		
Dichloromethane	µg/L																												<3	
Ethylbenzene	mg/L																							<0.0010				<0.0010		
Ethylbenzene	µg/L																												<1	
Methyl tert-butyl ether	mg/L																							<0.0010				<0.0010		
Methyl tert-butyl ether	µg/L																												<1	
Styrene	mg/L																							<0.0010				<0.0010		
Styrene	µg/L																												<1	
Tetrachloroethylene	µg/L																												<1	
Toluene	mg/L																							0.0066				<0.0010		
Toluene	µg/L																												<1	
trans-1,2-Dichloroethylene	µg/L																												<1	
Trichloroethylene	µg/L																												<1	
Trichlorofluoromethane	mg/L																							<0.0010				<0.0010		
Trichlorofluoromethane	µg/L																												<1	
Vinyl chloride	mg/L																							<0.0010				<0.0010		
Vinyl chloride	µg/L																												<1	
Xylenes (total)	µg/L																												<2	
Polycyclic Aromatic Hydrocarbons (PAH)																																
1-Methylnaphthalene	µg/L																															
2-Chloronaphthalene	µg/L																															
2-Methylnaphthalene	µg/L																															
Acenaphthene	µg/L																															
Acenaphthylene	µg/L																															
Acridine	µg/L																															
Anthracene	µg/L																															
Benz(a)anthracene	µg/L																															
Benzo(a)pyrene	µg/L																															
Benzo(b+j)fluoranthene	µg/L																															
Benzo(g,h,i)perylene	µg/L																															
Benzo(k)fluoranthene	µg/L																															
Chrysene	µg/L																															
Dibenz(a,h)anthracene	µg/L																															
Fluoranthene	µg/L																															
Fluorene	µg/L																															
Indeno(1,2,3-cd)pyrene	µg/L																															
Naphthalene	µg/L																															
Phenanthrene	µg/L																															
Pyrene	µg/L																															
Quinoline	µg/L																															
BCMOE Aggregate Hydrocarbons																																
EPHw10-19	µg/L																															
EPHw19-32	µg/L																															
HEPHw	µg/L																															
LEPHw	µg/L																															
VHw (6-10)	µg/L																															
VPHw	µg/L																															
VPHw	mg/L																															

Sampling Location		MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8
Date Sampled		2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2010-11-16	2011-05-09	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-24
Lab Sample ID		N000444-01	0032091-01	0051806-01	0082459-01	20K0317-01	21D0069-01	21E3316-01	21H3053-01	21K0749-01	K0K0729-02	K1E0403-01	K1E0403-04	K1H0536-01	K1J0685-02	2051369-04	2081484-02	2111131-02	3051354-02	3081378-05	3110772-05	4060249-05	4081094-05	4110161-05	5051773-05	8090975-03	8120636-03	9052874-02	9081278-02	N000444-02	0032091-02
Analyte	Unit																														
Field Parameters																															
Depth to Water	m	32.566	32.495	32.531	32.535	32.584	533999999995	539000000005	564999999999	32.6	14.14	13.903		13.945	13.78	13.59	13.85	14.109	14.252	14.381	16.281	15.19	13.84	14.99	15.37	15.91	14.72	13.834	13.792	14.572	13.825
Dissolved oxygen	mg/L	2.56	1.45	2.26	2.07	3.68	3.05	1.81	1.87	1.98												7.43	7.85	8.3	7.05	10.98	9.05	7.3	9.5	9.28	5.92
Electrical Conductivity	µS/cm	3607	2955	3944	3864	3837	3847	3224	3627	3766	2100	2800		2700	3100	3200	3500	340	2200	3300	2700	2740	2770	3150	2960	2910	2700	2444	2850	2945	2177
Elevation of Piezometric Surface	m	885.709	884.562	884.526	884.522	884.473	.523000000005	.518000000005	.491999999995	.456999999999																		906.334	906.376	905.596	905.773
Oxidation reduction potential	mV	173	99	216.9	94	247.7	52.3	62.2	65.8	129	-138	2800		83	143	124	52	122	254	121	47	87	132	24	23	100	158	-17.1	42.1	175.3	-61.6
pH	pH unit	7.04	6.93	6.68	6.76	6.79	6.74	6.83	6.87	6.71	8.44	7.85		7.51	7.33	7.43	7.54	7.6	7.4	7.37	7.23	3.1	7.3	7.4	7.3	7.57	7.23	7.5	7.47	7.59	7.5
Temperature	°C	11	11.5	12.1	12.1	11.7	11.5	12.3	12.2	11.5	5.9	8.7		8.1	6.9	7.9	8.4	7.1	8.9	8.6	7.5	8.1	9.5	7.5	9.7	8.3	6.8	7.9	9.1	6.4	6.8
Anions																															
Bromide	mg/L		<0.1	0.34	1.1	1.86	<	1.53	0.83	1.37															<0.10	<0.10	<0.10				<0.1
Chloride	mg/L	391	380	398	379	371	357	392	375	359	523	663		844	873	834	888	988	762	820	815	672	672	700	666	509	580	605	651	736	629
Fluoride	mg/L	0.11	0.17	0.16	<0.1	<0.1	<	0.18	0.11	0.21						0.12	0.13	0.12	0.23	0.24	0.25	0.27	0.13	0.26	0.26	0.28	0.22	0.29	0.22	0.2	0.18
Nitrate (as N)	mg/L	31	30.6	43.4	33.9	34.2	34.9	37.7	33.6	33.2	0.22	<0.010		0.341	0.58	0.59	0.141	0.339	0.566	0.929	<0.010	0.206	1.11	0.723	0.695	0.94	0.778	0.942	0.89	1.22	0.858
Nitrite (as N)	mg/L	<0.01	<0.01	0.48	<0.01	<0.01	<	<	<	<	<0.01	<0.01		<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
Sulfate	mg/L	700	688	611	637	636	588	630	611	590	72.9	44.3		44.4	55.2	36.5	37.4	57.6	53.2	45.1	56.2	38.1	44.7	47.5	39.4	48.6	51.8	47.5	48.8	43.5	50.8
Metals																															
Aluminum, dissolved	mg/L	<0.005	<0.005	<0.005	0.481	<0.005	0.0406	<	0.0168	<	0.007		0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.01	<0.005	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005
Aluminum, total	mg/L																														
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.00021	0.00023	0.00022	<	<	<	0.0008	0.0015		0.001	<0.0020	0.0003	0.0016	0.0009	0.0007	0.0004	0.0007	0.0003	0.0003	0.0013	0.0019	0.00028	0.00029	<0.0002	<0.0002	<0.0002	<0.0002
Antimony, total	mg/L																														
Arsenic, dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.00073	<0.0005	<	<	<	<	0.0107	0.0149		0.0061	0.0031	0.0028	0.0039	0.0024	0.0024	0.0029	0.0018	0.0024	0.0042	0.0016	0.0039	0.002	0.00204	0.00215	0.0022	0.00353	0.00383
Arsenic, total	mg/L																														
Barium, dissolved	mg/L	0.047	0.0456	0.0551	0.0618	0.0509	0.0501	0.0505	0.0489	0.0478	0.125	0.257		0.246	0.195	0.255	0.271	0.25	0.227	0.239	0.257	0.192	0.235	0.242	0.212	0.174	0.199	0.19	0.208	0.223	0.178
Barium, total	mg/L																														
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Beryllium, total	mg/L																														
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth, total	mg/L																														
Boron, dissolved	mg/L	2.22	1.55	1.76	1.87	1.74	1.84	1.98	1.67	1.99	0.093	0.034		0.028	0.027	0.031	0.017	0.024	0.025	0.051	0.041	0.031	0.035	0.024	0.02	0.0602	0.0413	0.0476	0.0574	0.196	0.228
Boron, total	mg/L																														
Cadmium, dissolved	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000038	0.000011	0.000013	<	0.00009	0.00002		<0.00001	0.00008	<0.00001	<0.00001	0.00003	0.00004	0.00001	0.00002	0.00002	0.00003	0.00001	0.00004	<0.000010	<0.000010	<0.00001	0.000011	<0.00001	0.000011
Cadmium, total	mg/L																														
Calcium, dissolved	mg/L	156	153	161	159	167	155	152	144	153	73.8		90.6	103	100	102	107	110	107	120	128	103	116	116	101	84	93.3	94.8	100	103	84
Calcium, total	mg/L																														
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.00091	<0.0005	<	<	<	<	0.0025	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.00050	<0.00050	0.00104	<0.0005	<0.0005	0.00059
Chromium, total	mg/L																														
Cobalt, dissolved	mg/L	0.00157	0.00154	0.00157	0.00178	0.0017	0.00170	0.00175	0.00159	0.00171	0.00537	0.0198		0.00674	0.00078	0.00219	0.00342	0.00264	0.00126	0.00127	0.00151	0.00111	0.00024	0.00096	0.00012	<0.00010	<0.00010	0.00092	0.00039	<0.0001	0.0003
Cobalt, total	mg/L																														
Copper, dissolved	mg/L	0.00229	0.0022	0.00247	0.00279	0.00262	0.00230	0.00291	0.00206	0.00204	0.0031	<0.0002		<0.0002	0.0054	<0.0002	0.001	0.001	0.0014	<0.0002	0.0012	0.0011	0.004	0.0008	0.0051	0.00086	<0.00040	0.00076	0.00067	0.00146	0.00164
Copper, total	mg/L																														
Iron, dissolved	mg/L	<0.01	<0.01	<0.01	0.636	<0.01	0.103	<	0.029	<	0.347	3.01		1.87	0.02	0.12	0.15	0.03	0.011	0.038	0.012	0.111	0.015	0.049	0.015	<0.010	<0.010	0.013	0.011	<0.01	<0.01
Iron, total	mg/L																														
Lead, dissolved	mg/L	0.00096	<0.0002	<0.0002	0.00087	<0.0002	<	<	<	<	0.0002	<0.0001		<0.0001	0.0002	<0.0001	<0.0001	0.0007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00020	0.00056	<0.0002	<0.0002	<0.0002	<0.0002
Lead, total	mg/L																														
Lithium, dissolved	mg/L	0.044	0.0401	0.0449	0.0405	0.0404	0.0441	0.0430	0.0370	0.0437	0.02		0.0248	0.0224	0.0193	0.0182	0.019	0.019	0.0203	0.022	0.0233	0.0223	0.0219	0.0212	0.0188	0.0198	0.0218	0.021	0.0217	0.0227	0.0185
Lithium, total	mg/L																														
Magnesium, dissolved	mg/L	292	255	254	268	268	270	277	263	276	96.5	160		144	130	139	129	139	139	151	155	132	132	130	117	120	128	115	125	125	103
Magnesium, total	mg/L																														
Manganese, dissolved	mg/L	0.0864	0.0789	0.0685	0.103	0.0968	0.0867	0.0891	0.104	0.105	0.219	0.492		0.349	0.035	0.0785	0.0546	0.172	0.0896	0.0336	0.0871	0.038	0.0049	0.027	0.0031	0.00139	0.00063	0.0174	0.0069	0.00106	0.00914
Manganese, total	mg/L																														
Mercury, dissolved	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<	<	<	<	<0.00005		0.00002	0.00002	0.00008	0.00003	0.00006	0.00003	0.00002	<0.00002	<0.00002	<0.00002	0.00002	0.00002	<0.00002	<0.000040	<0.000040	<0.00001	<0.00001	<0.00001	<0.00001
Mercury, total	mg/L																														
Molybdenum, dissolved	mg/L	0.00029	0.00032	0.00033	0.00018	0.00034	0.00032	0.00034	0.00035	0.00035	0.0149	0.0046		0.0019	0.0046	0.0009	0.0024	0.0011	0.0007	0.0004	0.0007	0.0006	0.0004	0.0007	0.0006	0.00072	0.00061	0.00053	0.00056	0.00035	0.00131
Molybdenum, total	mg/L																														
Nickel, dissolved	mg/L	0.0115	0.0111	0.0114	0.0125	0.0125	0.0125	0.0123	0.0120	0.0123	0.0175	0.0277		0.0093	0.0099	0.006	0.0087	0.0077	0.0053	0.0048	0.006	0.0045	0.0032	0.0039	0.0007	0.00298	0.00318	0.00309	0.00287	0.00098	0.00105
Nickel, total	mg/L																														
Phosphorus, dissolved	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<	<	<	<	<0.020	<0.020		<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05
Phosphorus, total	mg/L																														
Potassium, dissolved	mg/L	168	159	175	161	168	154	160	154	165	8.58	6.79		6.33	6.51	7.89	7.23	6.55	6.53	6.9	6.64	6.05	6.82	6.66	6.34	5.61	5.93	5.65	5.87	6.26	5.83
Potassium, total	mg/L																														
Selenium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<	0.0005	0.0007		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005
Selenium, total	mg/L																														
Silicon, dissolved	mg/L	13.2	12	13.8	12.5	11.8	13.6	12.1	11.6	13.1	4.21	10.1		9	8.1	10.3	9.6	9.7	9.4	9.6	9.1	9.2	9.9	10.4	10.4	8.8	9.8	8.6	9.2	10.6	8.9
Silicon, total	mg/L																														
Silver, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<	<	<	<	<0.00005	0.00007		0.00016	0.00006	<0.00005	<0.00005	0.00008	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005
Silver, total	mg/L																														
Sodium, dissolved	mg/L	306	266	263	275	286	291	292	280	291	178	312		341	305	436	450	390	359	386	392	356	399	436	365	316	370	310	334	431	303
Sodium, total	mg/L																														

	Sampling Location	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8
	Date Sampled	2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2010-11-16	2011-05-09	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-24
	Lab Sample ID	N000444-01	0032091-01	0051806-01	0082459-01	20K0317-01	21D0069-01	21E3316-01	21H3053-01	21K0749-01	K0K0729-02	K1E0403-01	K1E0403-04	K1H0536-01	K1J0685-02	2051369-04	2081484-02	2111131-02	3051354-02	3081378-05	3110772-05	4060249-05	4081094-05	4110161-05	5051773-05	8090975-03	8120636-03	9052874-02	9081278-02	N000444-02	0032091-02
Strontium, dissolved	mg/L	1.54	1.52	1.69	1.67	1.59	1.57	1.56	1.52	1.53	1.03	1.66		1.6	1.49	1.53	1.6	1.64	1.52	1.61	1.64	1.43	1.52	1.56	1.35	1.3	1.44	1.29	1.45	1.31	1.18
Strontium, total	mg/L																														
Sulfur, dissolved	mg/L	277	246	231	248	234	249	218	215	227						19	17	23	21	20	18	18	17	20	16	17.2	20.2	17.1	19.1	17.5	18.8
Sulfur, total	mg/L																														
Tellurium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005
Tellurium, total	mg/L																														
Thallium, dissolved	mg/L	0.000061	0.000055	0.000037	0.000057	0.000054	0.000059	0.000064	0.000056	0.000056	<0.00002	<0.00002		<0.00002	0.00011	<0.00002	<0.00002	0.00003	0.00007	<0.00002	0.00008	<0.00002	0.00004	<0.00002	0.00002	0.000074	0.000062	<0.00002	0.000032	<0.00002	<0.00002
Thallium, total	mg/L																														
Thorium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.00032	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Thorium, total	mg/L																														
Tin, dissolved	mg/L	<0.0002	<0.0002	0.00021	0.00023	<0.0002	0.00022	0.00023	<	<	0.001	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020	<0.0002	<0.0002	0.00029	0.0003
Tin, total	mg/L																														
Titanium, dissolved	mg/L	<0.005	<0.005	<0.005	0.0318	<0.005	<	<	<	<	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005
Titanium, total	mg/L																														
Tungsten, dissolved	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<	<	<	<																0.006	0.0064	0.0043	0.0035	0.0012	0.0119
Tungsten, total	mg/L																														
Uranium, dissolved	mg/L	0.00734	0.00725	0.00737	0.00687	0.00755	0.00733	0.00708	0.00685	0.00698	0.00216		0.00166	0.00196	0.00205	0.00173	0.00206	0.00206	0.00213	0.00218	0.00223	0.00205	0.0021	0.00227	0.00193	0.00231	0.00238	0.0023	0.00226	0.00218	0.00192
Uranium, total	mg/L																														
Vanadium, dissolved	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<	<	<	<	<0.0010	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Vanadium, total	mg/L																														
Zinc, dissolved	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<	<	<	<	0.0037	<0.0040		<0.004	0.007	0.008	0.008	<0.004	0.011	<0.004	<0.004	<0.004	0.005	0.012	0.008	<0.0040	<0.0040	<0.004	<0.004	<0.004	0.0055
Zinc, total	mg/L																														
Zirconium, dissolved	mg/L	0.00016	0.00015	0.00016	0.00051	0.00016	0.00019	0.00018	0.00017	0.00017	0.0003	0.0002		0.0001	0.0002	0.0001	0.0002	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0025	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Zirconium, total	mg/L																														
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	1000	975	944	949	942	1050	1000	972	1020																797	1100	544	500	518	530
Alkalinity, Carbonate (as CaCO3)	mg/L	<1	<1	<1	<1	<1	<	<	<	<																<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<1	<1	<1	<1	<1	<	<	<	<																<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<1	<1	<1	<1	<1	<	<	<	<																<1.0	<1.0	<1	<1	<1	<1
Alkalinity, Total (as CaCO3)	mg/L	1000	975	944	949	942	1050	1000	972	1020	425	459		462	446	515	768	731	619	516	598	514	476	592	492	797	1100	544	500	518	530
Ammonia, Total (as N)	mg/L	1.14	1.32	1.53	1.71	1.61	1.76	1.86	1.78	1.60	0.05	0.04		0.04	0.05	<0.020	0.1	0.026	0.034	0.02	1.24	0.118	0.023	0.03	<0.020	0.052	0.061	0.116	0.118	0.075	0.099
Bicarbonate (HCO3)	mg/L	1220	1190	1150	1160	1150	1280	1220	1190	1250																972	1340	663	610	632	646
BOD, 5-day	mg/L		<5.1	<6.1	<6.1	<5.8	<	<	<	10.0																					15.4
Carbonate (CO3)	mg/L	<0.6	<0.6	<0.6	<0.6	<0.6	<	<	<	<																<0.600	<0.600	<0.6	<0.6	<0.6	<0.6
Chemical Oxygen Demand	mg/L		29	41	36	46	44	32	50	31																					33
Electrical Conductivity	µS/cm	3920	3990	3910	3940	3970	3580	3280	3710	3450	2250		2870	3150	3060	3340	3410	3500	3070	3300	3380	2940	3180	3310	2890	2770	2.2	2670	2990	3160	2700
Hardness, Total (as CaCO3)	mg/L	1590	1430	1450	1500	1520	1500	1520	1440	1520																		712	767	772	634
Hydroxide (OH)	mg/L	<0.34	<0.34	<0.34	<0.34	<0.34	<	<	<	<																<0.340	<0.340	<0.34	<0.34	<0.34	<0.34
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	7.61	7.69	7.73	7.71	7.89	7.52	7.82	7.54	7.67	7.97		7.95	7.76	7.78	7.85	7.74	6.95	7.78	7.86	7.86	7.94	7.74	7.82	7.81	7.83	7.81	8.04	7.91	8.04	7.95
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L																										<0.0020				
Total dissolved solids	mg/L		2630	2590	2730	2550	2580	2670	2390	2470																					1550
Total organic carbon	mg/L																														
Turbidity	NTU	77.2	37.9	19	60.4	170	220	57.2	141	356	87	641			71.1		2350	1910	620	664	1220	292	186	1180	122		3750	294	3080	671	41.5
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,1-Dichloroethylene	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,1,2-Trichloroethane	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5		<																				<0.5		<0.5	<0.5
1,2-Dibromoethane	mg/L																									<0.0003					
1,2-Dibromoethane	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3		<																				<0.3		<0.3	<0.3
1,2-Dichlorobenzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5		<																				<0.5		<0.5	<0.5
1,2-Dichloroethane	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,2-Dichloropropane	mg/L																									<0.0010					
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,3-Dichloropropene (cis + trans)	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1
1,4-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1		<																				<1		<1	<1

	Sampling Location	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW09-6S	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8
	Date Sampled	2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2010-11-16	2011-05-09	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-08-20	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-24
	Lab Sample ID	N000444-01	0032091-01	0051806-01	0082459-01	20K0317-01	21D0069-01	21E3316-01	21H3053-01	21K0749-01	K0K0729-02	K1E0403-01	K1E0403-04	K1H0536-01	K1J0685-02	2051369-04	2081484-02	2111131-02	3051354-02	3081378-05	3110772-05	4060249-05	4081094-05	4110161-05	5051773-05	8090975-03	8120636-03	9052874-02	9081278-02	N000444-02	0032091-02
Benzene	mg/L																								<0.0005					
Benzene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5		<																			<0.5		<0.5	<0.5
Bromodichloromethane	mg/L																								<0.0010					
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Bromoform	mg/L																								<0.0010					
Bromoform	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Carbon tetrachloride	mg/L																								<0.0005					
Carbon tetrachloride	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5		<																			<0.5		<0.5	<0.5
Chlorobenzene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Chloroethane	mg/L																								<0.0020					
Chloroethane	µg/L	<2	<2	<2	<2	<2		<																			<2		<2	<2
Chloroform	mg/L																								<0.0010					
Chloroform	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
cis-1,2-Dichloroethylene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Dibromochloromethane	mg/L																								<0.0010					
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Dibromomethane	mg/L																								<0.0010					
Dibromomethane	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Dichloromethane	mg/L																								<0.0030					
Dichloromethane	µg/L	<3	<3	<3	<3	<3		<																			<3		<3	<3
Ethylbenzene	mg/L																								<0.0010					
Ethylbenzene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Methyl tert-butyl ether	mg/L																								<0.0010					
Methyl tert-butyl ether	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Styrene	mg/L																								<0.0010					
Styrene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Tetrachloroethylene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Toluene	mg/L																								0.0602					
Toluene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
trans-1,2-Dichloroethylene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Trichloroethylene	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Trichlorofluoromethane	mg/L																								<0.0010					
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Vinyl chloride	mg/L																								<0.0010					
Vinyl chloride	µg/L	<1	<1	<1	<1	<1		<																			<1		<1	<1
Xylenes (total)	µg/L	<2	<2	<2	<2	<2		<																			<2		<2	<2
Polycyclic Aromatic Hydrocarbons (PAH)																														
1-Methylnaphthalene	µg/L			<0.1				<																						
2-Chloronaphthalene	µg/L			<0.1				<																						
2-Methylnaphthalene	µg/L			<0.1				<																						
Acenaphthene	µg/L			<0.05				<																						
Acenaphthylene	µg/L			<0.2				<																						
Acridine	µg/L			<0.05				<																						
Anthracene	µg/L			<0.01				<																						
Benz(a)anthracene	µg/L			<0.01				<																						
Benzo(a)pyrene	µg/L			<0.01				<																						
Benzo(b+j)fluoranthene	µg/L			<0.05				<																						
Benzo(g,h,i)perylene	µg/L			<0.05				<																						
Benzo(k)fluoranthene	µg/L			<0.05				<																						
Chrysene	µg/L			<0.05				<																						
Dibenz(a,h)anthracene	µg/L			<0.01				<																						
Fluoranthene	µg/L			<0.03				<																						
Fluorene	µg/L			<0.05				<																						
Indeno(1,2,3-cd)pyrene	µg/L			<0.05				<																						
Naphthalene	µg/L			<0.2				<																						
Phenanthrene	µg/L			<0.1				<																						
Pyrene	µg/L			<0.02				<																						
Quinoline	µg/L			<0.05				<																						
BCMOE Aggregate Hydrocarbons																														
EPHw10-19	µg/L			<250																										
EPHw19-32	µg/L			<250																										
HEPHw	µg/L			<250																										
LEPHw	µg/L			<250																										
VHw (6-10)	µg/L			<100	<100																									
VPHw	µg/L			<100	<100																									
VPHw	mg/L																													

Sampling Location		MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10
Date Sampled		2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2015-11-09	2016-05-02	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-04	2019-05-29	2019-08-13	2019-10-29	2018-06-27	2018-09-10	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-25	2020-11-03
Lab Sample ID		0051806-02	0082459-02	20K0317-02	21D0069-02	21E3316-02	21H3053-02	21K0749-02	5110701-01	6050110-01	6081657-01	6111045-01	7040391-01	7082760-01	7112039-01	8062805-01	8090971-01	8120631-01	9052867-01	9081228-01	N000451-01	8062805-02	8090975-02	8120636-02	9052874-03	9081278-03	N000444-03	0032091-03	0051806-03	0082459-03	20K0317-03
Analyte	Unit																														
Field Parameters																															
Depth to Water	m	13.757	13.872	13.948	5649999999998	74000000000	346999999995	14	11.04		11.475		10.955	10.425	11.24	9.54	10.81	11.29					28.31	28.24	28.085	28.075	28.11	27.905	27.975	28.045	28.059
Dissolved oxygen	mg/L	10.89	9.53	7.45	130000000000	6.16	7.4	8.1	1.42	0.3	0.62	0.35		0.89	1.28		1.84	1.02					2.91	1.08	3.9	5	4.4	1.81	4.64	6.7	2.54
Electrical Conductivity	µS/cm	2635	2739	2794	2843	2160	2635	2837	1056	1062	1033	1031	1047	1122	1107	1050	1111	973				2480	2730	2380	2380	2462	2497	2195	2446	2637	3174
Elevation of Piezometric Surface	m	905.841	905.726	905.65	.93299999995	.72399999995	.65099999995	.59799999999996																	888.228	888.238	888.203	886.932	886.862	886.792	886.778
Oxidation reduction potential	mV	171.9	168.3	244.1	45.9	54.1	16.7	89	50	-6	177	162	229	101		198	41	30				222	126	128	-4.5	3.6	148.5	80.1	164.9	147.9	277.1
pH	pH unit	7.28	7.34	7.01	7.68	7.62	7.59	7.17	6.5	7.1	7.1	7.3	7.6	7.2	7.1	7.39	7.73	7.08				7.62	7.35	6.92	7.3	7.15	7.32	7.18	7.01	7.11	6.96
Temperature	°C	8.8	8.5	7.04	6.8	7.6	7.8	6.8	9.3	9.2	9.8	8.8	8.7	9.5	8.7	9.3	9.2	8.8				13.8	13.9	12.4	14.6	13.3	11.1	9.7	13.8	13.9	12.9
Anions																															
Bromide	mg/L	<0.1	<0.1	<0.1	<	<	<	<	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	0.11	<0.10	<0.10	<0.10	<0.10	0.15	<0.10	<0.10	<1.00	0.64				<0.1	0.15	0.34	0.62
Chloride	mg/L	555	597	558	583	600	570	612	125	117	107	94.5	125	125	116	105	114	113	113	113	116	314	313	343	299	337	348	356	342	350	376
Fluoride	mg/L	0.27	0.2	<0.1	0.19	0.21	0.24	0.25	<0.10	<0.10	<0.10	<0.10	0.16	0.14	<0.10	<0.10	0.12	<0.10	<0.10	<0.10	<0.10	0.32	0.29	0.2	0.14	0.13	<0.1	<0.1	0.31	0.14	<0.1
Nitrate (as N)	mg/L	1.19	1.01	1.08	0.962	0.080	1.31	1.29	1.19	1.19	1.05	0.803	0.807	1.18	1.15	0.892	0.954	0.855	0.92	1.03	0.906	12.9	21.7	15.7	21	30	34.7	40	21.3	24.4	67.9
Nitrite (as N)	mg/L	0.478	<0.01	<0.01	<	<	<	<	<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	0.134	0.02	<0.01	0.131	<0.01	<0.01	0.388	<0.01	<0.01
Sulfate	mg/L	44.9	51.4	49.7	47.4	52.6	49.4	47.6	45.8	43.2	45.1	42.3	46.5	46.6	47.3	43.5	46	44.6	43.5	43.5	44.2	89.5	89	76.5	76.9	73.5	74.2	71.4	71.1	68.2	78.9
Metals																															
Aluminum, dissolved	mg/L	<0.005	<0.005	<0.005	0.0052	0.0157	<	<	0.008	<0.005		0.007	<0.005			0.0154	<0.0050	0.0081	<0.0050	<0.0050	<0.0050	0.0126	0.0124	<0.0050	<0.005	<0.005	<0.005	<0.005	0.0102	<0.005	<0.005
Aluminum, total	mg/L								0.455	0.069		0.122	0.047				0.0181	0.0297	2.53	7.7	0.759											
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<	<	<	<	<0.0001	0.0004		0.0001	<0.0001			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0007	0.00072	0.00036	0.0003	<0.0002	0.00026	<0.0002	<0.0002	0.00021	0.0002
Antimony, total	mg/L								<0.0001	0.0004		0.0001	<0.0001				<0.00020	<0.00020	<0.00020	0.00032	<0.00020											
Arsenic, dissolved	mg/L	0.00439	0.00518	0.00432	0.00532	0.00452	0.00451	0.00464	<0.0005	<0.0005		<0.0005	<0.0005			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00269	0.00212	0.00161	0.00164	0.00133	0.00143	0.00104	0.00107	0.00133	0.0014
Arsenic, total	mg/L								<0.0005	<0.0005		<0.0005	<0.0005				<0.00050	<0.00050	0.00184	0.00569	0.0007											
Barium, dissolved	mg/L	0.2	0.196	0.2	0.183	0.180	0.192	0.205	0.154	0.156		0.157	0.165			0.152	0.159	0.161	0.162	0.166	0.172	0.14	0.167	0.227	0.303	0.316	0.296	0.303	0.277	0.311	0.353
Barium, total	mg/L								0.184	0.165		0.171	0.178				0.169	0.165	0.219	0.285	0.191											
Beryllium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Beryllium, total	mg/L								0.0001	<0.0001		0.0002	<0.0001				<0.00010	<0.00010	0.00017	0.00044	<0.00010											
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth, total	mg/L								<0.0001	<0.0001		<0.0001	<0.0001				<0.00010	<0.00010	<0.00010	0.00012	<0.00010											
Boron, dissolved	mg/L	0.256	<0.05	<0.05	0.157	0.0503	0.0574	0.166	0.029	0.033		0.031	0.036			0.0432	0.0222	0.0291	0.0264	0.026	0.0236	0.187	0.465	0.452	0.418	0.408	0.61	0.43	0.223	0.401	0.708
Boron, total	mg/L								0.028	0.034		0.033	0.04				0.0322	0.023	0.0306	0.0286	0.0251											
Cadmium, dissolved	mg/L	<0.00001	<0.00001	0.000012	0.000026	0.000019	<	<	<0.00001	<0.00001		0.00001	<0.00001			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000032	0.00001	0.000045	0.000036	0.000032	0.000039	0.000028	0.00002	0.000023	0.000039
Cadmium, total	mg/L								<0.00001	<0.00001		<0.00001	<0.00001				<0.000010	<0.000010	0.000029	0.000055	<0.000010											
Calcium, dissolved	mg/L	94.2	86.2	102	88.3	88.1	86.3	97.3	97.5	88.1		86.4	92			91.9	78.3	88	94.1	90.8	93.6	136	97.8	86.3	94.5	92.5	92.9	99	72.7	94.7	122
Calcium, total	mg/L								118	89.6		92.2	102				91.8	89.2	119	193	104											
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.00070	0.00051	<	0.00050	<0.0005	0.0018		<0.0005	<0.0005			<0.00050	<0.00050	0.00194	0.0008	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00106	0.00056	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium, total	mg/L								0.0018	<0.0005		<0.0005	<0.0005				<0.00050	<0.00050	0.00692	0.0167	0.00221											
Cobalt, dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.00012	0.00013	<	0.00017	0.00007	0.00019		0.00006	<0.00005			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00273	0.00322	0.00402	0.00565	0.00559	0.00423	0.00473	0.00468	0.00523	0.005
Cobalt, total	mg/L								0.00062	0.00022		0.00016	0.00006				<0.00010	<0.00010	0.00341	0.0105	0.00118											
Copper, dissolved	mg/L	0.00126	0.00119	0.00125	0.00130	0.00146	0.00094	0.00293	0.0019	0.0008		0.003	<0.0002			0.00052	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00242	0.00263	0.00297	0.0019	0.00125	0.00186	0.00155	0.0011	0.00121	0.00923
Copper, total	mg/L								0.0281	0.0024		0.0181	0.0004				0.00092	<0.00040	0.005	0.0172	0.00165											
Iron, dissolved	mg/L	<0.01	<0.01	<0.01	<	0.014	<	<	0.019	0.279		<0.010	<0.010			0.034	<0.010	0.013	<0.010	<0.010	<0.010	0.038	0.011	<0.010	<0.01	<0.01	<0.01	<0.01	0.049	<0.01	<0.01
Iron, total	mg/L								1.07	0.36		0.27	0.06				0.039	0.047	5.6	20.4	2.2											
Lead, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Lead, total	mg/L								0.0008	<0.0001		0.0002	<0.0001				<0.00020	0.00048	0.00327	0.0115	0.0011											
Lithium, dissolved	mg/L	0.0199	0.0193	0.0202	0.0216	0.0226	0.0193	0.0227	0.0049	0.0058		0.0047	0.0054			0.00523	0.00539	0.00563	0.00585	0.00553	0.00593	0.0294	0.026	0.0232	0.0239	0.022	0.0243	0.0224	0.015	0.021	0.0249
Lithium, total	mg/L								0.0061	0.0059		0.005	0.0052				0.00573	0.00578	0.00989	0.0172	0.00677											
Magnesium, dissolved	mg/L	105	118	124	117	124	121	126	48.5	45.6		45.3	48.7			45.6	46.8	50.1	46.5	45.9	51.8	138	188	204	193	192	204	195	149	202	204
Magnesium, total	mg/L								57.5	46.4		47.1	49				46.8	51.1	51.9	61.9	49.3											
Manganese, dissolved	mg/L	0.00098	0.0009	0.00037	0.00271	0.00160	0.00046	0.00285	0.0043	0.0012		0.0013	0.0003			0.00291	<0.00020	0.00593	0.0011	0.00023	<0.00020	0.168	0.126	0.202	0.231	0.195	0.215	0.174	0.149	0.167	0.198
Manganese, total	mg/L								0.0238	0.0024		0.0046	0.0013				0.0017	0.00142	0.183	0.515	0.0782											
Mercury, dissolved	mg/L	<0.00001	<0.00001	<0.00001	<	<	<	<	<0.00002	<0.00002		<0.00002	<0.00002			<0.000010	<0.000040	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000040	<0.000040	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Mercury, total	mg/L								<0.00002	<0.00002		<0.00002	<0.00002				<0.000010	<0.000040	<0.000010	<0.000010	<0.000010											
Molybdenum, dissolved	mg/L	0.00069	0.00063	0.00043	0.00073	0.00065	0.00048	0.00041	0.0003	0.0003		0.0003	0.0002			0.00032	0.00023	0.00024	0.00023	0.00022	0.00022	0.00287	0.00257	0.0019	0.00152	0.00141	0.00127	0.00108	0.00076	0.00111	0.00109
Molybdenum, total	mg/L								0.0008	0.0003		0.0004	0.0002				0.00022	0.00023	0.00049	0.00123	0.00029											
Nickel, dissolved	mg/L	0.00089	0.00095	0.00136	0.00257	0.00144	0.00139	0.00132	0.0006	0.0017		0.0005	0.0003			<0.00040	<0.00040	0.00054	<0.00040	<0.00040	<0.00040	0.0355	0.0388	0.0438	0.0442	0.0447	0.0409	0.0401	0.0338	0.0434	0.0447
Nickel, total	mg/L								0.0003	0.0024		0.0005	0.0004				<0.00040	<0.00040	0.00548	0.018	0.00202											
Phosphorus, dissolved	mg/L	<0.05	<0.05	<0.05	<	<	<	<	<0.02	<0.02		<0.02	<0.05			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus, total	mg/L								<0.02	<0.02		0.04	<0.05				<0.050	<0.050	0.182	0.417	<0.050											
Potassium, dissolved	mg/L	5.77	5.67	6.26	5.83	5.87	5.44	5.73	2.42	2.33		2.35	2.32			2.21	2.1	2.14	2.14	2.18	2.31	13.7	20	19.9	20.3	24.4	25.7	28.9	16.4	27.7	45.4
Potassium, total	mg/L								2.67	2.23		2.31	2.31				2.11	2.15	2.57	3.22	2.41											
Selenium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<	<	<	<	<0.0005	<0.0005		<0.0005	<0.0005			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00109	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium, total	mg/L								<0.0005	<0.0005		<0.0005	<0.0005				<0.00050	<0.00050	<0.00050	<0.00050	<0.00050											
Silicon, dissolved	mg/L	10.8	9.1	9.1	10.8	9.7	9.0	10.3	4.8	5.3		4	4.9			4.5	4.6	5	4.4	4.7	5	8.5	10.2	10.9	9.5	9.9	11.1	10.4	7.3	9.7	10.5
Silicon, total	mg/L								6.3	5.4		5.2	5				4.9	5.1	9.4	14.5	6.3											
Silver, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<	<	<	<	<0.00005	<0.00005		<0.00005	<0.00005			<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver, total	mg/L								0.00005	<0.00005		<0.00005	<0.00005				<0.000050	<0.000050	<0.000050	<0.000050	<0.000050											
Sodium, dissolved	mg/L	296	324	334	330	314	315	350	61	64		55.4	61.1			56.5	58	63	60.2	58.8	67.6	168	185	190	182	183	206	185	127	183	239
Sodium, total	mg/L								72.3	58.8		57.5	66				58.1	64.7	59.4	60	61.9											

	Sampling Location	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10
	Date Sampled	2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2015-11-09	2016-05-02	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-04	2019-05-29	2019-08-13	2019-10-29	2018-06-27	2018-09-10	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-25	2020-11-03
	Lab Sample ID	0051806-02	0082459-02	20K0317-02	21D0069-02	21E3316-02	21H3053-02	21K0749-02	5110701-01	6050110-01	6081657-01	6111045-01	7040391-01	7082760-01	7112039-01	8062805-01	8090971-01	8120631-01	9052867-01	9081228-01	N000451-01	8062805-02	8090975-02	8120636-02	9052874-03	9081278-03	N000444-03	0032091-03	0051806-03	0082459-03	20K0317-03
Strontium, dissolved	mg/L	1.23	1.32	1.33	1.26	1.22	1.27	1.35	0.542	0.592		0.548	0.561			0.532	0.555	0.562	0.563	0.579	0.617	0.842	1.18	1.43	1.44	1.46	1.34	1.42	1.15	1.56	1.57
Strontium, total	mg/L								0.634	0.609		0.571	0.597				0.583	0.57	0.665	0.774	0.605										
Sulfur, dissolved	mg/L	15.3	21.3	18.4	18.0	16.0	19.8	17.8	17	17		14	14			16.4	15.6	16.6	16.6	15.8	16.5	37.5	31.3	30.9	29	28.2	29	29.8	20.4	30.7	29.1
Sulfur, total	mg/L								21	16		14	14				16	15.7	16.4	15.1	14.5										
Tellurium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<	<	<	<	<0.0002	<0.0002		<0.0002	<0.0002			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Tellurium, total	mg/L								<0.0002	<0.0002		<0.0002	<0.0002				<0.00050	<0.00050	<0.00050	<0.00050	<0.00050										
Thallium, dissolved	mg/L	<0.00002	<0.00002	<0.00002	0.000021	0.000028	0.000023	<	<0.00002	<0.00002		<0.00002	<0.00002			<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000088	0.000085	0.000071	0.000099	0.000091	0.000099	0.000099	0.000075	0.000103	0.000127
Thallium, total	mg/L								<0.00002	<0.00002		<0.00002	<0.00002				<0.000020	<0.000020	0.000043	0.00007	<0.000020										
Thorium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thorium, total	mg/L								0.0001	<0.0001		<0.0001	<0.0001				<0.00010	<0.00010	0.00111	0.00404	0.00031										
Tin, dissolved	mg/L	<0.0002	0.00021	<0.0002	0.00034	0.00076	<	<	<0.0002	<0.0002		<0.0002	<0.0002			<0.00020	<0.00020	0.00033	<0.00020	<0.00020	<0.00020	0.00077	<0.00020	<0.00020	<0.0002	<0.0002	0.00023	0.0003	0.00025	0.0004	<0.0002
Tin, total	mg/L								0.0004	<0.0002		<0.0002	0.0004				<0.00020	<0.00020	<0.00020	<0.00020	<0.00020										
Titanium, dissolved	mg/L	<0.005	<0.005	<0.005	<	<	<	<	<0.005	<0.005		<0.005	<0.005			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Titanium, total	mg/L								0.005	<0.005		<0.005	<0.005				<0.0050	<0.0050	0.0992	0.111	0.0652										
Tungsten, dissolved	mg/L	0.0047	0.0052	0.0018	0.0073	0.0041	0.0016	0.0017								<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tungsten, total	mg/L																<0.0010	<0.0010	<0.0010	<0.0010	<0.0010										
Uranium, dissolved	mg/L	0.00229	0.00206	0.00231	0.00212	0.00213	0.00208	0.00209	0.00104	0.00115		0.00102	0.0011			0.00105	0.00106	0.00114	0.00111	0.00108	0.00109	0.00902	0.00845	0.00597	0.00432	0.00442	0.00424	0.00399	0.00324	0.00367	0.0044
Uranium, total	mg/L								0.0012	0.00114		0.00111	0.00108				0.00107	0.00111	0.0013	0.00156	0.00111										
Vanadium, dissolved	mg/L	<0.001	<0.001	<0.001	<	<	<	<	<0.001	<0.001		<0.001	<0.001			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium, total	mg/L								<0.001	<0.001		<0.001	<0.001				<0.0010	<0.0010	0.0043	0.0096	0.0018										
Zinc, dissolved	mg/L	<0.004	<0.004	<0.004	0.0049	<	0.0152	<	0.004	<0.004		0.007	<0.004			<0.0040	<0.0040	0.0174	0.0065	<0.0040	<0.0040	0.0065	<0.0040	0.006	0.021	0.0043	0.0111	0.0103	<0.004	<0.004	0.0087
Zinc, total	mg/L								0.012	<0.004		0.011	<0.004				<0.0040	0.0056	0.0156	0.045	0.0071										
Zirconium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<	<	<	<	<0.0001	<0.0001		<0.0001	<0.0001			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0006	0.0006	0.00044	0.00027	0.00026	0.00029	0.00025	0.00013	0.00022	0.00026
Zirconium, total	mg/L								0.0003	<0.0001		<0.0001	<0.0001				<0.00010	<0.00010	0.00068	0.00047	0.00014										
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	511	501	518	547	532	529	598		332	335	335	364	356	126	330	372	363	366	349	364	667	992	876	810	785	802	806	729	713	856
Alkalinity, Carbonate (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<		<1	<1	<1	<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	<1	<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<		<1	<1	<1	<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	<1	<1	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<1	<1	<1	<	<	<	<		<1	<1	<1	<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	<1	<1	<1
Alkalinity, Total (as CaCO3)	mg/L	511	501	518	547	532	529	598	350	332	335	335	364	356	126	330	372	363	366	349	364	667	992	876	810	785	802	806	729	713	856
Ammonia, Total (as N)	mg/L	<0.05	<0.05	0.056	<	0.071	0.081	0.099								<0.020	0.026	<0.020	0.102	0.118	<0.020	1.8	2.14	2.4	1.54	1.63	1.37	1.44	1.68	1.73	2.6
Bicarbonate (HCO3)	mg/L	623	611	632	667	649	645	730		404	408	409	444	434	154	402	453	443	446	425	444	813	1210	1070	988	957	978	983	889	870	1040
BOD, 5-day	mg/L	<6.1	<6.1	<5.8	<	<	<	9.0																				<4.9	<6.1	<6.1	<5.8
Carbonate (CO3)	mg/L	<0.6	<0.6	<0.6	<	<	<	<		<1	<0.6	<0.6	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Chemical Oxygen Demand	mg/L	24	27	<20	<	<	32	26																				42	41	46	54
Electrical Conductivity	µS/cm	2590	2830	2880	2580	2330	2680	2570	1020	993	974	1030	1080	1110	327	999	1050	1080				2390	2590	2500	2590	2580	2650	2770	2420	2560	3240
Hardness, Total (as CaCO3)	mg/L	669	701	766	702	731	713	762	532										427	416	447				1030	1020	1070	1050	796	1070	1150
Hydroxide (OH)	mg/L	<0.34	<0.34	<0.34	<	<	<	<		<1	<0.3	<0.3	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	7.98	8.05	8.09	7.90	8.17	7.94	7.96	7.65	7.86						7.74	7.88	7.74	7.93	7.88	7.93	7.81	7.7	7.62	8.11	7.88	8	7.81	7.9	7.97	7.89
Phosphorus, Total (as P)	mg/L								0.017	0.007									0.282	0.381	0.075										
Phosphorus, Total Dissolved	mg/L																		<0.0020	<0.0020	0.005			0.013							
Total dissolved solids	mg/L	1290	1560	1460	1500	1460	1460	1490																				1550	1310	1390	1820
Total organic carbon	mg/L								1	<0.5	0.7	0.8	1	0.83	<0.50	0.71	<0.50	<0.50													
Turbidity	NTU	3.48	83.7	230	98.2	76.8	52.0	420	37.8	2.5	12.1	7.28	1.6	1.3	2.48	1.41		3.69	153	81.8	60.5	267		661		3590		65.8	73.2	114	172
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL												<1	<1	<1		<1														
Coliforms, Fecal	MPN/100 mL																				<1.0										
Coliforms, Fecal (MPN)	MPN/100 mL								<3.0	<3.0	<3.0	<3.0				<3.0			<1.1	<1.1											
Coliforms, Total	MPN/100 mL																				<1.0										
Coliforms, Total (MPN)	MPN/100 mL																		<1.1	<1.1											
E. coli (MPN)	MPN/100 mL								<3.0	<3.0	<3.0	<3.0				<3.0			<1.1	<1.1											
E. coli, Total	CFU/100 mL												<1	<1	<1		<1														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,1-Dichloroethylene	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,1,1-Trichloroethane	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0.5	<0.5	<0.5		<													<0.5						<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane	mg/L									<0.0003			<0.0002				<0.0003						<0.0003	<0.0003							
1,2-Dibromoethane	µg/L	<0.3	<0.3	<0.3		<													<0.3						<0.3		<0.3	<0.3	<0.3	<0.3	<0.3
1,2-Dichlorobenzene	µg/L	<0.5	<0.5	<0.5		<													<0.5						<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,2-Dichloropropane	mg/L									<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
1,2-Dichloropropane	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,3-Dichloropropene (cis + trans)	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L	<1	<1	<1		<													<1.0						<1		<1	<1	<1	<1	<1

		Sampling Location	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW10-8	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW15-01	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10	MW18-10
		Date Sampled	2020-05-20	2020-08-25	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2015-11-09	2016-05-02	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2018-09-11	2018-12-04	2019-05-29	2019-08-13	2019-10-29	2018-06-27	2018-09-10	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-25	2020-11-03
		Lab Sample ID	0051806-02	0082459-02	20K0317-02	21D0069-02	21E3316-02	21H3053-02	21K0749-02	5110701-01	6050110-01	6081657-01	6111045-01	7040391-01	7082760-01	7112039-01	8062805-01	8090971-01	8120631-01	9052867-01	9081228-01	N000451-01	8062805-02	8090975-02	8120636-02	9052874-03	9081278-03	N000444-03	0032091-03	0051806-03	0082459-03	20K0317-03
Benzene	mg/L									<0.0005	<0.0005		<0.0005	<0.0005				<0.0005						<0.0005	<0.0005							
Benzene	µg/L	<0.5	<0.5	<0.5		<														<0.5						<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Bromodichloromethane	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Bromoform	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Bromoform	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Carbon tetrachloride	mg/L										<0.0010			<0.0005				<0.0005						<0.0005	<0.0005							
Carbon tetrachloride	µg/L	<0.5	<0.5	<0.5		<														<0.5						<0.5		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Chloroethane	mg/L										<0.0020			<0.0020				<0.0020						<0.0020	<0.0020							
Chloroethane	µg/L	<2	<2	<2		<														<2.0						<2		<2	<2	<2	<2	<2
Chloroform	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Chloroform	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Dibromochloromethane	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Dibromochloromethane	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Dibromomethane	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Dibromomethane	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Dichloromethane	mg/L										<0.0030			<0.0030				<0.0030						<0.0030	<0.0030							
Dichloromethane	µg/L	<3	<3	<3		<														<3.0						<3		<3	<3	<3	<3	<3
Ethylbenzene	mg/L									<0.0010	<0.0010		<0.0010	<0.0010				<0.0010						<0.0010	<0.0010							
Ethylbenzene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Methyl tert-butyl ether	mg/L									<0.0010	<0.0010		<0.0010	<0.0010				<0.0010						<0.0010	<0.0010							
Methyl tert-butyl ether	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Styrene	mg/L									<0.0010	<0.0010		<0.0010	<0.0010				<0.0010						<0.0010	<0.0010							
Styrene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Tetrachloroethylene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Toluene	mg/L									0.005	<0.0010		0.0076	<0.0010				0.0023						0.0108	0.0162							
Toluene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Trichloroethylene	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/L										<0.0010			<0.0010				<0.0010						<0.0010	<0.0010							
Trichlorofluoromethane	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Vinyl chloride	mg/L										<0.0020			<0.0010				<0.0010						<0.0010	<0.0010							
Vinyl chloride	µg/L	<1	<1	<1		<														<1.0						<1		<1	<1	<1	<1	<1
Xylenes (total)	µg/L	<2	<2	<2		<														<2.0						<2		<2	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAH)																																
1-Methylnaphthalene	µg/L	<0.1				<																							<0.1			
2-Chloronaphthalene	µg/L	<0.1				<																							<0.1			
2-Methylnaphthalene	µg/L	<0.1				<																							<0.1			
Acenaphthene	µg/L	<0.05				<																							<0.05			
Acenaphthylene	µg/L	<0.2				<																							<0.2			
Acridine	µg/L	<0.05				<																							<0.05			
Anthracene	µg/L	<0.01				<																							<0.01			
Benz(a)anthracene	µg/L	<0.01				<																							<0.01			
Benzo(a)pyrene	µg/L	<0.01				<																							<0.01			
Benzo(b+j)fluoranthene	µg/L	<0.05				<																							<0.05			
Benzo(g,h,i)perylene	µg/L	<0.05				<																							<0.05			
Benzo(k)fluoranthene	µg/L	<0.05				<																							<0.05			
Chrysene	µg/L	<0.05				<																							<0.05			
Dibenz(a,h)anthracene	µg/L	<0.01				<																							<0.01			
Fluoranthene	µg/L	<0.03				<																							<0.03			
Fluorene	µg/L	<0.05				<																							<0.05			
Indeno(1,2,3-cd)pyrene	µg/L	<0.05				<																							<0.05			
Naphthalene	µg/L	<0.2				<																							<0.2			
Phenanthrene	µg/L	<0.1				<																							<0.1			
Pyrene	µg/L	<0.02				<																							<0.02			
Quinoline	µg/L	<0.05				<																							<0.05			
BCMOE Aggregate Hydrocarbons																																
EPHw10-19	µg/L	<250																											<250			
EPHw19-32	µg/L	<250																											<250			
HEPHw	µg/L	<250																											<250			
LEPHw	µg/L	<250																											<250			
VHw (6-10)	µg/L	<100	<100																										<100	<100		
VPHw	µg/L	<100	<100																										<100	<100		
VPHw	mg/L									<0.100	<0.100		<0.100	<0.100				<0.100														

Sampling Location		MW18-10	MW18-10	MW18-10	MW18-10	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02
Date Sampled		2021-03-31	2021-05-27	2021-08-25	2021-11-03	2018-12-04	2018-12-06	2019-05-29	2019-08-13	2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2002-06-03	2002-08-26	2002-11-06	2003-03-07	2003-05-12	2003-11-03	2004-05-17	2004-11-08	2005-04-25	2005-11-02	2006-04-17	2006-11-05	2007-05-22
Lab Sample ID		21D0069-03	21E3316-03	21H3053-03	21K0749-03	8120636-08	8120644-01	9052874-04	9081278-04	N000444-04	0032091-04	0051806-04	0082459-04	20K0317-04	21D0069-04	21E3316-04	21H3053-04	21K0749-04													K705752-01
Analyte	Unit																													
Field Parameters																														
Depth to Water	m	388000000000	27.96	216000000000	28.02				112.994	112.901	113.047	112.33	112.212	112.278	112.696	.29600000000	112.45	3.03	9999	9999	9999	9999	21.25	21.25	21.3	21.82	21.28	9999	21.18	9999	21.27
Dissolved oxygen	mg/L	4.2	4.53	2.37	6.78			5.36	1.59	1.42	2.06	2.63	2.88	2.51	1.19	1.26	1.81	999999999999996													
Electrical Conductivity	µS/cm	2894	1905	2344	2642	558	1036	1054	1172	1468	1165	1436	1556	1533	1560	1333	1457	1416												
Elevation of Piezometric Surface	m	.948999999999	.876999999996	.620999999998	.817000000000	1			796.94	797.033	795.479	796.196	796.314	796.248	.829999999996	.229999999996	.075999999995	.495999999998													
Oxidation reduction potential	mV	54.9	9.1	4.2	103			18.2	-128.1	-196.2	-74.3	-89.4	-20.3	106.3	-188.2	-94.3	-139.4	-203												
pH	pH unit	7.06	7.38	7.32	7.08	8.3		7.74	7.52	7.93	7.76	7.17	7.26	7.06	7.82	7.55	7.91	7.83												
Temperature	°C	12.5	13.3	13.9	12	9.8		9.4	10.5	9.1	9.6	9.8	10.4	8.4	000000000000	10.1	9.9	000000000000007					11	11	13	11	12		10.3		10
Anions																														
Bromide	mg/L	<	0.63	0.35	0.55	<0.10	<1.00				<0.1	<0.1	<0.1	0.2	<	0.21	<	0.18												
Chloride	mg/L	351	364	362	351	26.6	23.2	60.9	89.7	105	113	60.6	71.4	84.1	73.2	85.1	78.7	81.4					57.5	63.8	72.5	75	128		159		90.5
Fluoride	mg/L	<	0.16	0.17	0.18	0.9	1.42	0.31	0.65	0.94	0.77	0.96	0.74	0.49	0.81	0.71	0.76	0.75												
Nitrate (as N)	mg/L	48.3	26.1	24.5	31.6	1.03	0.043	0.023	<0.01	<0.01	<0.01	0.022	<0.01	<0.01	0.036	<	<	<					27.8	16.3	34.5	32.5	65		77		12.5
Nitrite (as N)	mg/L	<	<	<	<	0.068	0.275	<0.01	<0.01	<0.01	<0.01	0.061	<0.01	<0.01	<	<	<	<					<0.01	0.16	<0.01	0.04	<0.01		<0.01		1.44
Sulfate	mg/L	77.3	71.7	69.1	66.0	39	156	72.3	70.7	70.2	32	116	88.3	105	98.0	108	114	64.2					51	78	71	79	104		150		254
Metals																														
Aluminum, dissolved	mg/L	<	<	<	0.0084	0.0134	0.032	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<	<	<	<					<0.2	<0.2	<0.2		<0.4		<0.02		<0.050
Aluminum, total	mg/L																														<0.10
Antimony, dissolved	mg/L	<	<	<	<	0.00072	0.00576	0.0057	0.00348	0.00284	0.00218	<0.0002	0.00139	0.00048	<	0.00051	0.00081	0.00057					<0.2	<0.2	<0.2		<0.4		<0.02		<0.0050
Antimony, total	mg/L																														<0.006
Arsenic, dissolved	mg/L	0.00110	0.00114	0.00113	0.00147	<0.00050	0.0352	0.00373	0.00511	0.0045	0.00599	0.0358	0.011	0.0208	0.0249	0.0115	0.00944	0.00762					<0.2	<0.2	<0.2		<0.4		<0.02		<0.0050
Arsenic, total	mg/L																														<0.010
Barium, dissolved	mg/L	0.302	0.274	0.277	0.274	0.0369	0.018	0.0424	0.0271	0.0202	0.0154	0.0338	0.0082	0.0266	0.0362	0.0279	0.0195	0.0142					0.2	0.19	0.19		0.21		0.15		0.124
Barium, total	mg/L																														0.114
Beryllium, dissolved	mg/L	<	<	<	<	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<													<0.0010
Beryllium, total	mg/L																														<0.005
Bismuth, dissolved	mg/L	<	<	<	<	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<													<0.0010
Bismuth, total	mg/L																														<0.001
Boron, dissolved	mg/L	0.485	0.301	0.238	0.307	0.0339	0.418	0.153	0.17	0.301	0.284	0.325	0.262	0.261	0.299	0.265	0.222	0.296					0.6	0.58	0.59		0.6		0.6		0.632
Boron, total	mg/L																														0.608
Cadmium, dissolved	mg/L	0.000029	0.000031	<	0.000028	0.000015	0.000016	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000018	<	<	<					<0.01	<0.01	<0.01		<0.02		<0.01		<0.00010
Cadmium, total	mg/L																														<0.00010
Calcium, dissolved	mg/L	105	95.6	90.0	97.9	14.9	23.7	46.1	43.2	48.7	36.1	59.2	40.3	59.3	60.9	47.1	35.7	30.9					174	177	175		210		210		215
Calcium, total	mg/L																														206
Chromium, dissolved	mg/L	0.00050	<	<	<	<0.00050	<0.00050	0.00266	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00059	<	<	<	<					<0.01	<0.01			<0.02		<0.01		0.0054
Chromium, total	mg/L																														<0.010
Cobalt, dissolved	mg/L	0.00487	0.00414	0.00400	0.00280	0.00046	0.00162	0.00076	0.00017	0.00013	0.00016	0.00048	0.00026	0.00015	<	0.00017	0.00015	<													0.0037
Cobalt, total	mg/L																														0.0034
Copper, dissolved	mg/L	0.00119	0.00113	0.00059	0.00079	0.00271	<0.00040	0.00044	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<	0.00045	<	<					<0.01	<0.01			<0.02		<0.01		0.0057
Copper, total	mg/L																														<0.010
Iron, dissolved	mg/L	0.014	<	<	0.060	0.017	0.018	0.115	2.05	0.495	0.052	2.28	0.151	0.64	0.967	0.513	0.323	1.78					<0.03	<0.03	<0.03		<0.06		<0.06		0.655
Iron, total	mg/L																														0.7
Lead, dissolved	mg/L	<	<	<	<	0.00031	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<	<	<	<					<0.05	<0.05	<0.05		<0.1		<0.05		<0.0020
Lead, total	mg/L																														<0.0020
Lithium, dissolved	mg/L	0.0248	0.0226	0.0190	0.0226	0.0314	0.0871	0.0201	0.0212	0.0276	0.0271	0.0229	0.0234	0.0245	0.0282	0.0275	0.0228	0.0275													0.0185
Lithium, total	mg/L																														0.0179
Magnesium, dissolved	mg/L	196	202	196	201	58.4	28.5	87.9	105	147	143	107	127	130	132	133	129	133					99.4	103	91.3		120		97		103
Magnesium, total	mg/L																														97.2
Manganese, dissolved	mg/L	0.174	0.157	0.146	0.137	0.294	0.0149	0.106	0.152	0.132	0.0605	0.0301	0.0309	0.0286	0.0131	0.0359	0.0329	0.0629					0.009	0.083	0.02		0.04		0.007		0.107
Manganese, total	mg/L																														0.107
Mercury, dissolved	mg/L	<	<	<	<	<0.000040	<0.000040	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<	<	<	<													<0.00050
Mercury, total	mg/L																														<0.00050
Molybdenum, dissolved	mg/L	0.00103	0.00126	0.00112	0.00102	0.0062	0.0364	0.00762	0.00344	0.00324	0.00193	0.00061	0.00212	0.00098	0.00055	0.00104	0.00110	0.00102					<0.03	<0.03	<0.03		<0.06		<0.03		<0.0020
Molybdenum, total	mg/L																														<0.0050
Nickel, dissolved	mg/L	0.0431	0.0413	0.0390	0.0389	0.00553	0.00589	0.0301	0.0111	0.01	0.0103	0.00474	0.0068	0.00745	0.00643	0.00720	0.00680	0.00540					<0.05	<0.05	<0.05		<0.1		<0.05		0.037
Nickel, total	mg/L																														<0.020
Phosphorus, dissolved	mg/L	<	<	<	<	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<	<	<	<					<0.3	<0.3	<0.3		<0.6		<0.3		<0.500
Phosphorus, total	mg/L																														<0.50
Potassium, dissolved	mg/L	30.7	18.4	15.7	17.4	5.73	38.1	5.39	4.78	4.51	4.81	7.86	6.46	6.82	6.37	6.20	5.67	5.87					54	53	50		50		57		59.5
Potassium, total	mg/L																														56.4
Selenium, dissolved	mg/L	<	<	<	<	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<					<0.2	<0.2	<0.2		<0.4		<0.2		<0.0100
Selenium, total	mg/L																														<0.010
Silicon, dissolved	mg/L	10.7	9.7	9.1	10.6	1.1	4.3	2.4	3.1	4.8	4.3	4.7	3.2	3.8	5.0	3.8	3.5	3.7													9.58
Silicon, total	mg/L																														7.5
Silver, dissolved	mg/L	<	<	<	<	<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<	<	<	<													<0.0004
Silver, total	mg/L																														<0.00050
Sodium, dissolved	mg/L	187	161	158	152	30.7	270	81.1	85.3	110	106	104	112	113	124	117	116	116					68	73.8	74		120		130		107
Sodium, total	mg/L																														98

	Sampling Location	MW18-10	MW18-10	MW18-10	MW18-10	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02
	Date Sampled	2021-03-31	2021-05-27	2021-08-25	2021-11-03	2018-12-04	2018-12-06	2019-05-29	2019-08-13	2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2002-06-03	2002-08-26	2002-11-06	2003-03-07	2003-05-12	2003-11-03	2004-05-17	2004-11-08	2005-04-25	2005-11-02	2006-04-17	2006-11-05	2007-05-22
	Lab Sample ID	21D0069-03	21E3316-03	21H3053-03	21K0749-03	8120636-08	8120644-01	9052874-04	9081278-04	N000444-04	0032091-04	0051806-04	0082459-04	20K0317-04	21D0069-04	21E3316-04	21H3053-04	21K0749-04													K705752-01
Strontium, dissolved	mg/L	1.48	1.37	1.38	1.42	0.0865	0.246	0.632	0.622	0.691	0.481	1.02	0.644	0.856	0.994	0.712	0.562	0.366													1.12
Strontium, total	mg/L																														1.1
Sulfur, dissolved	mg/L	29.1	25.0	26.6	25.7	16.1	62.1	27.5	25.2	28.8	20	41.5	36.2	37.2	42.9	31.5	29.5	27.5													
Sulfur, total	mg/L																														
Tellurium, dissolved	mg/L	<	<	<	<	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<	<													<0.0050
Tellurium, total	mg/L																														<0.005
Thallium, dissolved	mg/L	0.000116	0.000084	0.000083	0.000086	<0.000020	0.000141	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<	<	<	<													<0.0010
Thallium, total	mg/L																														<0.0010
Thorium, dissolved	mg/L	<	<	<	<	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<	<													<0.0050
Thorium, total	mg/L																														<0.005
Tin, dissolved	mg/L	0.00024	0.00040	0.00022	0.00028	<0.00020	0.00064	0.00022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<	<	<	<													<0.0020
Tin, total	mg/L																														<0.001
Titanium, dissolved	mg/L	<	<	<	<	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<	<	<	<													<0.0200
Titanium, total	mg/L																														<0.050
Tungsten, dissolved	mg/L	<	<	<	<	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<	<	<	<													
Tungsten, total	mg/L																														
Uranium, dissolved	mg/L	0.00320	0.00317	0.00310	0.00314	0.000448	0.00256	0.000262	0.000084	0.0001	0.000068	0.000084	0.000055	0.000068	0.000065	0.000044	0.000035	<													0.0025
Uranium, total	mg/L																														0.0028
Vanadium, dissolved	mg/L	<	<	<	<	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<	<	<	<													<0.0050
Vanadium, total	mg/L																														<0.010
Zinc, dissolved	mg/L	0.0046	<	<	<	0.0092	<0.0040	<0.004	0.0073	0.0081	0.0069	0.0132	0.0064	0.015	0.0129	0.0101	0.0067	0.0073					0.017	0.0197	0.02		0.01		0.028		<0.040
Zinc, total	mg/L																														<0.050
Zirconium, dissolved	mg/L	0.00016	0.00015	0.00014	0.00019	<0.00010	0.00068	<0.0001	<0.0001	<0.0001	<0.0001	0.00014	0.00011	0.00018	0.00027	0.00014	<	<													<0.010
Zirconium, total	mg/L																														<0.010
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	888	736	742	809	494	8900	431	541	700	716	648	648	671	715	733	693	691													
Alkalinity, Carbonate (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<	<	<													
Alkalinity, Hydroxide (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<	<	<													
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<	<	<	<	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<	<	<													
Alkalinity, Total (as CaCO3)	mg/L	888	736	742	809	494	8900	431	541	700	716	648	648	671	715	733	693	691					2800	5600	1720	7040	4100		3500		3000
Ammonia, Total (as N)	mg/L	1.45	0.928	0.849	0.622	0.449	1.36	0.607	0.228	0.095	0.191	0.257	0.447	0.361	0.424	0.309	0.333	0.287								0.19	0.04		0.08		0.31
Bicarbonate (HCO3)	mg/L	1080	898	905	987	603	10900	526	660	855	874	791	790	819	873	894	846	843													
BOD, 5-day	mg/L	<	<	<	10.0						<5.1	<6.1	<6.1	<5.8	<	<	8.4	<													
Carbonate (CO3)	mg/L	<	<	<	<	<0.600	<0.600	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<	<	<	<													
Chemical Oxygen Demand	mg/L	42	38	58	47						<20	34	20	<20	<	<	26	24					69	202	108	184	136		129		39
Electrical Conductivity	µS/cm	2750	2200	2400	2370	193	1190	992	1330	1490	1460	1390	1460	1580	1460	1450	1500	1360					1660	1620	1600	1900	2000		2200		1910
Hardness, Total (as CaCO3)	mg/L	1070	1070	1030	1070			477	542	726	680	589	624	684	695	665	621	627													
Hydroxide (OH)	mg/L	<	<	<	<	<0.340	<0.340	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<	<	<	<													
Nitrate + Nitrite (as N)	mg/L																														14
Nitrogen, Total Kjeldahl	mg/L																						2.92	13	3.7	4.7	5.12		5.1		7.12
pH	pH unit	7.74	8.08	7.80	7.85	8.07	7.93	8.18	8.1	8.2	8.25	7.93	8.13	8.06	7.85	8.05	7.79	8.21					7.1	6.8	6.9	7.1	7.2		7		6.8
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L					0.0053	0.0103																								
Total dissolved solids	mg/L	1750	1400	1190	1440						850	849	849	899	934	850	890	783													
Total organic carbon	mg/L																														
Turbidity	NTU	70.9	55.6	81.7	264			35.8	202	95.6	52.4	112	45.1	37	50.2	23.0	26.3	28.0													
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,1-Dichloroethylene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,1,1-Trichloroethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,1,2-Trichloroethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,1,2,2-Tetrachloroethane	µg/L		<					<0.5		<0.5	<0.5	<0.5	<0.5	<0.5		<															
1,2-Dibromoethane	mg/L																														
1,2-Dibromoethane	µg/L		<					<0.3		<0.3	<0.3	<0.3	<0.3	<0.3		<															
1,2-Dichlorobenzene	µg/L		<					<0.5		<0.5	<0.5	<0.5	<0.5	<0.5		<															
1,2-Dichloroethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,2-Dichloropropane	mg/L																														
1,2-Dichloropropane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,3-Dichlorobenzene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,3-Dichloropropene (cis + trans)	µg/L		<					<1		<1	<1	<1	<1	<1		<															
1,4-Dichlorobenzene	µg/L		<					<1		<1	<1	<1	<1	<1		<															

	Sampling Location	MW18-10	MW18-10	MW18-10	MW18-10	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW18-11	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02	MW95-02
	Date Sampled	2021-03-31	2021-05-27	2021-08-25	2021-11-03	2018-12-04	2018-12-06	2019-05-29	2019-08-13	2019-10-29	2020-03-24	2020-05-20	2020-08-24	2020-11-03	2021-03-31	2021-05-27	2021-08-25	2021-11-02	2002-06-03	2002-08-26	2002-11-06	2003-03-07	2003-05-12	2003-11-03	2004-05-17	2004-11-08	2005-04-25	2005-11-02	2006-04-17	2006-11-05	2007-05-22
	Lab Sample ID	21D0069-03	21E3316-03	21H3053-03	21K0749-03	8120636-08	8120644-01	9052874-04	9081278-04	N000444-04	0032091-04	0051806-04	0082459-04	20K0317-04	21D0069-04	21E3316-04	21H3053-04	21K0749-04													K705752-01
Benzene	mg/L																													
Benzene	µg/L		<					<0.5		<0.5	<0.5	<0.5	<0.5	<0.5		<															
Bromodichloromethane	mg/L																													
Bromodichloromethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Bromoform	mg/L																													
Bromoform	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Carbon tetrachloride	mg/L																													
Carbon tetrachloride	µg/L		<					<0.5		<0.5	<0.5	<0.5	<0.5	<0.5		<															
Chlorobenzene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Chloroethane	mg/L																													
Chloroethane	µg/L		<					<2		<2	<2	<6	<2	<2		<															
Chloroform	mg/L																													
Chloroform	µg/L		<					<1		<1	<1	<1	<1	<1		<															
cis-1,2-Dichloroethylene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Dibromochloromethane	mg/L																													
Dibromochloromethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Dibromomethane	mg/L																													
Dibromomethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Dichloromethane	mg/L																													
Dichloromethane	µg/L		<					<3		<3	<3	<3	<3	<3		<															
Ethylbenzene	mg/L																													
Ethylbenzene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Methyl tert-butyl ether	mg/L																													
Methyl tert-butyl ether	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Styrene	mg/L																													
Styrene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Tetrachloroethylene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Toluene	mg/L																													
Toluene	µg/L		<					150		12.8	8.8	<1	<1	<1		<															
trans-1,2-Dichloroethylene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Trichloroethylene	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Trichlorofluoromethane	mg/L																													
Trichlorofluoromethane	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Vinyl chloride	mg/L																													
Vinyl chloride	µg/L		<					<1		<1	<1	<1	<1	<1		<															
Xylenes (total)	µg/L		<					<2		<2	<2	<2	<2	<2		<															
Polycyclic Aromatic Hydrocarbons (PAH)																															
1-Methylnaphthalene	µg/L		<									<0.1				<															
2-Chloronaphthalene	µg/L		<									<0.1				<															
2-Methylnaphthalene	µg/L		<									<0.1				<															
Acenaphthene	µg/L		<									<0.05				<															
Acenaphthylene	µg/L		<									<0.2				<															
Acridine	µg/L		<									<0.05				<															
Anthracene	µg/L		<									<0.01				<															
Benz(a)anthracene	µg/L		<									<0.01				<															
Benzo(a)pyrene	µg/L		<									<0.01				<															
Benzo(b+j)fluoranthene	µg/L		<									<0.05				<															
Benzo(g,h,i)perylene	µg/L		<									<0.05				<															
Benzo(k)fluoranthene	µg/L		<									<0.05				<															
Chrysene	µg/L		<									<0.05				<															
Dibenz(a,h)anthracene	µg/L		<									<0.01				<															
Fluoranthene	µg/L		<									<0.03				<															
Fluorene	µg/L		<									<0.05				<															
Indeno(1,2,3-cd)pyrene	µg/L		<									<0.05				<															
Naphthalene	µg/L		<									<0.2				<															
Phenanthrene	µg/L		<									<0.1				<															
Pyrene	µg/L		<									<0.02				<															
Quinoline	µg/L		<									<0.05				<															
BCMOE Aggregate Hydrocarbons																															
EPHw10-19	µg/L											<250																			
EPHw19-32	µg/L											313																			
HEPHw	µg/L											313																			
LEPHw	µg/L											<250																			
VHw (6-10)	µg/L											<100	<100																		
VPHw	µg/L											<100	<100																		
VPHw	mg/L																														

Sampling Location		MW95-04	Runoff 1	Runoff 2	Runoff 3	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4
Date Sampled		2004-05-17	2017-04-05	2017-04-05	2017-03-30	2002-06-03	2003-05-12	2004-05-17	2007-05-22	2007-11-05	2008-04-28	2008-10-14	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2016-05-03	2016-08-22
Lab Sample ID			7040434-01	7040434-02	7040370-01				K705752-02	K7K0165-01	K8E0035-01	K8J0452-01	K9E0816-01	K9K0184-03	K0B0397-03	K0F0788-02	K0K0729-03	K1E0403-02	K1H0536-04	K1J0685-04	2051369-02	2081484-04	2111131-04	3051354-04	3110772-02	4060249-02	4081094-01	4110161-01	5051773-02	6050336-05	6081698-04
Analyte	Unit																														
Field Parameters																															
Depth to Water	m	26.6				8																									
Dissolved oxygen	mg/L												2.01	3.7												4.5	3.93	4.38	4.85	4.24	4.67
Electrical Conductivity	µS/cm		2370	13170									900	890	870	970	890		690	930	740	860	800	640	710	799	805	756	813	1013	986
Elevation of Piezometric Surface	m																														
Oxidation reduction potential	mV		-2	-112												49	159		62	119	111	221	188	258	74	165	201	47	68	156	240
pH	pH unit		7.4	7.6									6.85	7.48	7.2	7.41	7.49		7.35	7.39	7.43	7.59	7.6	7.36	7.2	7.5	7.5	7.2	7.2	7.4	7.3
Temperature	°C	13	4.2	4.3			10	12	7.5	5			8.4	8.4	7.4	12.2	8.2		9.4	7.6	8.2	8.8	8.1	8.4	8.1	7.9	8.5	8.4	12.9	8.31	8.6
Anions																															
Bromide	mg/L		1.82	<10.0	<0.10																								<0.10	<0.10	<0.10
Chloride	mg/L	298	708	1230	5.45	62.5	73.8	65	60.2	76.7	69.4	86.9	74	57.6	91.1	76.7	75.7	79.2	72.9	77.2	63	67.2	65.6	69.1	68.5	67	69.7	70.2	81.2	97.3	88.5
Fluoride	mg/L		<1.00	<1.00	0.47																<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (as N)	mg/L	55.5	2.78	<0.100	0.214	1.4	1.35	1.63	1.35	1.09	0.982	1.17	1.12	1.21	1.3	1.17	1.14	0.895	1.26	1.21	1.19	1.2	0.755	1.36	1.33	1.26	1.55	1.57	1.53	1.72	1.48
Nitrite (as N)	mg/L	0.01	<0.100	<0.100	0.021	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sulfate	mg/L	640	153	32.7	13	44.5	43	40	37.5	38	38.6	40.6	38.8	39.8	42.9	41.2	36.1	37.6	35.8	40	37.2	36.6	40.4	36.6	38.8	37.6	39.7	40.7	40	40.3	41.5
Metals																															
Aluminum, dissolved	mg/L	<0.2				<0.2	<0.2	<0.2	<0.050		<0.050	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	<0.005	<0.005	0.021	<0.005			<0.005
Aluminum, total	mg/L			2.17	41.1				<0.10																					<0.005	<0.005	
Antimony, dissolved	mg/L	<0.2				<0.2	<0.2	<0.2	<0.0050		<0.0030	<0.0006	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0001	<0.0020	<0.0001	0.0007	0.0003	0.0003	0.0007	0.0004	0.0005	0.0002			<0.0001
Antimony, total	mg/L			0.0063	0.0008				<0.006																					<0.0001	<0.0001	
Arsenic, dissolved	mg/L	<0.2				<0.2	<0.2	<0.2	<0.0050		<0.0050	<0.0010	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005
Arsenic, total	mg/L			0.0524	0.0123				<0.010																					<0.0005	<0.0005	
Barium, dissolved	mg/L	0.12				0.2	0.2	0.21	0.191		0.191	0.211	0.227	0.173	0.244	0.216	0.217	0.189	0.195	0.184	0.189	0.193	0.191	0.195	0.2	0.192	0.195	0.21			0.247
Barium, total	mg/L			0.259	0.421				0.19																				0.193	0.227	
Beryllium, dissolved	mg/L								<0.0010		<0.0020	<0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Beryllium, total	mg/L			0.0001	0.0014				<0.005																				<0.0001	<0.0001	
Bismuth, dissolved	mg/L								<0.0010		<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Bismuth, total	mg/L			<0.0001	0.0003				<0.001																				<0.0001	<0.0001	
Boron, dissolved	mg/L	0.65				<0.1	<0.1	<0.1	<0.020		<0.020	0.013	0.015	0.02	0.02	0.015	0.042	0.016	0.018	0.017	0.018	0.012	0.018	0.018	0.032	0.021	0.024	0.014			0.031
Boron, total	mg/L			4.9	0.164				<0.020																				0.015	0.021	
Cadmium, dissolved	mg/L	<0.01				<0.01	<0.01	<0.01	<0.00010		<0.00010	<0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00005	0.00009	<0.00001	0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00003	0.00002			0.00002
Cadmium, total	mg/L			0.00048	0.00011				<0.00010																				<0.00001	<0.00001	
Calcium, dissolved	mg/L	165				90	104	88	84.6	88.4	91.2	87	83.8	80	87.4	79.1	81.3	90	83.8	84.7	74.7	80.7	82	82.5	88.6	90.2	92.1	88.7			100
Calcium, total	mg/L			382	174				85.1																				91.7	99.5	
Chromium, dissolved	mg/L	<0.01				<0.01	<0.01	<0.01	<0.0050		0.006	0.006	0.0033	0.0028	0.0116	0.0022	0.0007	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005
Chromium, total	mg/L			0.126	0.053				<0.010																				<0.0005	<0.0005	
Cobalt, dissolved	mg/L								<0.0010		<0.0005	<0.0001	0.00009	0.00006	0.00007	0.0001	0.00013	<0.00005	0.00018	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	0.00006			0.00006
Cobalt, total	mg/L			0.0371	0.0191				<0.0010																				<0.00005	<0.00005	
Copper, dissolved	mg/L	<0.01				<0.01	<0.01	<0.01	<0.0050		<0.0030	0.0046	0.0038	0.0016	0.0045	0.0025	0.0025	0.0008	0.0038	0.0016	0.0007	0.0013	0.001	0.0008	0.0006	0.0009	0.0014	0.0014			0.0016
Copper, total	mg/L			0.0227	0.033				<0.010																				0.0039	0.0009	
Iron, dissolved	mg/L	<0.03				<0.03	<0.03	<0.03	0.267		0.386	0.079	0.082	0.07	0.063	0.147	0.166	<0.010	0.02	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	0.031	<0.010			<0.010
Iron, total	mg/L			46	39.2				<0.30																				<0.01	<0.01	
Lead, dissolved	mg/L	<0.05				<0.01	<0.05	<0.05	<0.0020		<0.0010	0.0002	0.0001	<0.0001	0.0002	0.0002	0.0002	0.0001	0.0005	0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001			<0.0001
Lead, total	mg/L			0.0119	0.0296				<0.0020																				0.0001	0.0004	
Lithium, dissolved	mg/L								0.0018		0.002	0.0015	0.0021	0.0013	0.0017	0.0021	0.004	0.002	0.0017	0.0018	0.0017	0.0016	0.0018	0.0018	0.0018	0.002	0.0022	0.002			0.0019
Lithium, total	mg/L			0.238	0.0402				<0.0050																				0.002	0.0022	
Magnesium, dissolved	mg/L	233				37	43.7	38.1	38.4	41.1	40.2	38.9	34.9	39.8	39.7	35	40.5	39.7	37.3	34.9	39.1	37.7	36.8	38.9	39.3	41.8	39.4	38			49.3
Magnesium, total	mg/L			276	40.6				37.9																				39.8	45.4	
Manganese, dissolved	mg/L	0.009				<0.005	<0.005	<0.005	<0.0100		<0.0050	<0.0010	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	0.0008	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0068	0.0012			0.0003
Manganese, total	mg/L			1.41	0.71				<0.010																				<0.0002	<0.0002	
Mercury, dissolved	mg/L								<0.00050		<0.00030	<0.00006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	0.00005	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			<0.00002
Mercury, total	mg/L			0.00004	0.0001				<0.00050																				<0.00002	<0.00002	
Molybdenum, dissolved	mg/L	<0.03				<0.03	<0.03	<0.03	<0.0020		<0.0010	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0003	0.0012	0.0003	0.0005	0.0003	0.0002	0.0003	0.0003	0.0003	0.0002			0.0002
Molybdenum, total	mg/L			0.0061	0.0025				<0.0050																				0.0003	0.0003	
Nickel, dissolved	mg/L	<0.05				<0.05	<0.05	<0.05	<0.010		<0.005	0.001	0.0014	0.001	0.0012	0.0016	0.0037	0.0002	0.0011	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	0.0002	<0.0002	0.0015	0.0004			<0.0002
Nickel, total	mg/L			0.19	0.04				<0.020																				<0.0002	0.0002	
Phosphorus, dissolved	mg/L	<0.3				<0.3	<0.3	<0.3	<0.500		<0.200	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02			<0.02
Phosphorus, total	mg/L			13.1	0.61				<0.50																				<0.020	<0.02	
Potassium, dissolved	mg/L	52				<2	<2	<2	1.66		2.17	1.82	2.08	1.48	1.93	2.33	1.95	1.74	1.75	1.5	2.04	1.62	1.61	1.69	1.67	1.7	1.84	1.9			2.2
Potassium, total	mg/L			852	16.6				1.53																				1.86	2.05	
Selenium, dissolved	mg/L	<0.2				<0.2	<0.2	<0.2	<0.0100		<0.0050	<0.0010	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005
Selenium, total	mg/L			0.0007	<0.0005				<0.010																				<0.0005	<0.0005	
Silicon, dissolved	mg/L								3.88		5.01	5.35	4.1	3.53	7.83	4	2.33	4.89	4.8	4.4	4.8	4.6	4.9	4.6	4.2	4.5	4.6	4.9			4.5
Silicon, total	mg/L			29.8	73.8				2.6																				4.8	5.3	
Silver, dissolved	mg/L								<0.0004		<0.00040	<0.00008	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	<0.00005	<0.00005	<0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005			<0.00005
Silver, total	mg/L			0.00015	<0.00005				<0.00050																				<0.00005	<0.00005	
Sodium, dissolved	mg/L	234				34	37	37	36.8		43.1	42.1	36.7	44.4	45.6	37.8	37.8	44	39.9	38.2	40.8	39.4	38.7	41.7	42.4	42.5	44.5	48.5			58.2
Sodium, total	mg/L			1460	8.12				34.8																				46.9	56.5	

	Sampling Location	MW95-04	Runoff 1	Runoff 2	Runoff 3	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4
	Date Sampled	2004-05-17	2017-04-05	2017-04-05	2017-03-30	2002-06-03	2003-05-12	2004-05-17	2007-05-22	2007-11-05	2008-04-28	2008-10-14	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2016-05-03	2016-08-22
	Lab Sample ID		7040434-01	7040434-02	7040370-01				K705752-02	K7K0165-01	K8E0035-01	K8J0452-01	K9E0816-01	K9K0184-03	K0B0397-03	K0F0788-02	K0K0729-03	K1E0403-02	K1H0536-04	K1J0685-04	2051369-02	2081484-04	2111131-04	3051354-04	3110772-02	4060249-02	4081094-01	4110161-01	5051773-02	6050336-05	6081698-04
Strontium, dissolved	mg/L								0.414		0.434	0.442	0.481	0.409	0.409	0.451	0.628	0.423	0.436	0.37	0.441	0.405	0.399	0.432	0.4	0.421	0.457	0.438			0.527
Strontium, total	mg/L			2.4	0.579				0.405																				0.425	0.49	
Sulfur, dissolved	mg/L																				16	17	15	13	9	16	12	13			18
Sulfur, total	mg/L			31	4																								14	16	
Tellurium, dissolved	mg/L								<0.0050		<0.0030	<0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002
Tellurium, total	mg/L			<0.0002	<0.0002				<0.005																				<0.0002	<0.0002	
Thallium, dissolved	mg/L								<0.0010		<0.0005	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002			<0.00002
Thallium, total	mg/L			<0.00002	0.00032				<0.0010																				<0.00002	<0.00002	
Thorium, dissolved	mg/L								<0.0050		<0.0030	<0.0006		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Thorium, total	mg/L			0.0004	0.0099				<0.005																				<0.0001	<0.0001	
Tin, dissolved	mg/L								<0.0020		<0.0020	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002
Tin, total	mg/L			0.0093	0.0013				<0.001																				<0.0002	<0.0002	
Titanium, dissolved	mg/L								<0.0200		<0.100	<0.020	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005
Titanium, total	mg/L			0.069	1.4				<0.050																				<0.005	<0.005	
Tungsten, dissolved	mg/L																														
Tungsten, total	mg/L																														
Uranium, dissolved	mg/L								0.0011		0.0012	0.0014	0.00124	0.00114	0.00102	0.00115	0.00127	0.00113	0.00107	0.00104	0.00103	0.00109	0.00103	0.00112	0.00105	0.00114	0.00143	0.00123			0.0013
Uranium, total	mg/L			0.00069	0.00239				0.0012																				0.00115	0.00134	
Vanadium, dissolved	mg/L								<0.0050		<0.010	<0.002	<0.0010	<0.0010	0.0046	0.0018	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001
Vanadium, total	mg/L			0.011	0.042				<0.010																				<0.001	<0.001	
Zinc, dissolved	mg/L	0.02				0.01	0.021	0.039	<0.040		<0.030	0.008	0.0088	0.0021	0.0051	0.0058	0.0032	<0.0040	0.016	<0.004	<0.004	0.006	<0.004	<0.004	<0.004	<0.004	<0.004	0.005			<0.004
Zinc, total	mg/L			0.576	0.094				<0.050																				<0.004	<0.004	
Zirconium, dissolved	mg/L								<0.010		<0.005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Zirconium, total	mg/L			0.0071	0.028				<0.010																				<0.0001	0.0002	
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L		3050	9700	6010																									336	338
Alkalinity, Carbonate (as CaCO3)	mg/L		<1.0	<1.0	<1																									<1	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L		<1.0	<1.0	<1																									<1	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L		<1.0	<1.0	<1																									<1	<1
Alkalinity, Total (as CaCO3)	mg/L	900	3050	9700	6010	287	290	324	310	340	333	345	337	330	325	328	313	331	332	327	304	313	332	326	314	319	320	319	328	336	338
Ammonia, Total (as N)	mg/L			928	0.792				<0.02	<0.02	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.02	<0.020	0.03	0.025	0.024	0.029	<0.020	<0.020	<0.020	0.038	<0.020	0.031
Bicarbonate (HCO3)	mg/L		3720	11800	7330																									410	412
BOD, 5-day	mg/L																														
Carbonate (CO3)	mg/L		<0.600	<0.600	<0.600																									<1	<0.6
Chemical Oxygen Demand	mg/L	89				<5	5	10	<5	<5																					
Electrical Conductivity	µS/cm	2810	8440	13800	324	845	866	791	822	881	842	884	899	902	905	874	854	869	835	873	825	836	838	833	859	857	880	900	911	966	948
Hardness, Total (as CaCO3)	mg/L																												393		
Hydroxide (OH)	mg/L		<0.340	<0.340	<0.340																									<1	<0.3
Nitrate + Nitrite (as N)	mg/L								1.35	1.09																					
Nitrogen, Total Kjeldahl	mg/L	0.84				0.05	<0.05	0.08	0.1	0.06																					
pH	pH unit	7		7.7	7.85	7.1	7.2	7.3	7.1	7.4	7.4	6.9	7.7	7.76	7.81	7.93	7.79	7.85	7.81	7.82	7.87	7.8	6.94	7.86	7.82	7.92	7.65	7.85	7.83	7.53	7.77
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L																														
Total dissolved solids	mg/L																														
Total organic carbon	mg/L																														
Turbidity	NTU	680		212		0.4	2.5	0.6			0.2	0.1	<0.1	0.3	0.2	<0.1	0.1	<0.1	0.11	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.10
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L																														
1,1-Dichloroethylene	µg/L																														
1,1,1-Trichloroethane	µg/L																														
1,1,2-Trichloroethane	µg/L																														
1,1,2,2-Tetrachloroethane	µg/L																														
1,2-Dibromoethane	mg/L			<0.0002	<0.0002																										
1,2-Dibromoethane	µg/L																														
1,2-Dichlorobenzene	µg/L																														
1,2-Dichloroethane	µg/L																														
1,2-Dichloropropane	mg/L			<0.0010	<0.0010																										
1,2-Dichloropropane	µg/L																														
1,3-Dichlorobenzene	µg/L																														
1,3-Dichloropropene (cis + trans)	µg/L																														
1,4-Dichlorobenzene	µg/L																														

	Sampling Location	MW95-04	Runoff 1	Runoff 2	Runoff 3	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4
	Date Sampled	2004-05-17	2017-04-05	2017-04-05	2017-03-30	2002-06-03	2003-05-12	2004-05-17	2007-05-22	2007-11-05	2008-04-28	2008-10-14	2009-05-25	2009-11-04	2010-02-09	2010-06-15	2010-11-16	2011-05-09	2011-08-10	2011-10-18	2012-05-24	2012-08-22	2012-11-20	2013-05-21	2013-11-12	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2016-05-03	2016-08-22
	Lab Sample ID		7040434-01	7040434-02	7040370-01				K705752-02	K7K0165-01	K8E0035-01	K8J0452-01	K9E0816-01	K9K0184-03	K0B0397-03	K0F0788-02	K0K0729-03	K1E0403-02	K1H0536-04	K1J0685-04	2051369-02	2081484-04	2111131-04	3051354-04	3110772-02	4060249-02	4081094-01	4110161-01	5051773-02	6050336-05	6081698-04
Benzene	mg/L			0.0011	<0.0005																									
Benzene	µg/L																													
Bromodichloromethane	mg/L			<0.0010	<0.0010																									
Bromodichloromethane	µg/L																													
Bromoform	mg/L			<0.0010	<0.0010																									
Bromoform	µg/L																													
Carbon tetrachloride	mg/L			<0.0005	<0.0005																									
Carbon tetrachloride	µg/L																													
Chlorobenzene	µg/L																													
Chloroethane	mg/L			<0.0020	<0.0020																									
Chloroethane	µg/L																													
Chloroform	mg/L			<0.0010	<0.0010																									
Chloroform	µg/L																													
cis-1,2-Dichloroethylene	µg/L																													
Dibromochloromethane	mg/L			<0.0010	<0.0010																									
Dibromochloromethane	µg/L																													
Dibromomethane	mg/L			<0.0010	<0.0010																									
Dibromomethane	µg/L																													
Dichloromethane	mg/L			<0.0030	<0.0030																									
Dichloromethane	µg/L																													
Ethylbenzene	mg/L			0.0028	<0.0010																									
Ethylbenzene	µg/L																													
Methyl tert-butyl ether	mg/L			<0.0010	<0.0010																									
Methyl tert-butyl ether	µg/L																													
Styrene	mg/L			<0.0010	<0.0010																									
Styrene	µg/L																													
Tetrachloroethylene	µg/L																													
Toluene	mg/L			0.104	<0.0010																									
Toluene	µg/L																													
trans-1,2-Dichloroethylene	µg/L																													
Trichloroethylene	µg/L																													
Trichlorofluoromethane	mg/L			<0.0010	<0.0010																									
Trichlorofluoromethane	µg/L																													
Vinyl chloride	mg/L			<0.0010	<0.0010																									
Vinyl chloride	µg/L																													
Xylenes (total)	µg/L																													
Polycyclic Aromatic Hydrocarbons (PAH)																														
1-Methylnaphthalene	µg/L																													
2-Chloronaphthalene	µg/L																													
2-Methylnaphthalene	µg/L																													
Acenaphthene	µg/L																													
Acenaphthylene	µg/L																													
Acridine	µg/L																													
Anthracene	µg/L																													
Benz(a)anthracene	µg/L																													
Benzo(a)pyrene	µg/L																													
Benzo(b+j)fluoranthene	µg/L																													
Benzo(g,h,i)perylene	µg/L																													
Benzo(k)fluoranthene	µg/L																													
Chrysene	µg/L																													
Dibenz(a,h)anthracene	µg/L																													
Fluoranthene	µg/L																													
Fluorene	µg/L																													
Indeno(1,2,3-cd)pyrene	µg/L																													
Naphthalene	µg/L																													
Phenanthrene	µg/L																													
Pyrene	µg/L																													
Quinoline	µg/L																													
BCMOE Aggregate Hydrocarbons																														
EPHw10-19	µg/L																													
EPHw19-32	µg/L																													
HEPHw	µg/L																													
LEPHw	µg/L																													
VHw (6-10)	µg/L																													
VPHw	µg/L																													
VPHw	mg/L																													

	Sampling Location	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6
	Date Sampled	2016-11-14	2017-04-05	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-24	2020-11-03	2021-05-27	2021-11-02	2013-08-20	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2019-05-29
	Lab Sample ID	6111141-02	7040434-04	7111886-03	8062674-04	8090975-06	8120636-05	9052874-05	9081278-05	N000444-05	0032091-05	0051806-05	0082459-05	20K0317-05	21E3316-05	21K0749-05	3081378-02	4060249-01	4081094-02	4110161-02	5051773-01	5081710-01	5110693-04	6050336-04	6081698-05	6111141-01	7040434-05	7090074-02	7111886-02	8062674-05	9052874-06
Analyte	Unit																													
Field Parameters																														
Depth to Water	m																													
Dissolved oxygen	mg/L					5.59	5.67	4.89	6.47	5.47	4.4	4.56	4.27	5.81	3.23	6.7		8.14	7.68	7.38	6.4	7.04	6.51	5.61	6.13	5.71		9.27	9.21		10.26
Electrical Conductivity	µS/cm	932	63	1050	1055	1043	904	923	932	834	781	1007	996	996	843	1008	650	577	577	677	587	401	670	693	695	723	635	680	726	727	634
Elevation of Piezometric Surface	m																													
Oxidation reduction potential	mV	293	261		218	123	102	-14.1	185.9	100.6	96.2	264.8	179.8	277.4	900000000000	227	246	183	172	66	211	46	74	122	234	163	265	31		204	-20
pH	pH unit	7.5	7.5	7.2	7.46	7.52	7.26	7.34	7.28	7.42	7.45	6.96	7.13	6.97	7.57	6.97	7.15	7.3	7.9	7.4	7.4	7.4	6.6	7.3	7.2	7.3	7.3		7.5	7.45	7.58
Temperature	°C	8.3	8	8.2	8.3	8.4	8.3	9.7	9.3	7.4	8.3	9.4	10.9	8.7	10.1	000000000000	7.9	7.7	8.1	8.1	7.8	10.2	8.2	8.2	8.4	8	7.9	9.5	7.9	8.1	9.9
Anions																														
Bromide	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				<0.1	<0.1	<0.1	<0.1	<	<					<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Chloride	mg/L	88.6	90.4	105	103	87.4	97	97.9	92.7	92.8	99	96.5	94	92.5	95.0	94.7	22.9	23.7	26.2	34.5	28.7	24.8	28.6	24.4	29.2	30.5	31	34.4	36.2	39.7	41
Fluoride	mg/L	<0.10	<0.10	<0.10	0.15	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<	<	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.18	<0.10	<0.1
Nitrate (as N)	mg/L	1.19	1.39	1.61	1.26	1.76	1.6	1.72	1.65	1.76	1.55	1.5	1.46	1.5	1.67	1.50	0.781	0.839	0.993	1.23	0.89	1.01	0.925	0.978	1.03	0.976	1.09	1.11	1.3	0.933	1.28
Nitrite (as N)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	0.122	<0.01	<0.01	<	<	<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	<0.01
Sulfate	mg/L	40.2	42.8	43.8	38.8	42.3	42.9	43.5	41.4	41.8	42.1	43	42.1	40.7	42.4	40.5	20.4	23.5	24.1	24.3	24.3	23.8	24.8	25.2	27.1	24.9	27.6	24.4	23	25.2	30.8
Metals																														
Aluminum, dissolved	mg/L	<0.005			0.0057	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<	<	<0.005	<0.005	0.011	<0.005					<0.005	<0.005		<0.0050		0.0069	<0.005
Aluminum, total	mg/L		<0.005	<0.0050																	<0.005	<0.005	<0.05	<0.005			<0.005		<0.0050		
Antimony, dissolved	mg/L	<0.0001			<0.00020	<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<	<	0.0005	0.0005	0.0003	0.0002					<0.0001	<0.0001		<0.00020		<0.00020	<0.0002
Antimony, total	mg/L		<0.0001	<0.00020																	0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00020		
Arsenic, dissolved	mg/L	<0.0005			<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	<0.0005
Arsenic, total	mg/L		<0.0005	<0.00050																	<0.0005	<0.0005	<0.005	<0.0005			<0.0005		<0.00050		
Barium, dissolved	mg/L	0.219			0.196	0.219	0.214	0.217	0.218	0.205	0.216	0.218	0.217	0.224	0.234	0.230	0.133	0.126	0.136	0.146					0.169	0.155		0.133		0.133	0.165
Barium, total	mg/L		0.214	0.228																	0.142	0.146	0.14	0.162			0.15		0.146		
Beryllium, dissolved	mg/L	<0.0001			<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.0001
Beryllium, total	mg/L		<0.0001	<0.00010																	<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010		
Bismuth, dissolved	mg/L	<0.0001			<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.0001
Bismuth, total	mg/L		<0.0001	<0.00010																	<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010		
Boron, dissolved	mg/L	0.014			0.0335	0.0357	0.0293	0.0221	0.0225	0.0665	0.0912	0.104	<0.05	<0.05	<	0.0617	0.05	0.015	0.012	0.006					0.014	0.007		0.143		0.017	0.0099
Boron, total	mg/L		0.025	0.014																	0.006	0.007	<0.04	0.012			0.016		0.0068		
Cadmium, dissolved	mg/L	<0.00001			<0.000010	<0.000010	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<	<	0.00002	<0.00001	0.00002	<0.00001					0.00002	<0.00001		<0.000010		<0.000010	<0.00001
Cadmium, total	mg/L		<0.00001	<0.000010																	<0.00001	<0.00001	<0.0001	<0.00001			<0.00001		<0.000010		
Calcium, dissolved	mg/L	86.1			93.1	90.1	86.2	93.4	93.5	89.6	93.9	92.2	87.4	104	92.7	101	81.5	82.8	82.7	84.3					96.8	85.7		84.4		85.5	99.2
Calcium, total	mg/L		93.7	91.1																	90.4	87.9	87	105			89.6		83.6		
Chromium, dissolved	mg/L	<0.0005			<0.00050	<0.00050	<0.00050	0.00085	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	0.0009
Chromium, total	mg/L		0.0005	0.00052																	<0.0005	<0.0005	<0.005	<0.0005			0.0006		0.00062		
Cobalt, dissolved	mg/L	<0.00005			<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<0.00005	<0.00005	0.00007	0.00006					0.00007	<0.00005		<0.00010		<0.00010	<0.0001
Cobalt, total	mg/L		<0.00005	<0.00010																	<0.00005	<0.00005	<0.0005	<0.00005			<0.00005		<0.00010		
Copper, dissolved	mg/L	0.0012			0.00099	0.00182	0.00065	0.00984	0.0014	0.0013	0.00216	0.0127	0.00191	0.00301	0.00157	0.00149	0.0008	0.0013	0.0028	0.0024					0.0014	0.0008		0.00143		0.00106	0.00231
Copper, total	mg/L		0.0015	0.00073																	0.001	0.0016	<0.002	0.0008			0.0013		0.00153		
Iron, dissolved	mg/L	<0.010			<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<	<	<0.010	<0.010	0.033	0.013					0.012	<0.010		0.019		0.018	0.016
Iron, total	mg/L		<0.01	<0.010																	0.01	0.01	<0.10	<0.01			<0.01		<0.010		
Lead, dissolved	mg/L	0.0001			<0.00020	<0.00020	0.00025	0.00066	<0.0002	<0.0002	<0.0002	0.00123	<0.0002	0.00021	<	<	<0.0001	<0.0001	0.0002	<0.0001					<0.0001	<0.0001		<0.00020		<0.00020	<0.0002
Lead, total	mg/L		0.0001	<0.00020																	0.0001	0.0001	<0.001	0.0001			<0.0001		<0.00020		
Lithium, dissolved	mg/L	0.0019			0.00226	0.00212	0.00231	0.00228	0.00224	0.00228	0.00242	0.00193	0.00171	0.00241	0.00248	0.00260	0.0013	0.0013	0.0014	0.0013					0.0012	0.0012		0.0014		0.00132	0.0016
Lithium, total	mg/L		0.002	0.00199																	0.0014	0.0012	0.001	0.0017			0.0013		0.00115		
Magnesium, dissolved	mg/L	41.5			42.6	42.3	44.1	41.9	41.1	44.5	43.6	40.2	42.8	44	46.9	44.9	28.1	28.5	28.7	27.1					33.6	28.8		28.2		27.7	31.6
Magnesium, total	mg/L		39.6	39.2																	29.2	27.1	26.8	33			26.8		24		
Manganese, dissolved	mg/L	<0.0002			0.00162	<0.00020	0.00517	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<	<	0.0009	0.0013	0.0082	0.0014					0.0011	0.0008		0.00294		0.00229	0.00175
Manganese, total	mg/L		<0.0002	<0.00020																	0.0011	0.001	<0.002	0.0007			0.0007		0.00077		
Mercury, dissolved	mg/L	<0.00002			<0.000010	<0.000040	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<	<	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000010		<0.000040	<0.00001
Mercury, total	mg/L		<0.00002	<0.000010																	<0.00002		<0.00002	<0.00002			<0.00002		<0.000010		
Molybdenum, dissolved	mg/L	0.0002			0.00018	0.00021	0.00023	0.00021	0.0002	0.00018	0.00018	0.00018	0.00018	0.00021	0.00021	0.00018	0.0003	0.0004	0.0004	0.0004					0.0003	0.0002		0.0003		0.00044	0.00036
Molybdenum, total	mg/L		0.0002	0.00019																	0.0005	0.0003	<0.001	0.0003			0.0003		0.00026		
Nickel, dissolved	mg/L	<0.0002			<0.00040	<0.00040	<0.00040	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.00057	<	0.0003	<0.0002	0.0012	0.0004					0.0002	0.0003		<0.00040		<0.00040	<0.0004
Nickel, total	mg/L		<0.0002	<0.00040																	<0.0002	0.0006	<0.002	0.0002			0.0002		<0.00040		
Phosphorus, dissolved	mg/L	<0.02			<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<	<	<0.02	<0.02	0.07	<0.02					<0.02	<0.02		<0.050		<0.050	<0.05
Phosphorus, total	mg/L		<0.05	<0.050																	<0.020	0.03	<0.2	<0.02			<0.05		<0.050		
Potassium, dissolved	mg/L	1.93			1.95	1.77	2.12	1.78	1.86	1.65	1.97	1.87	1.82	2.14	2.16	1.99	1	0.89	0.95	0.94					1.1	0.99		0.89		1.01	1.02
Potassium, total	mg/L		1.85	1.89																	1.03	0.99	0.8	1.06			0.93		0.91		
Selenium, dissolved	mg/L	<0.0005			<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<0.0005	<0.0005	<0.0005	<0.0005					<0.0005	<0.0005		<0.00050		<0.00050	<0.0005
Selenium, total	mg/L		<0.0005	<0.00050																	<0.0005	<0.0005	<0.005	<0.0005			<0.0005		<0.00050		
Silicon, dissolved	mg/L	4.9			4.9	4.6	4.9	4.4	5	5.6	5.4	5.6	4.5	5.2	5.4	5.5	4.1	4	4.4	4.5					4.2	4.5		4		4.3	4.4
Silicon, total	mg/L		4.7	4.4																	4.7	4.3	<5	5.2			4.3		3.7		
Silver, dissolved	mg/L	<0.00005			<0.000050	<0.000050	<0.000050	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<	<	<0.00005	<0.00005	<0.00005	<0.00005					<0.00005	<0.00005		<0.000050		<0.000050	<0.00005
Silver, total	mg/L		<0.00005	<0.000050																	<0.00005	0.00154	<0.0005	<0.00005			<0.00005		<0.000050		
Sodium, dissolved	mg/L	50			57.8	56.9	58.5	56.9	55.9	62	59.4	55.4	57.8	60.4	63.3	61.6	15.2	13.9	15.4	17.9					17.9	16.7		17		20.3	23.1
Sodium, total	mg/L		52.7	52.1																	18.9	15.1	15.9	17.9			17.1		15.7		

	Sampling Location	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6
	Date Sampled	2016-11-14	2017-04-05	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-24	2020-11-03	2021-05-27	2021-11-02	2013-08-20	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2019-05-29
	Lab Sample ID	6111141-02	7040434-04	7111886-03	8062674-04	8090975-06	8120636-05	9052874-05	9081278-05	N000444-05	0032091-05	0051806-05	0082459-05	20K0317-05	21E3316-05	21K0749-05	3081378-02	4060249-01	4081094-02	4110161-02	5051773-01	5081710-01	5110693-04	6050336-04	6081698-05	6111141-01	7040434-05	7090074-02	7111886-02	8062674-05	9052874-06
Strontium, dissolved	mg/L	0.462			0.492	0.46	0.471	0.459	0.479	0.439	0.481	0.465	0.473	0.487	0.464	0.461	0.282	0.269	0.301	0.29					0.344	0.312		0.258		0.281	0.328
Strontium, total	mg/L		0.446	0.486																	0.296	0.298	0.27	0.325			0.294		0.285			
Sulfur, dissolved	mg/L	15			16.1	14.3	15	15.7	15.7	16.1	17	13.6	15.9	15.3	13.8	15.4	8	10	8	7					13	9		7.8		9.8	12
Sulfur, total	mg/L		12	14																	9	8	<10	11			6		7.9		
Tellurium, dissolved	mg/L	<0.0002			<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<	<	<0.0002	<0.0002	<0.0002	<0.0002					<0.0002	<0.0002		<0.00050		<0.00050	<0.0005
Tellurium, total	mg/L		<0.0002	<0.00050																	<0.0002	<0.0002	<0.002	<0.0002			<0.0002		<0.00050			
Thallium, dissolved	mg/L	<0.00002			<0.000020	<0.000020	<0.000020	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<	<	<0.00002	<0.00002	<0.00002	<0.00002					<0.00002	<0.00002		<0.000020		<0.000020	<0.00002
Thallium, total	mg/L		<0.00002	<0.000020																	<0.00002	<0.00002	<0.0002	<0.00002			<0.00002		<0.000020			
Thorium, dissolved	mg/L	<0.0001			<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.0001
Thorium, total	mg/L		<0.0001	<0.00010																	<0.0001	<0.0001	<0.01	<0.0001			<0.0001		<0.00010			
Tin, dissolved	mg/L	<0.0002			<0.00020	<0.00020	0.00022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<	<	<0.0002	<0.0002	<0.0002	<0.0002					<0.0002	<0.0002		<0.00020		<0.00020	<0.0002
Tin, total	mg/L		<0.0002	<0.00020																	<0.0002	<0.0002	<0.002	<0.0002			<0.0002		<0.00020			
Titanium, dissolved	mg/L	<0.005			<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<	<	<0.005	<0.005	<0.005	<0.005					<0.005	<0.005		<0.0050		<0.0050	<0.005
Titanium, total	mg/L		<0.005	<0.0050																	<0.005	<0.005	<0.05	<0.005			<0.005		<0.0050			
Tungsten, dissolved	mg/L				<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<	<														<0.0010	<0.001
Tungsten, total	mg/L			<0.0010																									<0.0010		
Uranium, dissolved	mg/L	0.00115			0.00117	0.00132	0.00133	0.00128	0.00128	0.00124	0.00128	0.00128	0.00121	0.00133	0.00123	0.00122	0.00105	0.00103	0.00114	0.00114					0.00117	0.00106		0.00109		0.001	0.0013
Uranium, total	mg/L		0.00124	0.00127																	0.00112	0.00111	0.0011	0.00133			0.00109		0.00107			
Vanadium, dissolved	mg/L	<0.001			<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<	<	<0.001	<0.001	<0.001	<0.001					<0.001	<0.001		<0.0010		<0.0010	<0.001
Vanadium, total	mg/L		<0.001	<0.0010																	<0.001	<0.001	<0.01	<0.001			<0.001		<0.0010			
Zinc, dissolved	mg/L	<0.004			0.0062	<0.0040	0.0063	0.0265	<0.004	<0.004	<0.004	0.0359	0.0044	0.0053	0.0055	<	<0.004	<0.004	0.01	0.005					<0.004	<0.004		0.01		0.0052	0.0055
Zinc, total	mg/L		<0.004	<0.0040																	<0.004	0.016	<0.04	<0.004			0.004		<0.0040			
Zirconium, dissolved	mg/L	<0.0001			<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<	<	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001	<0.0001		<0.00010		<0.00010	<0.0001
Zirconium, total	mg/L		<0.0001	<0.00010																	<0.0001	<0.0001	<0.001	<0.0001			<0.0001		<0.00010			
General Parameters																															
Alkalinity, Bicarbonate (as CaCO3)	mg/L	336	343	361	336	378	355	357	346	409	374	365	356	358	376	374								292	296	308	314	288	304	288	331
Alkalinity, Carbonate (as CaCO3)	mg/L	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<								<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1
Alkalinity, Hydroxide (as CaCO3)	mg/L	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<								<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<	<								<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1
Alkalinity, Total (as CaCO3)	mg/L	336	343	361	336	378	355	357	346	409	374	365	356	358	376	374	268	276	277	291	303	288	295	292	296	308	314	288	304	288	331
Ammonia, Total (as N)	mg/L	<0.020	0.026	0.024	<0.020	0.02	<0.020	0.063	0.07	<0.02	<0.02	<0.05	<0.05	<0.05	<	<	<0.020	0.024	<0.020	<0.020	<0.020	<0.020	0.02	<0.020	0.02	0.037	0.03	0.021	0.028	<0.020	0.089
Bicarbonate (HCO3)	mg/L	410	418	441	410	461	433	435	423	498	456	446	434	437	459	456								356	361	375	383	352	371	351	404
BOD, 5-day	mg/L										<4.9	<6.1	<6.1	<5.8	<	8.0															
Carbonate (CO3)	mg/L	<0.6	<0.600	<0.600	<0.600	<0.600	<0.600	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<	<								<1	<0.6	<0.6	<0.600	<0.600	<0.600	<0.600	<0.6
Chemical Oxygen Demand	mg/L										<20	<20	<20	<20	<	<															
Electrical Conductivity	µS/cm	966	959	1050	1010	1020	1000	973	989	961	945	997	1040	1040	928	979	620	621	634	679	672	618	661	658	666	712	692	655	704	702	739
Hardness, Total (as CaCO3)	mg/L			389				406	403	407	414	396	395	441	425	436					346	332	328						308		378
Hydroxide (OH)	mg/L	<0.3	<0.340	<0.340	<0.340	<0.340	<0.340	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<	<								<1	<0.3	<0.3	<0.340	<0.340	<0.340	<0.340	<0.34
Nitrate + Nitrite (as N)	mg/L																														
Nitrogen, Total Kjeldahl	mg/L																														
pH	pH unit	7.97	7.85	7.91	7.88	7.83	7.92	7.99	7.92	8.16	7.98	7.93	7.98	8.04	8.02	7.97	7.94	7.87	7.7	7.86	7.81	7.79	7.72	7.74	7.76	7.89	7.89	8.03	8	7.93	8.02
Phosphorus, Total (as P)	mg/L																														
Phosphorus, Total Dissolved	mg/L						<0.0020																								
Total dissolved solids	mg/L										607	562	579	559	558	561															
Total organic carbon	mg/L																														
Turbidity	NTU	<0.10	<0.10	0.26	<0.10		<0.10	0.19	<0.1	0.1	0.12	<0.1	<0.1	0.23	<	<	0.6	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1	0.11	0.13	0.16	0.12	0.1	<0.10	3.63
Microbiological Parameters																															
Coliforms, Fecal	CFU/100 mL																														
Coliforms, Fecal	MPN/100 mL																														
Coliforms, Fecal (MPN)	MPN/100 mL																														
Coliforms, Total	MPN/100 mL																														
Coliforms, Total (MPN)	MPN/100 mL																														
E. coli (MPN)	MPN/100 mL																														
E. coli, Total	CFU/100 mL																														
Volatile Organic Compounds (VOC)																															
1,1-Dichloroethane	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,1-Dichloroethylene	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,1,1-Trichloroethane	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,1,2-Trichloroethane	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,1,2,2-Tetrachloroethane	µg/L							<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<																<0.5
1,2-Dibromoethane	mg/L		<0.0002			<0.0003																				<0.0002					
1,2-Dibromoethane	µg/L							<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<																<0.3
1,2-Dichlorobenzene	µg/L							<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<																<0.5
1,2-Dichloroethane	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,2-Dichloropropane	mg/L		<0.0010			<0.0010																				<0.0010					
1,2-Dichloropropane	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,3-Dichlorobenzene	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,3-Dichloropropene (cis + trans)	µg/L							<1		<1	<1	<1	<1	<1	<																<1
1,4-Dichlorobenzene	µg/L							<1		<1	<1	<1	<1	<1	<																<1

	Sampling Location	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #4	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6	Town Well #6
	Date Sampled	2016-11-14	2017-04-05	2017-11-20	2018-06-26	2018-09-11	2018-12-03	2019-05-29	2019-08-13	2019-10-29	2020-03-25	2020-05-20	2020-08-24	2020-11-03	2021-05-27	2021-11-02	2013-08-20	2014-06-02	2014-08-18	2014-11-04	2015-05-25	2015-08-25	2015-11-09	2016-05-03	2016-08-22	2016-11-14	2017-04-05	2017-08-29	2017-11-20	2018-06-26	2019-05-29
	Lab Sample ID	6111141-02	7040434-04	7111886-03	8062674-04	8090975-06	8120636-05	9052874-05	9081278-05	N000444-05	0032091-05	0051806-05	0082459-05	20K0317-05	21E3316-05	21K0749-05	3081378-02	4060249-01	4081094-02	4110161-02	5051773-01	5081710-01	5110693-04	6050336-04	6081698-05	6111141-01	7040434-05	7090074-02	7111886-02	8062674-05	9052874-06
Benzene	mg/L		<0.0005			<0.0005																				<0.0005				
Benzene	µg/L							<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<															<0.5
Bromodichloromethane	mg/L		<0.0010			<0.0010																				<0.0010				
Bromodichloromethane	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Bromoform	mg/L		<0.0010			<0.0010																				<0.0010				
Bromoform	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Carbon tetrachloride	mg/L		<0.0005			<0.0005																				<0.0005				
Carbon tetrachloride	µg/L							<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<															<0.5
Chlorobenzene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Chloroethane	mg/L		<0.0020			<0.0020																				<0.0020				
Chloroethane	µg/L							<2		<2	<2	<2	<2	<2	<															<2
Chloroform	mg/L		<0.0010			<0.0010																				<0.0010				
Chloroform	µg/L							<1		<1	<1	<1	<1	<1	<															<1
cis-1,2-Dichloroethylene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Dibromochloromethane	mg/L		<0.0010			<0.0010																				<0.0010				
Dibromochloromethane	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Dibromomethane	mg/L		<0.0010			<0.0010																				<0.0010				
Dibromomethane	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Dichloromethane	mg/L		<0.0030			<0.0030																				<0.0030				
Dichloromethane	µg/L							<3		<3	<3	<3	<3	<3	<															<3
Ethylbenzene	mg/L		<0.0010			<0.0010																				<0.0010				
Ethylbenzene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Methyl tert-butyl ether	mg/L		<0.0010			<0.0010																				<0.0010				
Methyl tert-butyl ether	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Styrene	mg/L		<0.0010			<0.0010																				<0.0010				
Styrene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Tetrachloroethylene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Toluene	mg/L		<0.0010			<0.0010																				<0.0010				
Toluene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
trans-1,2-Dichloroethylene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Trichloroethylene	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Trichlorofluoromethane	mg/L		<0.0010			<0.0010																				<0.0010				
Trichlorofluoromethane	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Vinyl chloride	mg/L		<0.0010			<0.0010																				<0.0010				
Vinyl chloride	µg/L							<1		<1	<1	<1	<1	<1	<															<1
Xylenes (total)	µg/L							<2		<2	<2	<2	<2	<2	<															<2
Polycyclic Aromatic Hydrocarbons (PAH)																														
1-Methylnaphthalene	µg/L											<0.1			<															
2-Chloronaphthalene	µg/L											<0.1			<															
2-Methylnaphthalene	µg/L											<0.1			<															
Acenaphthene	µg/L											<0.05			<															
Acenaphthylene	µg/L											<0.2			<															
Acridine	µg/L											<0.05			<															
Anthracene	µg/L											<0.01			<															
Benz(a)anthracene	µg/L											<0.01			<															
Benzo(a)pyrene	µg/L											<0.01			<															
Benzo(b+j)fluoranthene	µg/L											<0.05			<															
Benzo(g,h,i)perylene	µg/L											<0.05			<															
Benzo(k)fluoranthene	µg/L											<0.05			<															
Chrysene	µg/L											<0.05			<															
Dibenz(a,h)anthracene	µg/L											<0.01			<															
Fluoranthene	µg/L											<0.03			<															
Fluorene	µg/L											<0.05			<															
Indeno(1,2,3-cd)pyrene	µg/L											<0.05			<															
Naphthalene	µg/L											<0.2			<															
Phenanthrene	µg/L											<0.1			<															
Pyrene	µg/L											<0.02			<															
Quinoline	µg/L											<0.05			<															
BCMOE Aggregate Hydrocarbons																														
EPHw10-19	µg/L											<250																		
EPHw19-32	µg/L											<250																		
HEPHw	µg/L											<250																		
LEPHw	µg/L											<250																		
VHw (6-10)	µg/L											<100	<100																	
VPHw	µg/L											<100	<100																	
VPHw	mg/L																													

Sampling Location		Town Well #6	Town Well #6	Town Well #6	Well ID 22653
Date Sampled		2019-08-13	2020-08-24	2020-11-03	2018-12-04
Lab Sample ID		9081278-06	0082459-06	20K0317-06	8120636-07
Analyte	Unit				
Field Parameters					
Depth to Water	m				5.82
Dissolved oxygen	mg/L	8.83	4.68	2.79	2.87
Electrical Conductivity	µS/cm	713	892	895	352
Elevation of Piezometric Surface	m				
Oxidation reduction potential	mV	150.6	193.2	237	
pH	pH unit	7.38	6.85	6.88	8.65
Temperature	°C	9.3	10.4	9	7.8
Anions					
Bromide	mg/L		<0.1	<0.1	<0.10
Chloride	mg/L	42.1	60.4	60.2	29.4
Fluoride	mg/L	<0.1	<0.1	<0.1	0.13
Nitrate (as N)	mg/L	1.32	1.26	1.03	<0.010
Nitrite (as N)	mg/L	<0.01	<0.01	0.012	<0.010
Sulfate	mg/L	28.6	34.2	37.9	23.5
Metals					
Aluminum, dissolved	mg/L	<0.005	<0.005	<0.005	0.0068
Aluminum, total	mg/L				
Antimony, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<0.00020
Antimony, total	mg/L				
Arsenic, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.00050
Arsenic, total	mg/L				
Barium, dissolved	mg/L	0.161	0.191	0.196	0.0224
Barium, total	mg/L				
Beryllium, dissolved	mg/L	<0.0001	<0.0001	0.00031	<0.00010
Beryllium, total	mg/L				
Bismuth, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.00010
Bismuth, total	mg/L				
Boron, dissolved	mg/L	0.0106	<0.05	<0.05	0.0156
Boron, total	mg/L				
Cadmium, dissolved	mg/L	<0.00001	<0.00001	0.000011	<0.000010
Cadmium, total	mg/L				
Calcium, dissolved	mg/L	93.4	98.4	116	20.4
Calcium, total	mg/L				
Chromium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.00050
Chromium, total	mg/L				
Cobalt, dissolved	mg/L	<0.0001	0.00021	0.00028	<0.00010
Cobalt, total	mg/L				
Copper, dissolved	mg/L	0.00228	<0.0004	0.0141	<0.00040
Copper, total	mg/L				
Iron, dissolved	mg/L	<0.01	0.137	0.119	1.93
Iron, total	mg/L				
Lead, dissolved	mg/L	<0.0002	<0.0002	<0.0002	<0.00020
Lead, total	mg/L				
Lithium, dissolved	mg/L	0.00146	0.00133	0.00191	0.00204
Lithium, total	mg/L				
Magnesium, dissolved	mg/L	29.3	35.5	36	26.2
Magnesium, total	mg/L				
Manganese, dissolved	mg/L	0.00077	0.0287	0.043	0.0986
Manganese, total	mg/L				
Mercury, dissolved	mg/L	<0.00001	<0.00001	<0.00001	<0.000010
Mercury, total	mg/L				
Molybdenum, dissolved	mg/L	0.00031	0.00102	0.00116	0.00025
Molybdenum, total	mg/L				
Nickel, dissolved	mg/L	<0.0004	0.0008	0.00154	<0.00040
Nickel, total	mg/L				
Phosphorus, dissolved	mg/L	<0.05	<0.05	<0.05	<0.050
Phosphorus, total	mg/L				
Potassium, dissolved	mg/L	1	1.18	1.34	0.95
Potassium, total	mg/L				
Selenium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.00050
Selenium, total	mg/L				
Silicon, dissolved	mg/L	4.5	4.6	5.1	<1.0
Silicon, total	mg/L				
Silver, dissolved	mg/L	<0.00005	<0.00005	<0.00005	<0.000050
Silver, total	mg/L				
Sodium, dissolved	mg/L	22.6	33.5	34.8	14.7
Sodium, total	mg/L				

	Sampling Location	Town Well #6	Town Well #6	Town Well #6	Well ID 22653
	Date Sampled	2019-08-13	2020-08-24	2020-11-03	2018-12-04
	Lab Sample ID	9081278-06	0082459-06	20K0317-06	8120636-07
Strontium, dissolved	mg/L	0.331	0.368	0.383	0.115
Strontium, total	mg/L				
Sulfur, dissolved	mg/L	10.7	12.3	14.5	7.1
Sulfur, total	mg/L				
Tellurium, dissolved	mg/L	<0.0005	<0.0005	<0.0005	<0.00050
Tellurium, total	mg/L				
Thallium, dissolved	mg/L	<0.00002	<0.00002	<0.00002	<0.000020
Thallium, total	mg/L				
Thorium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.00010
Thorium, total	mg/L				
Tin, dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.00077
Tin, total	mg/L				
Titanium, dissolved	mg/L	<0.005	<0.005	<0.005	<0.0050
Titanium, total	mg/L				
Tungsten, dissolved	mg/L	<0.001	<0.001	<0.001	<0.0010
Tungsten, total	mg/L				
Uranium, dissolved	mg/L	0.00121	0.00141	0.00155	<0.000020
Uranium, total	mg/L				
Vanadium, dissolved	mg/L	<0.001	<0.001	<0.001	<0.0010
Vanadium, total	mg/L				
Zinc, dissolved	mg/L	0.0094	<0.004	<0.004	0.0043
Zinc, total	mg/L				
Zirconium, dissolved	mg/L	<0.0001	<0.0001	<0.0001	<0.00010
Zirconium, total	mg/L				
General Parameters					
Alkalinity, Bicarbonate (as CaCO3)	mg/L	317	358	363	142
Alkalinity, Carbonate (as CaCO3)	mg/L	<1	<1	<1	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	<1	<1	<1	<1.0
Alkalinity, Phenolphthalein (as CaCO3)	mg/L	<1	<1	<1	<1.0
Alkalinity, Total (as CaCO3)	mg/L	317	358	363	142
Ammonia, Total (as N)	mg/L	0.067	<0.05	0.117	0.326
Bicarbonate (HCO3)	mg/L	387	437	443	173
BOD, 5-day	mg/L		<6.1	<5.8	
Carbonate (CO3)	mg/L	<0.6	<0.6	<0.6	<0.600
Chemical Oxygen Demand	mg/L		<20	<20	
Electrical Conductivity	µS/cm	759	917	857	387
Hardness, Total (as CaCO3)	mg/L	354	392	437	
Hydroxide (OH)	mg/L	<0.34	<0.34	<0.34	<0.340
Nitrate + Nitrite (as N)	mg/L				
Nitrogen, Total Kjeldahl	mg/L				
pH	pH unit	7.95	7.94	7.93	8
Phosphorus, Total (as P)	mg/L				
Phosphorus, Total Dissolved	mg/L				<0.0020
Total dissolved solids	mg/L		520	507	
Total organic carbon	mg/L				
Turbidity	NTU	23.7	23.6	171	142
Microbiological Parameters					
Coliforms, Fecal	CFU/100 mL				
Coliforms, Fecal	MPN/100 mL				
Coliforms, Fecal (MPN)	MPN/100 mL				
Coliforms, Total	MPN/100 mL				
Coliforms, Total (MPN)	MPN/100 mL				
E. coli (MPN)	MPN/100 mL				
E. coli, Total	CFU/100 mL				
Volatile Organic Compounds (VOC)					
1,1-Dichloroethane	µg/L		<1	<1	
1,1-Dichloroethylene	µg/L		<1	<1	
1,1,1-Trichloroethane	µg/L		<1	<1	
1,1,2-Trichloroethane	µg/L		<1	<1	
1,1,2,2-Tetrachloroethane	µg/L		<0.5	<0.5	
1,2-Dibromoethane	mg/L				
1,2-Dibromoethane	µg/L		<0.3	<0.3	
1,2-Dichlorobenzene	µg/L		<0.5	<0.5	
1,2-Dichloroethane	µg/L		<1	<1	
1,2-Dichloropropane	mg/L				
1,2-Dichloropropane	µg/L		<1	<1	
1,3-Dichlorobenzene	µg/L		<1	<1	
1,3-Dichloropropene (cis + trans)	µg/L		<1	<1	
1,4-Dichlorobenzene	µg/L		<1	<1	

	Sampling Location	Town Well #6	Town Well #6	Town Well #6	Well ID 22653
	Date Sampled	2019-08-13	2020-08-24	2020-11-03	2018-12-04
	Lab Sample ID	9081278-06	0082459-06	20K0317-06	8120636-07
Benzene	mg/L				
Benzene	µg/L		<0.5	<0.5	
Bromodichloromethane	mg/L				
Bromodichloromethane	µg/L		<1	<1	
Bromoform	mg/L				
Bromoform	µg/L		<1	<1	
Carbon tetrachloride	mg/L				
Carbon tetrachloride	µg/L		<0.5	<0.5	
Chlorobenzene	µg/L		<1	<1	
Chloroethane	mg/L				
Chloroethane	µg/L		<2	<2	
Chloroform	mg/L				
Chloroform	µg/L		<1	<1	
cis-1,2-Dichloroethylene	µg/L		<1	<1	
Dibromochloromethane	mg/L				
Dibromochloromethane	µg/L		<1	<1	
Dibromomethane	mg/L				
Dibromomethane	µg/L		<1	<1	
Dichloromethane	mg/L				
Dichloromethane	µg/L		<3	<3	
Ethylbenzene	mg/L				
Ethylbenzene	µg/L		<1	<1	
Methyl tert-butyl ether	mg/L				
Methyl tert-butyl ether	µg/L		<1	<1	
Styrene	mg/L				
Styrene	µg/L		<1	<1	
Tetrachloroethylene	µg/L		<1	<1	
Toluene	mg/L				
Toluene	µg/L		<1	<1	
trans-1,2-Dichloroethylene	µg/L		<1	<1	
Trichloroethylene	µg/L		<1	<1	
Trichlorofluoromethane	mg/L				
Trichlorofluoromethane	µg/L		<1	<1	
Vinyl chloride	mg/L				
Vinyl chloride	µg/L		<1	<1	
Xylenes (total)	µg/L		<2	<2	
Polycyclic Aromatic Hydrocarbons (PAH)					
1-Methylnaphthalene	µg/L				
2-Chloronaphthalene	µg/L				
2-Methylnaphthalene	µg/L				
Acenaphthene	µg/L				
Acenaphthylene	µg/L				
Acridine	µg/L				
Anthracene	µg/L				
Benz(a)anthracene	µg/L				
Benzo(a)pyrene	µg/L				
Benzo(b+j)fluoranthene	µg/L				
Benzo(g,h,i)perylene	µg/L				
Benzo(k)fluoranthene	µg/L				
Chrysene	µg/L				
Dibenz(a,h)anthracene	µg/L				
Fluoranthene	µg/L				
Fluorene	µg/L				
Indeno(1,2,3-cd)pyrene	µg/L				
Naphthalene	µg/L				
Phenanthrene	µg/L				
Pyrene	µg/L				
Quinoline	µg/L				
BCMOE Aggregate Hydrocarbons					
EPHw10-19	µg/L				
EPHw19-32	µg/L				
HEPHw	µg/L				
LEPHw	µg/L				
VHw (6-10)	µg/L		<100		
VPHw	µg/L		<100		
VPHw	mg/L				

APPENDIX F: Historical Gas Monitoring Data

Gas Probe	Date	Methane (% CH_4)	Carbon Dioxide (% CO_2)	Oxygen (% O_2)	Hydrogen Sulfide (% H_2S)	Carbon Monoxide (% CO)
GP20-01S	24-Aug-20	0	0.1	20.3	0	0
	3-Nov-20	0	2.4	18.6	0	0
	31-Mar-2021	0	0.3	19.3	0	0
	28-May-2021	0	0.1	19.9	0	0
	24-Aug-2021	0	0.3	19.7	0	0
	3-Nov-2021	0	0.2	20.9	0	0
GP20-01D	24-Aug-20	0	0.1	20.2	0	0
	3-Nov-20	0	1.9	18.9	0	0
	31-Mar-2021	0	0.3	19.8	0	0
	28-May-2021	0	0	20.1	0	0
	24-Aug-2021	0	0.3	19.8	0	0
	3-Nov-2021	0	0.4	21.2	0	0
GP20-02S	24-Aug-20	0	0.1	20.4	0	0
	3-Nov-20	0	1.5	20.1	0	0
	31-Mar-2021	0	0.8	19.5	0	0
	28-May-2021	0	0	20.2	0	0
	24-Aug-2021	0	0	20.2	0	0
	3-Nov-2021	0.1	1.7	18.6	0	0
GP20-02D	24-Aug-20	0	0.2	20.5	0	0
	3-Nov-20	0	1.8	17.9	0	0
	31-Mar-2021	0	0	20.8	0	0
	28-May-2021	0	0.2	20	0	0
	24-Aug-2021	0	0.2	20.1	0	0
	3-Nov-2021	0	0.2	20.7	0	0
GP6D	9-Aug-2013	0.2	2.2	18	na	na
	15-Apr-2014	0	4.1	13.6	na	na
	17-Jun-2015	0.1	4.3	15.9	na	na
	24-Nov-2016	0.1	3.3	17.3	na	na
	7-Dec-2017	0	2.8	17	na	na
	15-Nov-2018	0	3.2	17.1	na	na
	13-Nov-2019	0	4.5	13.6	na	na
	10-Mar-2020	0	4.7	13.6	na	na
	19-May-2020	0.1	6.1	12.8	0	1
	24-Aug-2020	0.1	1.5	19.5	0	1
	3-Nov-2020	0	2.4	18.8	0	0
	30-Mar-2021	0	3	14.4	0	0
	27-May-2021	0	5.1	12.7	0	0
	24-Aug-2021	0	2.1	18.6	0	0
	3-Nov-2021	0.1	2.7	18.4	0	0
GP6S	9-Aug-2013	0.2	2.6	17.7	na	na
	15-Apr-2014	0	5.1	12.4	na	na
	17-Jun-2015	0.1	5.3	14.8	na	na
	24-Nov-2016	0.1	4	17.2	na	na
	7-Dec-2017	0	4.2	17.4	na	na
	15-Nov-2018	0	3.1	15.5	na	na
	13-Nov-2019	0	4	14.8	na	na
	10-Mar-2020	0	4.4	13.1	na	na
	19-May-2020	0	3.1	16.9	0	0
	24-Aug-2020	0.1	2.4	18.2	0	0
	3-Nov-2020	0.1	2	19.2	0	0
	30-Mar-2021	0	4.3	12.2	0	0
	27-May-2021	0	3.7	15.4	0	0
	24-Aug-2021	0	3	17.7	0	0
	3-Nov-2021	0.1	2.8	18.4	0	0
GP-7D	30-Mar-2021	0	1.2	18.9	0	0
	27-May-2021	0	1.6	11.7	0	0
	24-Aug-2021	0	1.2	18.5	0	0
	3-Nov-2021	0.1	1.7	16.6	0	0
	9-Aug-2013	0.2	0.3	19.3	na	na
	15-Apr-2014	0	1.7	12.4	na	na
	17-Jun-2015	0.1	1.3	16.1	na	na
	24-Nov-2016	0.1	1.7	12.7	na	na
	7-Dec-2017	0	1.2	13.1	na	na
	15-Nov-2018	0	1.5	13.4	na	na
	13-Nov-2019	0	0.7	16.4	na	na
	10-Mar-2020	0	0.9	16.2	na	na
	19-May-2020	0.1	1.6	13	0	0
	24-Aug-2020	0	0.1	20	0	1
	2-Nov-2020	0	1.7	16.4	0	0
GP-7S	30-Mar-2021	0	1	11.7	0	0
	27-May-2021	0	0.9	11.8	0	0
	24-Aug-2021	0	0.7	17.7	0	0
	3-Nov-2021	0.1	1.3	14.7	0	1
	9-Aug-2013	0.2	1.1	11.9	na	na
	15-Apr-2014	0	1.4	11.4	na	na
	17-Jun-2015	0.1	1.3	11.4	na	na
	24-Nov-2016	0.1	1.4	11.8	na	na
	7-Dec-2017	0	1.7	11.2	na	na
	15-Nov-2018	0	1.9	11.1	na	na
	13-Nov-2019	0	0.7	15.1	na	na
	10-Mar-2020	0	0.8	15.4	na	na
	19-May-2020	0.1	1.4	11.7	0	0
	24-Aug-2020	0	0.1	20	0	1
	2-Nov-2020	0	0.9	16.7	0	0

na = no data available

APPENDIX G: 2022 Laboratory Certificates of Analysis

CERTIFICATE OF ANALYSIS

REPORTED TO	Ecoscape Environmental Ltd. #102 - 450 Neave Court Kelowna, BC V1V 2M2		
ATTENTION	Mike Schutten	**WORK ORDER**	22C2624
PO NUMBER	19-2850	**RECEIVED / TEMP**	2022-03-18 15:46 / 7.3°C
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52
PROJECT INFO	Golden	**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22C2624-02) | Matrix: Water | Sampled: 2022-03-16 18:10					
Anions					
Bromide	**1.97**	0.10	mg/L	2022-03-21	
Chloride	**364**	0.10	mg/L	2022-03-21	
Fluoride	**0.17**	0.10	mg/L	2022-03-21	
Nitrate (as N)	**37.3**	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	**0.011**	0.010	mg/L	2022-03-21	HT1
Sulfate	**617**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1350**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0068**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0392**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**1.52**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**134**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00164**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00193**	0.00040	mg/L	2022-03-23	
Iron, dissolved	< 0.010	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0326**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**245**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.116**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00030**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.0117**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**146**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**9.9**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**277**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**1.35**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**186**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	**0.000077**	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22C2624-02) | Matrix: Water | Sampled: 2022-03-16 18:10, Continued					
Dissolved Metals, Continued					
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.00673**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	**0.00014**	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**1040**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**1040**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**1270**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**1.92**	0.050	mg/L	2022-03-23	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	**59**	20	mg/L	2022-03-24	
Conductivity (EC)	**3960**	2.0	µS/cm	2022-03-23	
pH	**7.58**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**2940**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**224**	2.0	mg/L	2022-03-25	HT1
Turbidity	**140**	0.10	NTU	2022-03-18	
MW18-10 (22C2624-03) | Matrix: Water | Sampled: 2022-03-16 17:00					
Anions					
Bromide	**0.68**	0.10	mg/L	2022-03-21	
Chloride	**351**	0.10	mg/L	2022-03-21	
Fluoride	**0.10**	0.10	mg/L	2022-03-21	
Nitrate (as N)	**10.9**	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Sulfate	**60.9**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**923**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0186**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	**0.00070**	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.256**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22C2624-03) | Matrix: Water | Sampled: 2022-03-16 17:00, Continued					
Dissolved Metals, Continued					
Boron, dissolved	**0.154**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	**0.000013**	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**83.0**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00416**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00049**	0.00040	mg/L	2022-03-23	
Iron, dissolved	< 0.010	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0170**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**174**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.144**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00088**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.0384**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**10.9**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**8.2**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**122**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**1.21**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**19.1**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	**0.000091**	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.00248**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**731**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**731**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**892**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.886**	0.050	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22C2624-03) | Matrix: Water | Sampled: 2022-03-16 17:00, Continued					
General Parameters, Continued					
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	**32**	20	mg/L	2022-03-24	
Conductivity (EC)	**2310**	2.0	µS/cm	2022-03-23	
pH	**7.86**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**1710**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**116**	2.0	mg/L	2022-03-25	HT1
Turbidity	**58.9**	0.10	NTU	2022-03-18	
MW18-11 (22C2624-04) | Matrix: Water | Sampled: 2022-03-16 17:00					
Anions					
Bromide	**0.25**	0.10	mg/L	2022-03-21	
Chloride	**96.6**	0.10	mg/L	2022-03-21	
Fluoride	**0.76**	0.10	mg/L	2022-03-21	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Sulfate	**109**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**646**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0057**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0274**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**0.202**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**52.8**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00016**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00084**	0.00040	mg/L	2022-03-23	
Iron, dissolved	**0.011**	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0215**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**125**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.0174**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00043**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.00771**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22C2624-04) | Matrix: Water | Sampled: 2022-03-16 17:00, Continued					
Dissolved Metals, Continued					
Potassium, dissolved	**5.02**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**3.5**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**114**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**0.811**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**30.7**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.000064**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	**0.0140**	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**759**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**759**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**926**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.240**	0.050	mg/L	2022-03-23	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	< 20	20	mg/L	2022-03-24	
Conductivity (EC)	**1630**	2.0	µS/cm	2022-03-23	
pH	**7.95**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**1040**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**13.7**	2.0	mg/L	2022-03-25	HT1
Turbidity	**7.35**	0.10	NTU	2022-03-18	
DMW-1b (22C2624-05) | Matrix: Water | Sampled: 2022-03-16 10:45					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-03-21	
Chloride	**9.55**	0.10	mg/L	2022-03-21	
Fluoride	**0.93**	0.10	mg/L	2022-03-21	
Nitrate (as N)	**0.114**	0.010	mg/L	2022-03-21	HT1

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22C2624-05) | Matrix: Water | Sampled: 2022-03-16 10:45, Continued					
Anions, Continued					
Nitrite (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Sulfate	**240**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**542**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	**0.00127**	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0136**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**0.421**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**63.1**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00037**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00585**	0.00040	mg/L	2022-03-23	
Iron, dissolved	**0.048**	0.010	mg/L	2022-03-23	
Lead, dissolved	**0.00031**	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0510**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**93.3**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.00399**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00039**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.00087**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**9.61**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**5.9**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**57.5**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**4.89**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**70.6**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	**0.00029**	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.000702**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	**0.0475**	0.0040	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22C2624-05) | Matrix: Water | Sampled: 2022-03-16 10:45, Continued					
Dissolved Metals, Continued					
Zirconium, dissolved	**0.00062**	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**489**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**489**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**596**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.913**	0.050	mg/L	2022-03-23	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	< 20	20	mg/L	2022-03-24	
Conductivity (EC)	**1200**	2.0	µS/cm	2022-03-23	
pH	**8.02**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**834**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-03-25	HT1
Turbidity	**0.39**	0.10	NTU	2022-03-18	
DMW-4 (22C2624-06) | Matrix: Water | Sampled: 2022-03-16 11:05					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-03-21	
Chloride	**32.4**	0.10	mg/L	2022-03-21	
Fluoride	**1.14**	0.10	mg/L	2022-03-21	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Sulfate	**125**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**570**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0094**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	**0.0810**	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0212**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	**0.00011**	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**0.101**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**60.9**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22C2624-06) | Matrix: Water | Sampled: 2022-03-16 11:05, Continued					
Dissolved Metals, Continued					
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-03-23	
Iron, dissolved	**1.68**	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0189**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**101**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.00710**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00023**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.00126**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**4.11**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**6.1**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**22.4**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**1.41**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**34.7**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	**0.00022**	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.000202**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	**0.0171**	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	**0.00214**	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**550**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**550**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**671**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.298**	0.050	mg/L	2022-03-23	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	< 20	20	mg/L	2022-03-24	
Conductivity (EC)	**1150**	2.0	µS/cm	2022-03-23	
pH	**7.95**	0.10	pH units	2022-03-23	HT2

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22C2624-06) | Matrix: Water | Sampled: 2022-03-16 11:05, Continued					
General Parameters, Continued					
Solids, Total Dissolved	**735**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**8.1**	2.0	mg/L	2022-03-25	HT1
Turbidity	**7.59**	0.10	NTU	2022-03-18	
MW09-06D (22C2624-07) | Matrix: Water | Sampled: 2022-03-16 11:55					
Anions					
Bromide	**1.93**	0.10	mg/L	2022-03-21	
Chloride	**362**	0.10	mg/L	2022-03-21	
Fluoride	**0.14**	0.10	mg/L	2022-03-21	
Nitrate (as N)	**36.0**	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	**0.011**	0.010	mg/L	2022-03-21	HT1
Sulfate	**630**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1220**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0057**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0377**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**1.43**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**124**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00158**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00190**	0.00040	mg/L	2022-03-23	
Iron, dissolved	< 0.010	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0309**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**222**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.110**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00029**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.0110**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**134**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**9.3**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22C2624-07) | Matrix: Water | Sampled: 2022-03-16 11:55, Continued					
Dissolved Metals, Continued					
Sodium, dissolved	**253**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**1.26**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**169**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	**0.000069**	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	**0.00032**	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.00593**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	**0.00012**	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**1020**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**1020**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**1250**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**1.64**	0.050	mg/L	2022-03-23	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	**76**	20	mg/L	2022-03-24	
Conductivity (EC)	**3960**	2.0	µS/cm	2022-03-23	
pH	**7.63**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**2910**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**322**	2.0	mg/L	2022-03-25	HT1
Turbidity	**184**	0.10	NTU	2022-03-18	
DUP A (22C2624-08) | Matrix: Water | Sampled: 2022-03-16 13:10					
Anions					
Bromide	**1.89**	0.10	mg/L	2022-03-21	
Chloride	**363**	0.10	mg/L	2022-03-21	
Fluoride	**0.15**	0.10	mg/L	2022-03-21	
Nitrate (as N)	**35.2**	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	**0.014**	0.010	mg/L	2022-03-21	HT1
Sulfate	**637**	1.0	mg/L	2022-03-21	
Calculated Parameters					

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22C2624-08) | Matrix: Water | Sampled: 2022-03-16 13:10, Continued					
Calculated Parameters, Continued					
Hardness, Total (as CaCO3)	**1380**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0195**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0418**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	**1.62**	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**140**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	**0.00169**	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00196**	0.00040	mg/L	2022-03-23	
Iron, dissolved	**0.011**	0.010	mg/L	2022-03-23	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.0354**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**249**	0.010	mg/L	2022-03-23	
Manganese, dissolved	**0.122**	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00031**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	**0.0119**	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**148**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**10.4**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**286**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**1.41**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**187**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	**0.000072**	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	**0.00030**	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.00675**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	**0.00013**	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**1040**	1.0	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22C2624-08) | Matrix: Water | Sampled: 2022-03-16 13:10, Continued					
General Parameters, Continued					
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**1040**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**1270**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**1.81**	0.050	mg/L	2022-03-25	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	**73**	20	mg/L	2022-03-24	
Conductivity (EC)	**3980**	2.0	µS/cm	2022-03-23	
pH	**7.62**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**3010**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	**292**	2.0	mg/L	2022-03-25	HT1
Turbidity	**151**	0.10	NTU	2022-03-18	
DMW20-01 (22C2624-09) | Matrix: Water | Sampled: 2022-03-16 09:10					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-03-21	
Chloride	**11.3**	0.10	mg/L	2022-03-21	
Fluoride	< 0.10	0.10	mg/L	2022-03-21	
Nitrate (as N)	**0.267**	0.010	mg/L	2022-03-21	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-03-21	HT1
Sulfate	**20.8**	1.0	mg/L	2022-03-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	**161**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0069**	0.0050	mg/L	2022-03-23	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Barium, dissolved	**0.0738**	0.0050	mg/L	2022-03-23	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-03-23	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-03-23	
Calcium, dissolved	**36.8**	0.20	mg/L	2022-03-23	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Copper, dissolved	**0.00828**	0.00040	mg/L	2022-03-23	
Iron, dissolved	**0.046**	0.010	mg/L	2022-03-23	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22C2624-09) | Matrix: Water | Sampled: 2022-03-16 09:10, Continued					
Dissolved Metals, Continued					
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Lithium, dissolved	**0.00111**	0.00010	mg/L	2022-03-23	
Magnesium, dissolved	**16.7**	0.010	mg/L	2022-03-23	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-03-26	
Molybdenum, dissolved	**0.00064**	0.00010	mg/L	2022-03-23	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2022-03-23	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-03-23	
Potassium, dissolved	**0.76**	0.10	mg/L	2022-03-23	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Silicon, dissolved	**2.5**	1.0	mg/L	2022-03-23	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-03-23	
Sodium, dissolved	**7.79**	0.10	mg/L	2022-03-23	
Strontium, dissolved	**0.291**	0.0010	mg/L	2022-03-23	
Sulfur, dissolved	**7.8**	3.0	mg/L	2022-03-23	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-03-23	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-03-23	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-03-23	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-03-23	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Uranium, dissolved	**0.000571**	0.000020	mg/L	2022-03-23	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2022-03-23	
Zinc, dissolved	**0.0070**	0.0040	mg/L	2022-03-23	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-03-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**168**	1.0	mg/L	2022-03-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Bicarbonate (as CaCO3)	**168**	1.0	mg/L	2022-03-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-03-23	
Bicarbonate (HCO3)	**205**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-03-25	
BOD, 5-day	< 7.5	2.0	mg/L	2022-03-24	
Chemical Oxygen Demand	< 20	20	mg/L	2022-03-24	
Conductivity (EC)	**351**	2.0	µS/cm	2022-03-23	
pH	**8.15**	0.10	pH units	2022-03-23	HT2
Solids, Total Dissolved	**231**	15	mg/L	2022-03-25	HT1
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-03-25	HT1
Turbidity	**0.14**	0.10	NTU	2022-03-18	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
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Sample Qualifiers:

HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	✓	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2017)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

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General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2C2143										
Blank (B2C2143-BLK1)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B2C2143-BLK2)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B2C2143-BLK3)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B2C2143-BS1)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	3.91	0.10	mg/L	4.00		98	85-115			
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	3.98	0.10	mg/L	4.00		99	88-108			
Nitrate (as N)	3.88	0.010	mg/L	4.00		97	90-110			
Nitrite (as N)	2.04	0.010	mg/L	2.00		102	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
LCS (B2C2143-BS2)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	3.94	0.10	mg/L	4.00		99	85-115			
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	4.01	0.10	mg/L	4.00		100	88-108			
Nitrate (as N)	3.89	0.010	mg/L	4.00		97	90-110			
Nitrite (as N)	2.05	0.010	mg/L	2.00		102	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2C2143, Continued										
LCS (B2C2143-BS2), Continued				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
LCS (B2C2143-BS3)				Prepared: 2022-03-21, Analyzed: 2022-03-21						
Bromide	3.86	0.10	mg/L	4.00		97	85-115			
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	4.04	0.10	mg/L	4.00		101	88-108			
Nitrate (as N)	3.89	0.010	mg/L	4.00		97	90-110			
Nitrite (as N)	1.97	0.010	mg/L	2.00		99	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
Dissolved Metals, Batch B2C2574										
Blank (B2C2574-BLK1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Bismuth, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Phosphorus, dissolved	< 0.050	0.050	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silicon, dissolved	< 1.0	1.0	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Sulfur, dissolved	< 3.0	3.0	mg/L							
Tellurium, dissolved	< 0.00050	0.00050	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							
Thorium, dissolved	< 0.00010	0.00010	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0010	0.0010	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
Zirconium, dissolved	< 0.00010	0.00010	mg/L							
LCS (B2C2574-BS1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Aluminum, dissolved	0.0224	0.0050	mg/L	0.0200		112	80-120			
Antimony, dissolved	0.0180	0.00020	mg/L	0.0200		90	80-120			
Arsenic, dissolved	0.0184	0.00050	mg/L	0.0200		92	80-120			
Barium, dissolved	0.0185	0.0050	mg/L	0.0200		93	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2C2574, Continued										
LCS (B2C2574-BS1), Continued				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Beryllium, dissolved	0.0168	0.00010	mg/L	0.0200		84	80-120			
Bismuth, dissolved	0.0202	0.00010	mg/L	0.0200		101	80-120			
Boron, dissolved	< 0.0500	0.0500	mg/L	0.0200		92	80-120			
Cadmium, dissolved	0.0191	0.000010	mg/L	0.0200		95	80-120			
Calcium, dissolved, dissolved	1.87	0.20	mg/L	2.00		93	80-120			
Chromium, dissolved	0.0176	0.00050	mg/L	0.0200		88	80-120			
Cobalt, dissolved	0.0181	0.00010	mg/L	0.0200		90	80-120			
Copper, dissolved	0.0180	0.00040	mg/L	0.0200		90	80-120			
Iron, dissolved	2.01	0.010	mg/L	2.00		100	80-120			
Lead, dissolved	0.0197	0.00020	mg/L	0.0200		99	80-120			
Lithium, dissolved	0.0167	0.00010	mg/L	0.0200		84	80-120			
Magnesium, dissolved, dissolved	1.85	0.010	mg/L	2.00		93	80-120			
Manganese, dissolved	0.0180	0.00020	mg/L	0.0200		90	80-120			
Molybdenum, dissolved	0.0195	0.00010	mg/L	0.0200		97	80-120			
Nickel, dissolved	0.0187	0.00040	mg/L	0.0200		93	80-120			
Phosphorus, dissolved	1.85	0.050	mg/L	2.00		92	80-120			
Potassium, dissolved	1.95	0.10	mg/L	2.00		97	80-120			
Selenium, dissolved	0.0195	0.00050	mg/L	0.0200		98	80-120			
Silicon, dissolved	1.9	1.0	mg/L	2.00		95	80-120			
Silver, dissolved	0.0191	0.000050	mg/L	0.0200		95	80-120			
Sodium, dissolved	2.03	0.10	mg/L	2.00		101	80-120			
Strontium, dissolved	0.0179	0.0010	mg/L	0.0200		89	80-120			
Sulfur, dissolved	4.1	3.0	mg/L	5.00		82	80-120			
Tellurium, dissolved	0.0187	0.00050	mg/L	0.0200		94	80-120			
Thallium, dissolved	0.0198	0.000020	mg/L	0.0200		99	80-120			
Thorium, dissolved	0.0193	0.00010	mg/L	0.0200		96	80-120			
Tin, dissolved	0.0187	0.00020	mg/L	0.0200		94	80-120			
Titanium, dissolved	0.0189	0.0050	mg/L	0.0200		94	80-120			
Tungsten, dissolved	0.0190	0.0010	mg/L	0.0200		95	80-120			
Uranium, dissolved	0.0187	0.000020	mg/L	0.0200		93	80-120			
Vanadium, dissolved	0.0175	0.0010	mg/L	0.0200		87	80-120			
Zinc, dissolved	0.0191	0.0040	mg/L	0.0200		95	80-120			
Zirconium, dissolved	0.0196	0.00010	mg/L	0.0200		98	80-120			
Reference (B2C2574-SRM1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Aluminum, dissolved	0.221	0.0050	mg/L	0.235		94	70-130			
Antimony, dissolved	0.0425	0.00020	mg/L	0.0431		99	70-130			
Arsenic, dissolved	0.437	0.00050	mg/L	0.423		103	70-130			
Barium, dissolved	2.90	0.0050	mg/L	3.30		88	70-130			
Beryllium, dissolved	0.185	0.00010	mg/L	0.209		89	70-130			
Boron, dissolved	1.42	0.0500	mg/L	1.65		86	70-130			
Cadmium, dissolved	0.215	0.000010	mg/L	0.221		97	70-130			
Calcium, dissolved, dissolved	7.30	0.20	mg/L	7.72		95	70-130			
Chromium, dissolved	0.392	0.00050	mg/L	0.434		90	70-130			
Cobalt, dissolved	0.118	0.00010	mg/L	0.124		95	70-130			
Copper, dissolved	0.786	0.00040	mg/L	0.815		96	70-130			
Iron, dissolved	1.34	0.010	mg/L	1.27		105	70-130			
Lead, dissolved	0.113	0.00020	mg/L	0.110		102	70-130			
Lithium, dissolved	0.0871	0.00010	mg/L	0.100		87	70-130			
Magnesium, dissolved, dissolved	6.21	0.010	mg/L	6.59		94	70-130			
Manganese, dissolved	0.311	0.00020	mg/L	0.342		91	70-130			
Molybdenum, dissolved	0.384	0.00010	mg/L	0.404		95	70-130			
Nickel, dissolved	0.819	0.00040	mg/L	0.835		98	70-130			
Phosphorus, dissolved	0.462	0.050	mg/L	0.499		93	70-130			
Potassium, dissolved	2.91	0.10	mg/L	2.88		101	70-130			
Selenium, dissolved	0.0325	0.00050	mg/L	0.0324		100	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2C2574, Continued										
Reference (B2C2574-SRM1), Continued				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Sodium, dissolved	18.5	0.10	mg/L	18.0		103	70-130			
Strontium, dissolved	0.793	0.0010	mg/L	0.935		85	70-130			
Thallium, dissolved	0.0396	0.000020	mg/L	0.0385		103	70-130			
Uranium, dissolved	0.242	0.000020	mg/L	0.258		94	70-130			
Vanadium, dissolved	0.743	0.0010	mg/L	0.873		85	70-130			
Zinc, dissolved	0.817	0.0040	mg/L	0.848		96	70-130			
Dissolved Metals, Batch B2C2853										
Blank (B2C2853-BLK1)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2C2853-BLK2)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2C2853-BLK3)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2C2853-BLK4)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2C2853-BLK5)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Duplicate (B2C2853-DUP1)			**Source: 22C2624-02**	Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L		< 0.000010				20	
Matrix Spike (B2C2853-MS1)			**Source: 22C2624-03**	Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000212	0.000010	mg/L	0.000250	< 0.000010	85	70-130			
Reference (B2C2853-SRM1)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000243	0.000010	mg/L	0.000250		97	0-200			
Reference (B2C2853-SRM2)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000246	0.000010	mg/L	0.000250		98	0-200			
Reference (B2C2853-SRM3)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000241	0.000010	mg/L	0.000250		96	0-200			
Reference (B2C2853-SRM4)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000243	0.000010	mg/L	0.000250		97	0-200			
Reference (B2C2853-SRM5)				Prepared: 2022-03-25, Analyzed: 2022-03-26						
Mercury, dissolved	0.000244	0.000010	mg/L	0.000250		98	0-200			
General Parameters, Batch B2C2173										
Blank (B2C2173-BLK1)				Prepared: 2022-03-19, Analyzed: 2022-03-24						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B2C2173-BS1)				Prepared: 2022-03-19, Analyzed: 2022-03-24						
BOD, 5-day	172	62.8	mg/L	180		96	85-115			
Duplicate (B2C2173-DUP1)			**Source: 22C2624-09**	Prepared: 2022-03-19, Analyzed: 2022-03-24						
BOD, 5-day	< 7.5	2.0	mg/L		< 7.5				22	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2C2498										
Blank (B2C2498-BLK1)				Prepared: 2022-03-24, Analyzed: 2022-03-24						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B2C2498-BS1)				Prepared: 2022-03-24, Analyzed: 2022-03-24						
Chemical Oxygen Demand	508	20	mg/L	500		102	89-115			
Duplicate (B2C2498-DUP1)	**Source: 22C2624-07**			Prepared: 2022-03-24, Analyzed: 2022-03-24						
Chemical Oxygen Demand	82	20	mg/L		76				14	
Matrix Spike (B2C2498-MS1)	**Source: 22C2624-07**			Prepared: 2022-03-24, Analyzed: 2022-03-24						
Chemical Oxygen Demand	190	20	mg/L	125	76	91	75-125			
General Parameters, Batch B2C2505										
Blank (B2C2505-BLK1)				Prepared: 2022-03-18, Analyzed: 2022-03-18						
Turbidity	< 0.10	0.10	NTU							
LCS (B2C2505-BS1)				Prepared: 2022-03-18, Analyzed: 2022-03-18						
Turbidity	39.4	0.10	NTU	40.0		98	90-110			
Duplicate (B2C2505-DUP1)	**Source: 22C2624-01**			Prepared: 2022-03-18, Analyzed: 2022-03-18						
Turbidity	88.3	0.10	NTU					200	15	
General Parameters, Batch B2C2521										
Blank (B2C2521-BLK1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B2C2521-BLK2)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2C2521-BS1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Alkalinity, Total (as CaCO3)	111	1.0	mg/L	100		111	80-120			
LCS (B2C2521-BS2)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Alkalinity, Total (as CaCO3)	111	1.0	mg/L	100		111	80-120			
LCS (B2C2521-BS3)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Conductivity (EC)	1440	2.0	µS/cm	1410		102	95-105			
LCS (B2C2521-BS4)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Conductivity (EC)	1450	2.0	µS/cm	1410		103	95-105			
Reference (B2C2521-SRM1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
pH	7.01	0.10	pH units	7.01		100	98-102			
Reference (B2C2521-SRM2)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
pH	7.01	0.10	pH units	7.01		100	98-102			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2C2561										
Blank (B2C2561-BLK1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B2C2561-BLK2)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B2C2561-BLK3)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
LCS (B2C2561-BS1)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	0.961	0.020	mg/L	1.00		96	90-115			
LCS (B2C2561-BS2)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	1.08	0.020	mg/L	1.00		108	90-115			
LCS (B2C2561-BS3)				Prepared: 2022-03-23, Analyzed: 2022-03-23						
Ammonia, Total (as N)	0.973	0.020	mg/L	1.00		97	90-115			
General Parameters, Batch B2C2824										
Blank (B2C2824-BLK1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Suspended	< 2.0	2.0	mg/L							
LCS (B2C2824-BS1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Suspended	87.0	10.0	mg/L	100		87	85-115			
Duplicate (B2C2824-DUP1)		**Source: 22C2624-03**		Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Suspended	108	2.0	mg/L		116				20	
General Parameters, Batch B2C2825										
Blank (B2C2825-BLK1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2C2825-BLK2)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2C2825-BLK3)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2C2825-BLK4)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B2C2825-BS1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	1.01	0.050	mg/L	1.00		101	90-115			
LCS (B2C2825-BS2)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	0.943	0.050	mg/L	1.00		94	90-115			
LCS (B2C2825-BS3)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	0.977	0.050	mg/L	1.00		98	90-115			
LCS (B2C2825-BS4)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Ammonia, Total (as N)	1.00	0.050	mg/L	1.00		100	90-115			
General Parameters, Batch B2C2849										

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22C2624
PROJECT	19-2850 - Golden	**REPORTED**	2022-03-28 16:52

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2C2849, Continued										
Blank (B2C2849-BLK1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Dissolved	< 15	15	mg/L							
LCS (B2C2849-BS1)				Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Dissolved	234	15	mg/L	240		98	85-115			
Duplicate (B2C2849-DUP1)			**Source: 22C2624-07**	Prepared: 2022-03-25, Analyzed: 2022-03-25						
Solids, Total Dissolved	2650	15	mg/L		2910			9	15	

22C2624

CARO.ca **1-888-311-8846**

CARO BC COC, Rev 2017-

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CHAIN OF CUSTODY RECORD

COC#: PAGE 1 OF

RELINQUISHED BY:	DATE: / TIME:	RECEIVED BY: J.S/WI	DATE: 3/1[illegible] / TIME: 15:[illegible]

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Kelsey/ Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: molson@ecoscapeltd.com
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other*
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: Other:

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard; B: Cyanide; C: PCBs; D: Asbestos; E: Heavy Metals; F: Flammable; G: Strong Odour; H: High Contamination; I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: MO

ANALYSES REQUESTED: BTEX ☐ VPH ☐ PHC F1 ☐; VOC ☐ VPH ☐; EPH ☐ PHC F2-F4 ☐; PAH ☐ L/HEPH ☐; PHENOLS Chlorinated ☐ Non-Chlor. ☐; PCB ☐ GLYCOLS ☐ HAA ☐; PESTICIDES ☐ ACID HERBICIDES ☐; METALS - WATER TOTAL Hg ☐; METALS - WATER DISSOLVED Hg ☒; METALS - SOIL (SALM) ☐ inc. pH ☐; pH ☒ EC ☒ ALK ☒; TSS ☒ VSS ☐ TDS ☒; BOD ☒ COD ☒; TOG ☐ MOG ☐; FECAL COLIFORMS ☐ HPC ☐; TOTAL COLIFORMS ☐ E. coli ☐; ASBESTOS; Dissolved Hardness as CaCO3; Chloride, Sulphate, fluoride, turbidity; Nitrate as N, Nitrite as N; Ammonia as N; bromide; HOLD; POSSIBLE SAMPLE HAZARD CODE(S)

CLIENT SAMPLE ID	DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	DATE (YYYY-MM-DD)	TIME (HH:MM)	CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX/VPH/PHC F1	VOC/VPH	EPH/PHC F2-F4	PAH/L/HEPH	PHENOLS	PCB/GLYCOLS/HAA	PESTICIDES/ACID HERBICIDES	METALS - WATER TOTAL	METALS - WATER DISSOLVED	METALS - SOIL (SALM)	pH/EC/ALK	TSS/VSS/TDS	BOD/COD	TOG/MOG	FECAL COLIFORMS/HPC	TOTAL COLIFORMS/E. coli	ASBESTOS	Dissolved Hardness as CaCO3	Chloride, Sulphate, fluoride, turbidity	Nitrate as N, Nitrite as N	Ammonia as N	bromide		HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW09-06S		✓				2022-03-16	18:10		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW10-08		✓							✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW18-10		✓				2022-03-16	17:00		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW18-11		✓				2022-036			✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
DMW-1b	✓					2022-03-16	10:48		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
DMW-4	✓					2022-03-16	11:05		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW09-06D		✓				2022-03-16	19:55		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
DUP A		✓				2022-03-16	18:10 (14:55 struck)		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			
DMW20-01	✓					2022-03-16	09:10		✓	✓										✓		✓	✓	✓					✓	✓	✓	✓	✓			

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 7.3 ICE: Y ☐ N ☐
COOLER 2 (°C): 6.1 ICE: Y ☐ N ☐
COOLER 3 (°C): 6.8 ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CARO ANALYTICAL SERVICES
Caring About Results, Obviously.

CARO.ca **1-888-311-8846**

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CHAIN OF CUSTODY RECORD

COC# _____ PAGE 1 OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
***Contact Lab To Confirm. Surcharge May Apply**

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ Other: _____

PROJECT NUMBER / INFO:
Town of Golden 19-2850.02

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: molson@ecoscapeltd.com
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2:
EMAIL 3:
PO #:

**** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here:** ☐

SAMPLED BY: KT

ANALYSES REQUESTED:

BTEX ☐ VPH ☐ PHC F1 ☐
VOC ☐ VPH ☐
EPH ☐ PHC F2-F4 ☐
PAH ☐ L/HEPH ☐
PHENOLS Chlorinated ☐ Non-Chlor. ☐
PCB ☐ GLYCOLS ☐ HAA ☐
PESTICIDES ☐ ACID HERBICIDES ☐
METALS - WATER TOTAL ☒ Hg
METALS - WATER DISSOLVED ☒ Hg
METALS - SOIL (SALM) ☐ inc. pH ☐
pH ☒ EC ☒ ALK ☒
TSS ☒ VSS ☐ TDS ☐
BOD ☒ COD ☒
TOG ☐ MOG ☐
FECAL COLIFORMS ☒ HPC ☐
TOTAL COLIFORMS ☒ *E. coli* ☒
ASBESTOS
Dissolved and Total Hardness
chloride, fluoride, suhlphate, bromide
Nitrate as N, Nitriate as N
Ammonia as N
Dissolved and Total Phosphorus
TOC, turbidity
HOLD
POSSIBLE SAMPLE HAZARD CODE(S)

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX	VOC	EPH	PAH	PHENOLS Chlorinated	PCB	PESTICIDES	METALS - WATER TOTAL Hg	METALS - WATER DISSOLVED Hg	METALS - SOIL (SALM) inc. pH	pH EC ALK	TSS VSS TDS	BOD COD	TOG MOG	FECAL COLIFORMS HPC	TOTAL COLIFORMS *E. coli*	ASBESTOS	Dissolved and Total Hardness	chloride, fluoride, suhlphate, bromide	Nitrate as N, Nitriate as N	Ammonia as N	Dissolved and Total Phosphorus	TOC, turbidity	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW15-01		✓				2022-03-16	10:15		✓	✓									✓	✓		✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): _____ ICE: Y ☐ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

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#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017

CHAIN OF CUSTODY RECORD

COC# _____ PAGE 1 OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE: 3/1
	TIME:	J.S/WI	TIME: 15:4

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ Other: _____

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Kelsey/ Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: molson@ecoscapeltd.com
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: MO

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
MW09-06S		✓				2022-03-16	18:10		✓	✓	
MW10-08		✓							✓	✓	
MW18-10		✓				2022-03-16	17:00		✓	✓	
MW18-11		✓				2022036			✓	✓	
DMW-1b	✓					2022-03-16	10:45		✓	✓	
DMW-4	✓					2022-03-16	11:05		✓	✓	
MW09-06D		✓				2022-03-16	19:55		✓	✓	
DUP A		✓				2022-03-16	18:10 / 19:55		✓	✓	
DMW20-01	✓					2022-03-16	09:10		✓	✓	

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☒	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☒ ALK ☒	TSS ☒ VSS ☐ TDS ☒	BOD ☒ COD ☒	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E.coli ☐	ASBESTOS	Dissolved Hardness as CaCO3	Chloride, Sulphate, fluoride, turbidity	Nitrate as N, Nitriate as N	Ammonia as N	bromide	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW09-06S									✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW10-08									✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW18-10									✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW18-11									✓		✓	✓	✓					✓	✓	✓	✓	✓		
DMW-1b									✓		✓	✓	✓					✓	✓	✓	✓	✓		
DMW-4									✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW09-06D									✓		✓	✓	✓					✓	✓	✓	✓	✓		
DUP A									✓		✓	✓	✓					✓	✓	✓	✓	✓		
DMW20-01									✓		✓	✓	✓					✓	✓	✓	✓	✓		

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 7.3 ICE: Y ☐ N ☐
COOLER 2 (°C): 10.1 ICE: Y ☐ N ☐
COOLER 3 (°C): 6.5 ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Ecoscape Environmental Ltd. #102 - 450 Neave Court Kelowna, BC V1V 2M2		
ATTENTION	Mike Schutten	**WORK ORDER**	22E2873
PO NUMBER	19-2850	**RECEIVED / TEMP**	2022-05-19 14:18 / 6.4°C
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25
PROJECT INFO	Golden	**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22E2873-01) | Matrix: Water | Sampled: 2022-05-18 15:15					
Anions					
Bromide	**2.08**	0.10	mg/L	2022-05-24	
Chloride	**392**	0.10	mg/L	2022-05-24	
Fluoride	**0.11**	0.10	mg/L	2022-05-24	
Nitrate (as N)	**48.1**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	**0.022**	0.010	mg/L	2022-05-24	HT1
Sulfate	**618**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1480**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.0518**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**1.75**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	**0.000011**	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**161**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00172**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00273**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0390**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**262**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.102**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00033**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.0111**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**155**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**11.5**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**277**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.66**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**230**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	**0.000054**	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	**0.00034**	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22E2873-01) | Matrix: Water | Sampled: 2022-05-18 15:15, Continued					
Dissolved Metals, Continued					
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00580**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	**0.0042**	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	**0.00021**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**943**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**943**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**1150**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**1.95**	0.050	mg/L	2022-05-23	
BOD, 5-day	**6.8**	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	**79**	20	mg/L	2022-05-24	RE2
Conductivity (EC)	**3710**	2.0	µS/cm	2022-05-27	
pH	**7.15**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**2630**	15	mg/L	2022-05-24	
Solids, Total Suspended	**1590**	2.0	mg/L	2022-05-25	
Turbidity	**1220**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-18.71**		per mil	2022-06-15	
delta-2-H	**-148.2**		per mil	2022-06-15	
MW10-08 (22E2873-02) | Matrix: Water | Sampled: 2022-05-18 13:00					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**650**	0.10	mg/L	2022-05-24	
Fluoride	**0.12**	0.10	mg/L	2022-05-24	
Nitrate (as N)	**1.01**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**36.4**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**670**	0.500	mg/L	N/A	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22E2873-02) | Matrix: Water | Sampled: 2022-05-18 13:00, Continued					
Dissolved Metals					
Aluminum, dissolved	**0.0057**	0.0050	mg/L	2022-05-24	
Antimony, dissolved	**0.00032**	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.00298**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.197**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**90.5**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00013**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00192**	0.00040	mg/L	2022-05-24	
Iron, dissolved	**0.010**	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0178**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**108**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.00125**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00050**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.00214**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**6.03**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**8.8**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**335**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.33**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**13.4**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	**0.000021**	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	**0.0034**	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00174**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**523**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**523**	1.0	mg/L	2022-05-27	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22E2873-02) | Matrix: Water | Sampled: 2022-05-18 13:00, Continued					
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**638**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**2510**	2.0	µS/cm	2022-05-27	
pH	**7.54**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**1610**	15	mg/L	2022-05-24	
Solids, Total Suspended	**499**	2.0	mg/L	2022-05-25	
Turbidity	**325**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.17**		per mil	2022-06-15	
delta-2-H	**-147.8**		per mil	2022-06-15	
MW18-10 (22E2873-03) | Matrix: Water | Sampled: 2022-05-18 17:10					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**394**	0.10	mg/L	2022-05-24	
Fluoride	< 0.10	0.10	mg/L	2022-05-24	
Nitrate (as N)	**28.8**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	**0.011**	0.010	mg/L	2022-05-24	HT1
Sulfate	**68.3**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**988**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.00096**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.274**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**0.251**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	**0.000021**	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**93.3**	0.20	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22E2873-03) | Matrix: Water | Sampled: 2022-05-18 17:10, Continued					
Dissolved Metals, Continued					
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00267**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00055**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0202**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**183**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.124**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00112**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.0333**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**14.6**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**8.5**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**153**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.47**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**25.3**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	**0.000076**	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00310**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	**0.00014**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**687**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**687**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**838**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.897**	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	**23**	20	mg/L	2022-05-24	RE2
Conductivity (EC)	**2440**	2.0	µS/cm	2022-05-27	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22E2873-03) | Matrix: Water | Sampled: 2022-05-18 17:10, Continued					
General Parameters, Continued					
pH	**7.62**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**1820**	15	mg/L	2022-05-24	
Solids, Total Suspended	**78.8**	2.0	mg/L	2022-05-25	
Turbidity	**52.1**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.21**		per mil	2022-06-15	
delta-2-H	**-148.4**		per mil	2022-06-15	
MW18-11 (22E2873-04) | Matrix: Water | Sampled: 2022-05-18 18:35					
Anions					
Bromide	**0.13**	0.10	mg/L	2022-05-24	
Chloride	**110**	0.10	mg/L	2022-05-24	
Fluoride	**0.69**	0.10	mg/L	2022-05-24	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**64.4**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**594**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	**0.00061**	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.0103**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.0144**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**0.214**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**27.3**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-05-24	
Iron, dissolved	**0.061**	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0249**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**128**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.0442**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22E2873-04) | Matrix: Water | Sampled: 2022-05-18 18:35, Continued					
Dissolved Metals, Continued					
Molybdenum, dissolved	**0.00100**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.00621**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**5.02**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**2.9**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**112**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**0.441**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**21.0**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.000023**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**631**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**631**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**770**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.204**	0.050	mg/L	2022-05-23	
BOD, 5-day	**8.2**	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**1470**	2.0	µS/cm	2022-05-27	
pH	**8.16**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**875**	15	mg/L	2022-05-24	
Solids, Total Suspended	**28.9**	2.0	mg/L	2022-05-25	
Turbidity	**55.7**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-20.66**		per mil	2022-06-15	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22E2873-04) | Matrix: Water | Sampled: 2022-05-18 18:35, Continued					
Miscellaneous Subcontracted Parameters, Continued					
delta-2-H	**-159.4**		per mil	2022-06-15	
Town Well #4 (22E2873-05) | Matrix: Water | Sampled: 2022-05-18 09:30					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**109**	0.10	mg/L	2022-05-24	
Fluoride	< 0.10	0.10	mg/L	2022-05-24	
Nitrate (as N)	**1.76**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**41.1**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**395**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.226**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**89.2**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00084**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.00222**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**41.8**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.00038**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00020**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**1.75**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**4.4**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**60.3**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**0.504**	0.0010	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
Town Well #4 (22E2873-05) | Matrix: Water | Sampled: 2022-05-18 09:30, Continued					
Dissolved Metals, Continued					
Sulfur, dissolved	**14.3**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00109**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**337**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**337**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**411**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**994**	2.0	µS/cm	2022-05-27	
pH	**7.48**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**584**	15	mg/L	2022-05-24	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-05-25	
Turbidity	**0.12**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.96**		per mil	2022-06-15	
delta-2-H	**-152.4**		per mil	2022-06-15	
DMW-1b (22E2873-06) | Matrix: Water | Sampled: 2022-05-18 12:00					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**9.08**	0.10	mg/L	2022-05-24	
Fluoride	**0.46**	0.10	mg/L	2022-05-24	
Nitrate (as N)	**0.739**	0.010	mg/L	2022-05-24	HT1

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22E2873-06) | Matrix: Water | Sampled: 2022-05-18 12:00, Continued					
Anions, Continued					
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**216**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**545**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.00092**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.0186**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**0.224**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**73.3**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00087**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.0331**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0325**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**87.9**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.00260**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00095**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.00146**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**5.52**	0.10	mg/L	2022-05-24	
Selenium, dissolved	**0.00053**	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**6.5**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**30.1**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**3.50**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**72.0**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00163**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	**0.0304**	0.0040	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22E2873-06) | Matrix: Water | Sampled: 2022-05-18 12:00, Continued					
Dissolved Metals, Continued					
Zirconium, dissolved	**0.00037**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**405**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**405**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**494**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.096**	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**1040**	2.0	µS/cm	2022-05-27	
pH	**7.37**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**713**	15	mg/L	2022-05-24	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-05-25	
Turbidity	**0.19**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.45**		per mil	2022-06-15	
delta-2-H	**-150.6**		per mil	2022-06-15	
DMW-4 (22E2873-07) | Matrix: Water | Sampled: 2022-05-18 11:45					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**51.9**	0.10	mg/L	2022-05-24	
Fluoride	**1.20**	0.10	mg/L	2022-05-24	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**133**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**612**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.0485**	0.00050	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22E2873-07) | Matrix: Water | Sampled: 2022-05-18 11:45, Continued					
Dissolved Metals, Continued					
Barium, dissolved	**0.0257**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	**0.00011**	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**0.117**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**71.3**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00010**	0.00010	mg/L	2022-05-24	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-05-24	
Iron, dissolved	**0.516**	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0239**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**105**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.00585**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00027**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.00165**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**4.67**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**7.2**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**28.7**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.83**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**45.7**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.000086**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	**0.00164**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**462**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**462**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**564**	1.22	mg/L	N/A	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22E2873-07) | Matrix: Water | Sampled: 2022-05-18 11:45, Continued					
General Parameters, Continued					
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.236**	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**1150**	2.0	µS/cm	2022-05-27	
pH	**7.53**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**732**	15	mg/L	2022-05-24	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-05-25	
Turbidity	**4.59**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-20.07**		per mil	2022-06-15	
delta-2-H	**-156**		per mil	2022-06-15	
MW09-06D (22E2873-08) | Matrix: Water | Sampled: 2022-05-18 16:05					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**403**	0.10	mg/L	2022-05-24	
Fluoride	< 0.10	0.10	mg/L	2022-05-24	
Nitrate (as N)	**53.2**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**555**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1430**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0089**	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.00063**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.0464**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**1.70**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**159**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00186**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00197**	0.00040	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22E2873-08) | Matrix: Water | Sampled: 2022-05-18 16:05, Continued					
Dissolved Metals, Continued					
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0376**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**250**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.138**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00030**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.0113**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**156**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**11.2**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**284**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.60**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**220**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	**0.000058**	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	**0.00021**	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00557**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	**0.00019**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**901**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**901**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**1100**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.20**	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	**51**	20	mg/L	2022-05-24	
Conductivity (EC)	**3890**	2.0	µS/cm	2022-05-27	
pH	**7.08**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**2620**	15	mg/L	2022-05-24	
Solids, Total Suspended	**426**	2.0	mg/L	2022-05-25	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22E2873-08) | Matrix: Water | Sampled: 2022-05-18 16:05, Continued					
General Parameters, Continued					
Turbidity	**578**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-18.87**		per mil	2022-06-15	
delta-2-H	**-148.7**		per mil	2022-06-15	
DUP A (22E2873-09) | Matrix: Water | Sampled: 2022-05-18 17:10					
Anions					
Bromide	**0.73**	0.10	mg/L	2022-05-24	
Chloride	**380**	0.10	mg/L	2022-05-24	
Fluoride	< 0.10	0.10	mg/L	2022-05-24	
Nitrate (as N)	**17.3**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**62.4**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1040**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	**0.00105**	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.287**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	**0.246**	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	**0.000018**	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**97.9**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	**0.00289**	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.00054**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.0194**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**193**	0.010	mg/L	2022-05-24	
Manganese, dissolved	**0.132**	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00113**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.0349**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22E2873-09) | Matrix: Water | Sampled: 2022-05-18 17:10, Continued					
Dissolved Metals, Continued					
Potassium, dissolved	**14.2**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**8.9**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**154**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**1.51**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**26.1**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	**0.000081**	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.00293**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	**0.00015**	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**638**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**638**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**778**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.923**	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	**32**	20	mg/L	2022-05-24	
Conductivity (EC)	**2320**	2.0	µS/cm	2022-05-27	
pH	**7.45**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**1440**	15	mg/L	2022-05-24	
Solids, Total Suspended	**110**	2.0	mg/L	2022-05-25	
Turbidity	**83.3**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.22**		per mil	2022-06-15	
delta-2-H	**-148.5**		per mil	2022-06-15	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22E2873-10) | Matrix: Water | Sampled: 2022-05-18 09:00					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-05-24	
Chloride	**108**	0.10	mg/L	2022-05-24	
Fluoride	< 0.10	0.10	mg/L	2022-05-24	
Nitrate (as N)	**1.69**	0.010	mg/L	2022-05-24	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-05-24	HT1
Sulfate	**41.1**	1.0	mg/L	2022-05-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	**393**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Barium, dissolved	**0.218**	0.0050	mg/L	2022-05-24	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-05-24	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-05-24	
Calcium, dissolved	**91.0**	0.20	mg/L	2022-05-24	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Copper, dissolved	**0.0322**	0.00040	mg/L	2022-05-24	
Iron, dissolved	< 0.010	0.010	mg/L	2022-05-24	
Lead, dissolved	**0.00089**	0.00020	mg/L	2022-05-24	
Lithium, dissolved	**0.00211**	0.00010	mg/L	2022-05-24	
Magnesium, dissolved	**40.2**	0.010	mg/L	2022-05-24	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-05-26	
Molybdenum, dissolved	**0.00021**	0.00010	mg/L	2022-05-24	
Nickel, dissolved	**0.00042**	0.00040	mg/L	2022-05-24	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-05-24	
Potassium, dissolved	**1.67**	0.10	mg/L	2022-05-24	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Silicon, dissolved	**4.4**	1.0	mg/L	2022-05-24	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-05-24	
Sodium, dissolved	**58.0**	0.10	mg/L	2022-05-24	
Strontium, dissolved	**0.522**	0.0010	mg/L	2022-05-24	
Sulfur, dissolved	**14.1**	3.0	mg/L	2022-05-24	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-05-24	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-05-24	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-05-24	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22E2873-10) | Matrix: Water | Sampled: 2022-05-18 09:00, Continued					
Dissolved Metals, Continued					
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-05-24	
Uranium, dissolved	**0.000972**	0.000020	mg/L	2022-05-24	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-05-24	
Zinc, dissolved	**0.0311**	0.0040	mg/L	2022-05-24	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-05-24	
General Parameters					
Alkalinity, Total (as CaCO3)	**324**	1.0	mg/L	2022-05-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Bicarbonate (as CaCO3)	**324**	1.0	mg/L	2022-05-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-05-27	
Bicarbonate (HCO3)	**395**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-05-23	
BOD, 5-day	< 6.7	2.0	mg/L	2022-05-25	
Chemical Oxygen Demand	< 20	20	mg/L	2022-05-24	
Conductivity (EC)	**992**	2.0	µS/cm	2022-05-27	
pH	**7.73**	0.10	pH units	2022-05-27	HT2
Solids, Total Dissolved	**543**	15	mg/L	2022-05-24	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-05-25	
Turbidity	**0.12**	0.10	NTU	2022-05-21	
Miscellaneous Subcontracted Parameters					
Refer to Appendix	**Refer to appendix for full report**		-	2022-07-20	
delta-18-O	**-19.96**		per mil	2022-06-15	
delta-2-H	**-152.2**		per mil	2022-06-15	

Sample Qualifiers:

HT1	The sample was prepared and/or analyzed past the recommended holding time.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RE2	Result was confirmed by re-analysis prior to reporting.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analysis Description	Method Ref.	Technique	Accredited	Location
2H and 18O Isotope Ratios in Water	Stable Isotopes	CRDS		Sublet
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	✓	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2017)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
per mil	Parts per thousand
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2E2553										
Blank (B2E2553-BLK1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 0.5	0.5	mg/L							
Dissolved Metals, Batch B2E2716										
Blank (B2E2716-BLK1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Bismuth, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Phosphorus, dissolved	< 0.050	0.050	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silicon, dissolved	< 1.0	1.0	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2E2716, Continued										
Blank (B2E2716-BLK1), Continued				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Sulfur, dissolved	< 3.0	3.0	mg/L							
Tellurium, dissolved	< 0.00050	0.00050	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							
Thorium, dissolved	< 0.00010	0.00010	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0050	0.0050	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
Zirconium, dissolved	< 0.00010	0.00010	mg/L							
LCS (B2E2716-BS1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Aluminum, dissolved	4.14	0.0050	mg/L	4.00		103	80-120			
Antimony, dissolved	0.0417	0.00020	mg/L	0.0400		104	80-120			
Arsenic, dissolved	0.0426	0.00050	mg/L	0.0400		106	80-120			
Barium, dissolved	0.0402	0.0050	mg/L	0.0400		101	80-120			
Beryllium, dissolved	0.0399	0.00010	mg/L	0.0400		100	80-120			
Bismuth, dissolved	0.0393	0.00010	mg/L	0.0400		98	80-120			
Boron, dissolved	< 0.0500	0.0500	mg/L	0.0400		108	80-120			
Cadmium, dissolved	0.0411	0.000010	mg/L	0.0400		103	80-120			
Calcium, dissolved	4.10	0.20	mg/L	4.00		103	80-120			
Chromium, dissolved	0.0421	0.00050	mg/L	0.0400		105	80-120			
Cobalt, dissolved	0.0416	0.00010	mg/L	0.0400		104	80-120			
Copper, dissolved	0.0417	0.00040	mg/L	0.0400		104	80-120			
Iron, dissolved	4.19	0.010	mg/L	4.00		105	80-120			
Lead, dissolved	0.0404	0.00020	mg/L	0.0400		101	80-120			
Lithium, dissolved	0.0404	0.00010	mg/L	0.0400		101	80-120			
Magnesium, dissolved	4.30	0.010	mg/L	4.00		108	80-120			
Manganese, dissolved	0.0413	0.00020	mg/L	0.0400		103	80-120			
Molybdenum, dissolved	0.0410	0.00010	mg/L	0.0400		102	80-120			
Nickel, dissolved	0.0411	0.00040	mg/L	0.0400		103	80-120			
Phosphorus, dissolved	4.19	0.050	mg/L	4.00		105	80-120			
Potassium, dissolved	3.94	0.10	mg/L	4.00		99	80-120			
Selenium, dissolved	0.0406	0.00050	mg/L	0.0400		101	80-120			
Silicon, dissolved	4.1	1.0	mg/L	4.00		102	80-120			
Silver, dissolved	0.0414	0.000050	mg/L	0.0400		104	80-120			
Sodium, dissolved	4.31	0.10	mg/L	4.00		108	80-120			
Strontium, dissolved	0.0401	0.0010	mg/L	0.0400		100	80-120			
Sulfur, dissolved	43.0	3.0	mg/L	40.0		107	80-120			
Tellurium, dissolved	0.0403	0.00050	mg/L	0.0400		101	80-120			
Thallium, dissolved	0.0409	0.000020	mg/L	0.0400		102	80-120			
Thorium, dissolved	0.0432	0.00010	mg/L	0.0400		108	80-120			
Tin, dissolved	0.0418	0.00020	mg/L	0.0400		104	80-120			
Titanium, dissolved	0.0417	0.0050	mg/L	0.0400		104	80-120			
Tungsten, dissolved	0.0420	0.0010	mg/L	0.0400		105	80-120			
Uranium, dissolved	0.0421	0.000020	mg/L	0.0400		105	80-120			
Vanadium, dissolved	0.0421	0.0050	mg/L	0.0400		105	80-120			
Zinc, dissolved	0.0413	0.0040	mg/L	0.0400		103	80-120			
Zirconium, dissolved	0.0425	0.00010	mg/L	0.0400		106	80-120			
Dissolved Metals, Batch B2E2938										
Blank (B2E2938-BLK1)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2E2938, Continued										
Blank (B2E2938-BLK2)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2E2938-BLK3)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2E2938-BLK4)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B2E2938-BS1)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	0.000513	0.000010	mg/L	0.000500		103	80-120			
LCS (B2E2938-BS2)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	0.000477	0.000010	mg/L	0.000500		95	80-120			
LCS (B2E2938-BS3)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	0.000477	0.000010	mg/L	0.000500		95	80-120			
LCS (B2E2938-BS4)				Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	0.000503	0.000010	mg/L	0.000500		101	80-120			
Duplicate (B2E2938-DUP4)		**Source: 22E2873-07**		Prepared: 2022-05-25, Analyzed: 2022-05-26						
Mercury, dissolved	< 0.000010	0.000010	mg/L		< 0.000010				20	
General Parameters, Batch B2E2483										
Blank (B2E2483-BLK1)				Prepared: 2022-05-20, Analyzed: 2022-05-25						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B2E2483-BS1)				Prepared: 2022-05-20, Analyzed: 2022-05-25						
BOD, 5-day	206	37.0	mg/L	180		114	85-115			
Duplicate (B2E2483-DUP2)		**Source: 22E2873-04**		Prepared: 2022-05-20, Analyzed: 2022-05-25						
BOD, 5-day	< 4.4	2.0	mg/L		8.2				22	
General Parameters, Batch B2E2581										
Blank (B2E2581-BLK1)				Prepared: 2022-05-21, Analyzed: 2022-05-21						
Turbidity	< 0.10	0.10	NTU							
Blank (B2E2581-BLK2)				Prepared: 2022-05-21, Analyzed: 2022-05-21						
Turbidity	< 0.10	0.10	NTU							
LCS (B2E2581-BS1)				Prepared: 2022-05-21, Analyzed: 2022-05-21						
Turbidity	37.4	0.10	NTU	40.0		94	90-110			
LCS (B2E2581-BS2)				Prepared: 2022-05-21, Analyzed: 2022-05-21						
Turbidity	38.1	0.10	NTU	40.0		95	90-110			
General Parameters, Batch B2E2616										
Blank (B2E2616-BLK1)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2E2616-BLK2)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2E2616, Continued										
Blank (B2E2616-BLK3)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B2E2616-BS1)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	0.978	0.050	mg/L	1.00		98	90-115			
LCS (B2E2616-BS2)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	0.955	0.050	mg/L	1.00		96	90-115			
LCS (B2E2616-BS3)				Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	0.966	0.050	mg/L	1.00		97	90-115			
Duplicate (B2E2616-DUP2)		**Source: 22E2873-01**		Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	1.97	0.050	mg/L		1.95			< 1	15	
Matrix Spike (B2E2616-MS2)		**Source: 22E2873-01**		Prepared: 2022-05-23, Analyzed: 2022-05-23						
Ammonia, Total (as N)	2.25	0.050	mg/L	0.250	1.95	119	75-125			
General Parameters, Batch B2E2646										
Blank (B2E2646-BLK1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B2E2646-BS1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Chemical Oxygen Demand	500	20	mg/L	500		100	89-115			
General Parameters, Batch B2E2770										
Blank (B2E2770-BLK1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Solids, Total Dissolved	< 15	15	mg/L							
LCS (B2E2770-BS1)				Prepared: 2022-05-24, Analyzed: 2022-05-24						
Solids, Total Dissolved	256	15	mg/L	240		107	85-115			
Duplicate (B2E2770-DUP1)		**Source: 22E2873-08**		Prepared: 2022-05-24, Analyzed: 2022-05-24						
Solids, Total Dissolved	2690	15	mg/L		2620			3	15	
General Parameters, Batch B2E2800										
Blank (B2E2800-BLK1)				Prepared: 2022-05-25, Analyzed: 2022-05-25						
Solids, Total Suspended	< 2.0	2.0	mg/L							
LCS (B2E2800-BS1)				Prepared: 2022-05-25, Analyzed: 2022-05-25						
Solids, Total Suspended	92.5	5.0	mg/L	100		92	85-115			
Duplicate (B2E2800-DUP1)		**Source: 22E2873-02**		Prepared: 2022-05-25, Analyzed: 2022-05-25						
Solids, Total Suspended	424	2.0	mg/L		499			16	20	
General Parameters, Batch B2E3087										
Blank (B2E3087-BLK1)				Prepared: 2022-05-26, Analyzed: 2022-05-26						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2E3087, Continued										
Blank (B2E3087-BLK2)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B2E3087-BLK3)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2E3087-BS1)				Prepared: 2022-05-26, Analyzed: 2022-05-26						
Alkalinity, Total (as CaCO3)	111	1.0	mg/L	100		111	80-120			
LCS (B2E3087-BS2)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	94.9	1.0	mg/L	100		95	80-120			
LCS (B2E3087-BS3)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	92.9	1.0	mg/L	100		93	80-120			
LCS (B2E3087-BS4)				Prepared: 2022-05-26, Analyzed: 2022-05-26						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
LCS (B2E3087-BS5)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Conductivity (EC)	1430	2.0	µS/cm	1410		101	95-105			
LCS (B2E3087-BS6)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Conductivity (EC)	1430	2.0	µS/cm	1410		101	95-105			
Reference (B2E3087-SRM1)				Prepared: 2022-05-26, Analyzed: 2022-05-26						
pH	7.04	0.10	pH units	7.01		100	98-102			
Reference (B2E3087-SRM2)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
pH	6.99	0.10	pH units	7.01		100	98-102			
Reference (B2E3087-SRM3)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
pH	7.02	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B2E3123										
Blank (B2E3123-BLK1)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B2E3123-BLK2)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22E2873
PROJECT	19-2850 - Golden	**REPORTED**	2022-07-20 12:25

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2E3123, Continued										
Blank (B2E3123-BLK2), Continued				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2E3123-BS1)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	91.0	1.0	mg/L	100		91	80-120			
LCS (B2E3123-BS2)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	81.6	1.0	mg/L	100		82	80-120			
LCS (B2E3123-BS3)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Conductivity (EC)	1430	2.0	µS/cm	1410		101	95-105			
LCS (B2E3123-BS4)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
Conductivity (EC)	1430	2.0	µS/cm	1410		101	95-105			
Duplicate (B2E3123-DUP2)		**Source: 22E2873-09**		Prepared: 2022-05-27, Analyzed: 2022-05-27						
Alkalinity, Total (as CaCO3)	635	1.0	mg/L		638			< 1	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	635	1.0	mg/L		638			< 1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	2350	2.0	µS/cm		2320			1	5	
pH	7.48	0.10	pH units		7.45			< 1	4	
Reference (B2E3123-SRM1)				Prepared: 2022-05-27, Analyzed: 2022-05-27						
pH	7.00	0.10	pH units	7.01		100	98-102			

ISOTOPE TRACER TECHNOLOGIES INC

Isotope Analyses for: Caro Analytical Services

IT^2 FILE # 220222

2022-07-20

Approved by:

Orfan Shouakar-Stash, Ph.D.

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File Number: 220222
WO Number: 22E2873

#	Sample ID	Sample #	Sampling Date	Time	$\delta^{18}O$ H_2O	Aver VSMOW	Stdv	$\delta^{2}H$ H_2O	Aver VSMOW	Stdv
1	22E2873-01	98814	2022-05-18	15:15	X	-18.71	0.04	X	-148.2	0.1
2	22E2873-02	98815	2022-05-18	13:00	X	-19.17	0.02	X	-147.8	0.2
3	22E2873-03	98816	2022-05-18	17:10	X	-19.21	0.03	X	-148.4	0.1
4	22E2873-04	98817	2022-05-18	18:35	X	-20.66	0.02	X	-159.4	0.2
5	22E2873-05	98818	2022-05-18	9:30	X	-19.96	0.04	X	-152.4	0.1
6	22E2873-06	98819	2022-05-18	12:00	X	-19.45	0.01	X	-150.6	0.2
7	22E2873-07	98820	2022-05-18	11:45	X	-20.07	0.04	X	-156.0	0.2
8	22E2873-08	98821	2022-05-18	16:05	X	-18.87	0.03	X	-148.7	0.2
9	22E2873-09	98822	2022-05-18	17:10	X	-19.22	0.03	X	-148.5	0.1
10	22E2873-10	98823	2022-05-18	9:00	X	-19.96	0.04	X	-152.2	0.2

^{18}O & ^{2}H (CRDS)

Instrument Used: Cavity Ring Down Spectroscopy (CRDS)
CRDS (Model L2130-i) (Picarro, California, USA).
Standard Used:
IT2-2B / IT2-11B / IT2-12C Calibrated with IAEA Standards (V-SMOW, SLAP, and GISP)
Typical Standard deviation:
(^{18}O ±0.1‰) (^{2}H ± 1‰)

Approved by:

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
608 Weber St. North Unit 3&4, Waterloo, ON, N2V 1K4
Tel: 519-886-5555 | Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

ISOTOPE TRACER TECHNOLOGIES INC

Client: Caro Analytical Services
Address: #102 3677 Highway 97N
Kelowna, BC
V1X 5C3
Tel: 250 765 9646
Attn.: Monika Sajdak
E-mail: sublet@caro.ca
E-mail: msajdak@caro.ca
E-mail: ap@caro.ca

File Number: 220222
WO Number: 22E2873

#	Sample ID	Sample #	Sampling Date	Time	E^3H	Result	± 1σ
1	22E2873-01	98814	2022-05-18	15:15	X	45	3
2	22E2873-02	98815	2022-05-18	13:00	X	6.4	1.2
3	22E2873-03	98816	2022-05-18	17:10	X	105	7
4	22E2873-04	98817	2022-05-18	18:35	X	24	2
5	22E2873-05	98818	2022-05-18	9:30	X	5.1	1.2
6	22E2873-06	98819	2022-05-18	12:00	X	4.7	1.1
7	22E2873-07	98820	2022-05-18	11:45	X	2.9	1.2
8	22E2873-08	98821	2022-05-18	16:05	X	44	3
9	22E2873-09	98822	2022-05-18	17:10	X	90	6
10	22E2873-10	98823	2022-05-18	9:00	X	5.6	1.1

E^3H ANALYSES

Tritium is reported in Tritium Units.
1TU = 3.221 Picocurries/L per IAEA, 2000 Report.
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

Approved by:

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
608 Weber St. North Unit 3&4, Waterloo, ON, N2V 1K4
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ISOTOPE TRACER TECHNOLOGIES INC

Client: Caro Analytical Services
Address: #102 3677 Highway 97N
Kelowna, BC
V1X 5C3
Tel: 250 765 9646
Attn.: Monika Sajdak
E-mail: sublet@caro.ca
E-mail: msajdak@caro.ca
E-mail: ap@caro.ca

File Number: 220222
WO Number: 22E2873

#	Sample ID	Sample #	Sampling	Time	$\delta^{37}Cl$	Result	Stdv
			Date			SMOC	
1	22E2873-01	98814	2022-05-18	15:15	X	-0.18	0.11
2	22E2873-02	98815	2022-05-18	13:00	X	0.16	0.13
3	22E2873-03	98816	2022-05-18	17:10	X	-0.03	0.07
4	22E2873-04	98817	2022-05-18	18:35	X	-0.04	0.08
5	22E2873-05	98818	2022-05-18	9:30	X	0.05	0.09
6	22E2873-06	98819	2022-05-18	12:00	X	0.03	0.08
7	22E2873-07	98820	2022-05-18	11:45	X	-0.25	0.08
8	22E2873-08	98821	2022-05-18	16:05	X	-0.26	0.10
9	22E2873-09	98822	2022-05-18	17:10	X	-0.18	0.06
10	22E2873-10	98823	2022-05-18	9:00	X	-0.06	0.08

^{37}Cl ANALYSES

Instrument Used:
Isotope Ratio Mass Spectrometry (IRMS) - MAT 253, Thermo Scientific, Germany
Coupled with an Agilent 6890 Gas Chromatograph (GC)

Standard Used:
SMOC

Typical Standard deviation:
± 0.15‰

Approved by:

Orfan S-Stash

Orfan Shouakar-Stash, PhD
Director
Isotope Tracer Technologies Inc.
608 Weber St. North Unit 3&4, Waterloo, ON, N2V 1K4
Tel: 519-886-5555 | Fax: 519-886-5575
Email: orfan@it2isotopes.com
Website: www.it2isotopes.com

CARO ANALYTICAL SERVICES

SUBCONTRACT REQUEST (WO# 22E2873)

SENDING LABORATORY:

CARO Analytical Services
#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Phone: (250) 765-9646

Contact sublet@caro.ca

Invoiced To:

CARO Sublet
Email: sublet@caro.ca
CC: ap@caro.ca
PO#: 22E2873

RECEIVING LABORATORY:

Isotope Tracer Technologies Inc. (IT
608 Weber St. North Unit 3&4
Waterloo, ON N2V 1K4
Phone: 1(519) 886-5555

☐ Rush TAT ☑ REGULAR TAT

Total Sample Count: 10

Requested Due Date: June 10/22

Analysis / Method	Expires	Comments
CARO Sample ID: 22E2873-01 | Matrix: Water | Sampled: 2022-05-18 15:15		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-02 | Matrix: Water | Sampled: 2022-05-18 13:00		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-03 | Matrix: Water | Sampled: 2022-05-18 17:10		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-04 | Matrix: Water | Sampled: 2022-05-18 18:35		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-05 | Matrix: Water | Sampled: 2022-05-18 09:30		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine

CARO ANALYTICAL SERVICES

SUBCONTRACT REQUEST (WO# 22E2873)

Analysis / Method	Expires	Comments
CARO Sample ID: 22E2873-06 | Matrix: Water | Sampled: 2022-05-18 12:00		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-07 | Matrix: Water | Sampled: 2022-05-18 11:45		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-08 | Matrix: Water | Sampled: 2022-05-18 16:05		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-09 | Matrix: Water | Sampled: 2022-05-18 17:10		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine
CARO Sample ID: 22E2873-10 | Matrix: Water | Sampled: 2022-05-18 09:00		
Container(s) Submitted: K = C19_40 mL Vial (General CG) L = C11_1 L Plastic (General)		
2H and 18O Isotope Ratios [Stable Isotopes]	2023-05-18	
Miscellaneous Subcontracted Analysis [N/A]	2022-06-15	Tritium and Chlorine

Ava D. May 20/22
Released By Date

Nour Nour A. May 25, 2022
Received By Date

2 2 E 2 8 7 3

SERVICES
Caring About Results, Obviously.

CARO.ca **1-888-311-8846**
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-05

CHAIN OF CUSTODY RECORD

COC#: ____ *PAGE* 1 *OF* 1

RELINQUISHED BY:	DATE: 5/19/22	RECEIVED BY:	DATE: 5.19
[signature]	TIME: 13:00	J.S/WI	TIME: 14:18

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other*
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: Other:

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: ~~Kelsey/~~ Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: ~~Ktanaka@ecoscapeltd.com~~
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: ~~KT~~ RW

ANALYSES REQUESTED: BTEX ☐ VPH ☐ PHC F1 ☐; VOC ☒ VPH ☐; EPH ☐ PHC F2-F4 ☐; PAH ☒ L/HEPH ☐; PHENOLS Chlorinated ☐ Non-Chlor. ☐; PCB ☐ GLYCOLS ☐ HAA ☐; PESTICIDES ☐ ACID HERBICIDES ☐; METALS - WATER TOTAL Hg ☐; METALS - WATER DISSOLVED Hg ☒; METALS - SOIL (SALM) ☐ inc. pH ☐; pH ☒ EC ☒ ALK ☒; TSS ☒ VSS ☐ TDS ☒; BOD ☒ COD ☒; TOG ☐ MOG ☐; FECAL COLIFORMS ☐ HPC ☐; TOTAL COLIFORMS ☐ E. coli ☐; ASBESTOS; Dissolved Hardness as CaCO3; Chloride, Sulphate, fluoride, turbidity; Nitrate as N, Nitriate as N; Ammonia as N; bromide; HOLD; POSSIBLE SAMPLE HAZARD CODE(S)

CLIENT SAMPLE ID:	DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	DATE YYYY-MM-DD	TIME HH:MM	CHLORINATED	FILTERED	PRESERVED	COMMENTS (e.g. flow/volume media ID/notes)
MW09-06S		✓				2022-05-18	15:15		✓	✓	
MW10-08		✓				↓	13:00		✓	✓	
MW18-10		✓				↓	17:10		✓	✓	
MW18-11		✓				↓	18:35		✓	✓	
Town Well #4	✓					↓	9:30		✓	✓	
~~Town Well # 6~~	~~✓~~					↓			~~✓~~	~~✓~~	
DMW-1b	✓					↓	12:00		✓	✓	
DMW-4	✓					↓	11:45		✓	✓	
MW09-06D		✓				↓	16:05		✓	✓	
DUP A		✓				↓	17:10		✓	✓	
DMW20-01	✓					↓	9:00		✓	✓	

CLIENT SAMPLE ID:	BTEX	VOC	EPH	PAH	PHENOLS	PCB	PESTICIDES	METALS - WATER TOTAL	METALS - WATER DISSOLVED	METALS - SOIL (SALM)	pH/EC/ALK	TSS/VSS/TDS	BOD/COD	TOG/MOG	FECAL COLIFORMS	TOTAL COLIFORMS	ASBESTOS	Dissolved Hardness as CaCO3	Chloride, Sulphate, fluoride, turbidity	Nitrate as N, Nitriate as N	Ammonia as N	bromide		HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW09-06S		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW10-08		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW18-10		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW18-11		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
Town Well #4		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
~~Town Well # 6~~		~~✓~~		~~✓~~					~~✓~~		~~✓~~	~~✓~~	~~✓~~					~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~			
DMW-1b		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
DMW-4		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
MW09-06D		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
DUP A		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			
DMW20-01		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓			

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 6.4 ICE: Y ☐ N ☐
COOLER 2 (°C): 8.1 ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CARO ANALYTICAL SERVICES
Caring About Results, Obviously.

CARO.ca **1-888-311-8846**

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CHAIN OF CUSTODY RECORD

COC# _____ PAGE 1 OF 1

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
***Contact Lab To Confirm. Surcharge May Apply**

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ Other: _____

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Kelsey/ Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: Ktanaka@ecoscapeltd.com
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocscapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: KT

ANALYSES REQUESTED:

	CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	MATRIX: OTHER WATER	MATRIX: SOIL	MATRIX: OTHER	CONTAINER QTY	SAMPLING: DATE YYYY-MM-DD	SAMPLING: TIME HH:MM	COMMENTS: CHLORINATED	COMMENTS: FILTERED	COMMENTS: PRESERVED	COMMENTS: (e.g. flow/volume media ID/notes)	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☐	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☐ EC ☐ ALK ☐	TSS ☐ VSS ☐ TDS ☐	BOD ☐ COD ☐	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E. coli ☐	ASBESTOS	Tritium Isotope	Oxygen Isotope	Deuterium Isotope	Chlorine Isotope			HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
	MW09-06S		✓																											✓	✓	✓	✓				
	MW10-08		✓																											✓	✓	✓	✓				
	MW18-10		✓																											✓	✓	✓	✓				
	MW18-11		✓																											✓	✓	✓	✓				
	Town Well #4	✓																												✓	✓	✓	✓				
	Town Well # 6	✓																												✓	✓	✓	✓				
	DMW-1b	✓																												✓	✓	✓	✓				
	DMW-4	✓																												✓	✓	✓	✓				
	MW09-06D		✓																											✓	✓	✓	✓				
	DUP A		✓																											✓	✓	✓	✓				
	DMW20-01		✓																											✓	✓	✓	✓				

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): _____ ICE: Y ☐ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Ecoscape Environmental Ltd. #102 - 450 Neave Court Kelowna, BC V1V 2M2		
ATTENTION	Mike Schutten	**WORK ORDER**	22H3785
PO NUMBER	19-2850	**RECEIVED / TEMP**	2022-08-25 13:42 / 9.5°C
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54
PROJECT INFO	Golden	**COC NUMBER**	No #

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22H3785-01) | Matrix: Water | Sampled: 2022-08-24 13:55					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**388**	0.10	mg/L	2022-08-28	
Fluoride	**0.13**	0.10	mg/L	2022-08-28	
Nitrate (as N)	**37.3**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**618**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1410**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**37.3**	0.100	mg/L	N/A	
Nitrogen, Total	**40.4**	0.100	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.0488**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**1.82**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**141**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00149**	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.00184**	0.00040	mg/L	2022-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2022-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0388**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**257**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.104**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00034**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.0100**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**155**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**11.6**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-09-01	
Sodium, dissolved	**257**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**1.46**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**228**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	**0.000052**	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22H3785-01) | Matrix: Water | Sampled: 2022-08-24 13:55, Continued					
Dissolved Metals, Continued					
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.00683**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	**0.00018**	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**1010**	1.0	mg/L	2022-08-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-28	
Alkalinity, Bicarbonate (as CaCO3)	**1010**	1.0	mg/L	2022-08-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-28	
Bicarbonate (HCO3)	**1230**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.12**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	**54**	20	mg/L	2022-08-30	
Conductivity (EC)	**3720**	2.0	µS/cm	2022-08-28	
Nitrogen, Total Kjeldahl	**3.10**	0.050	mg/L	2022-08-31	
pH	**7.76**	0.10	pH units	2022-08-28	HT2
Solids, Total Dissolved	**2530**	15	mg/L	2022-08-30	
Solids, Total Suspended	**320**	2.0	mg/L	2022-08-30	
Turbidity	**220**	0.10	NTU	2022-08-26	
MW10-08 (22H3785-02) | Matrix: Water | Sampled: 2022-08-24 09:45					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**652**	0.10	mg/L	2022-08-28	
Fluoride	**0.14**	0.10	mg/L	2022-08-28	
Nitrate (as N)	**1.18**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**41.6**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**681**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**1.18**	0.0100	mg/L	N/A	
Nitrogen, Total	**1.57**	0.0500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0131**	0.0050	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22H3785-02) | Matrix: Water | Sampled: 2022-08-24 09:45, Continued					
Dissolved Metals, Continued					
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.00198**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.199**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**91.8**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00013**	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.00183**	0.00040	mg/L	2022-08-31	
Iron, dissolved	**0.023**	0.010	mg/L	2022-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0179**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**110**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.00178**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00047**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.00296**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**6.04**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**9.2**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**328**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**1.22**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**15.4**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	**0.000030**	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	**0.0025**	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.00226**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**550**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**550**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22H3785-02) | Matrix: Water | Sampled: 2022-08-24 09:45, Continued					
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**671**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.080**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	**22**	20	mg/L	2022-08-30	
Conductivity (EC)	**2690**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**0.392**	0.050	mg/L	2022-08-31	
pH	**8.01**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**1430**	15	mg/L	2022-08-30	
Solids, Total Suspended	**229**	2.0	mg/L	2022-08-30	
Turbidity	**126**	0.10	NTU	2022-08-26	
MW18-10 (22H3785-03) | Matrix: Water | Sampled: 2022-08-24 15:40					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**381**	0.10	mg/L	2022-08-28	
Fluoride	< 0.10	0.10	mg/L	2022-08-28	
Nitrate (as N)	**23.2**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**70.1**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**985**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**23.2**	0.100	mg/L	N/A	
Nitrogen, Total	**24.6**	0.100	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.00109**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.272**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**0.267**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	**0.000025**	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**92.6**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00224**	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.00072**	0.00040	mg/L	2022-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22H3785-03) | Matrix: Water | Sampled: 2022-08-24 15:40, Continued					
Dissolved Metals, Continued					
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0200**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**183**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.162**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00105**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.0325**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**16.6**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**9.3**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**137**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**1.39**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**24.3**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	**0.000078**	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.00322**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	**0.00016**	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**735**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**735**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**897**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.706**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	**38**	20	mg/L	2022-08-30	
Conductivity (EC)	**2350**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**1.39**	0.050	mg/L	2022-08-31	
pH	**7.94**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**1280**	15	mg/L	2022-08-30	
Solids, Total Suspended	**140**	2.0	mg/L	2022-08-30	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22H3785-03) | Matrix: Water | Sampled: 2022-08-24 15:40, Continued					
General Parameters, Continued					
Turbidity	**129**	0.10	NTU	2022-08-26	
MW18-11 (22H3785-04) | Matrix: Water | Sampled: 2022-08-24 10:30					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**95.7**	0.10	mg/L	2022-08-28	
Fluoride	**0.69**	0.10	mg/L	2022-08-28	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**74.6**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**575**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	< 0.0100	0.0100	mg/L	N/A	
Nitrogen, Total	**0.507**	0.0500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	**0.00081**	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.00782**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.0138**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**0.232**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**29.5**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-08-31	
Iron, dissolved	**0.115**	0.010	mg/L	2022-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0236**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**122**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.0429**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00145**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.00509**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**5.35**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**3.2**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22H3785-04) | Matrix: Water | Sampled: 2022-08-24 10:30, Continued					
Dissolved Metals, Continued					
Sodium, dissolved	**106**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**0.385**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**26.4**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.000023**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**692**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**692**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**844**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.255**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	< 20	20	mg/L	2022-08-30	
Conductivity (EC)	**1420**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**0.507**	0.050	mg/L	2022-08-31	
pH	**8.28**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**794**	15	mg/L	2022-08-30	
Solids, Total Suspended	**54.0**	2.0	mg/L	2022-08-30	
Turbidity	**59.0**	0.10	NTU	2022-08-26	
DMW-1b (22H3785-05) | Matrix: Water | Sampled: 2022-08-24 11:30					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**10.1**	0.10	mg/L	2022-08-28	
Fluoride	**0.71**	0.10	mg/L	2022-08-28	
Nitrate (as N)	**0.376**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**264**	1.0	mg/L	2022-08-28	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22H3785-05) | Matrix: Water | Sampled: 2022-08-24 11:30, Continued					
Calculated Parameters					
Hardness, Total (as CaCO3)	**575**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**0.376**	0.0100	mg/L	N/A	
Nitrogen, Total	**1.25**	0.0500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.00098**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.0166**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**0.395**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	**0.000011**	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**74.0**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00053**	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.00530**	0.00040	mg/L	2022-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2022-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0483**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**94.6**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.00286**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00056**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.00100**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**8.32**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**6.4**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**43.3**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**4.55**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**87.7**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.00114**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	**0.0328**	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	**0.00049**	0.00010	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22H3785-05) | Matrix: Water | Sampled: 2022-08-24 11:30, Continued					
General Parameters					
Alkalinity, Total (as CaCO3)	**458**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**458**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**559**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.614**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	< 20	20	mg/L	2022-08-30	
Conductivity (EC)	**1190**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**0.876**	0.050	mg/L	2022-08-31	
pH	**8.10**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**800**	15	mg/L	2022-08-30	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-08-30	
Turbidity	**0.11**	0.10	NTU	2022-08-26	
DMW-4 (22H3785-06) | Matrix: Water | Sampled: 2022-08-24 11:15					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**51.0**	0.10	mg/L	2022-08-28	
Fluoride	**1.00**	0.10	mg/L	2022-08-28	
Nitrate (as N)	**0.032**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	**0.015**	0.010	mg/L	2022-08-28	HT1
Sulfate	**133**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**601**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**0.0475**	0.0100	mg/L	N/A	
Nitrogen, Total	**0.334**	0.0500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.0227**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.0300**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	**0.00011**	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**0.125**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**68.6**	0.20	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22H3785-06) | Matrix: Water | Sampled: 2022-08-24 11:15, Continued					
Dissolved Metals, Continued					
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00016**	0.00010	mg/L	2022-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-08-31	
Iron, dissolved	**0.193**	0.010	mg/L	2022-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0226**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**104**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.00921**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00031**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.00165**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**4.82**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**6.9**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**29.4**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**1.65**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**44.3**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.000130**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	**0.00152**	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**532**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**532**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**649**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.234**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	< 20	20	mg/L	2022-08-30	
Conductivity (EC)	**1170**	2.0	µS/cm	2022-08-30	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-4 (22H3785-06) | Matrix: Water | Sampled: 2022-08-24 11:15, Continued					
General Parameters, Continued					
Nitrogen, Total Kjeldahl	**0.287**	0.050	mg/L	2022-08-31	
pH	**8.04**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**681**	15	mg/L	2022-08-30	
Solids, Total Suspended	**6.0**	2.0	mg/L	2022-08-30	
Turbidity	**6.27**	0.10	NTU	2022-08-26	
MW09-06D (22H3785-07) | Matrix: Water | Sampled: 2022-08-24 14:35					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**392**	0.10	mg/L	2022-08-28	
Fluoride	**0.12**	0.10	mg/L	2022-08-28	
Nitrate (as N)	**39.0**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**624**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1410**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**39.0**	0.250	mg/L	N/A	
Nitrogen, Total	**43.1**	0.250	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.148**	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	**0.00109**	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.0502**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	**1.87**	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**142**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	**0.00168**	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.00192**	0.00040	mg/L	2022-08-31	
Iron, dissolved	**0.104**	0.010	mg/L	2022-08-31	
Lead, dissolved	**0.00021**	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.0395**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**256**	0.010	mg/L	2022-08-31	
Manganese, dissolved	**0.136**	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00028**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	**0.0105**	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22H3785-07) | Matrix: Water | Sampled: 2022-08-24 14:35, Continued					
Dissolved Metals, Continued					
Potassium, dissolved	**156**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**12.1**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**263**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**1.45**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**221**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	**0.000063**	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	
Uranium, dissolved	**0.00705**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	**0.00033**	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**1040**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**1040**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**1270**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.37**	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	**111**	20	mg/L	2022-08-30	
Conductivity (EC)	**3710**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**4.09**	0.050	mg/L	2022-08-31	
pH	**7.74**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**2390**	15	mg/L	2022-08-30	
Solids, Total Suspended	**1170**	2.0	mg/L	2022-08-30	
Turbidity	**2260**	0.10	NTU	2022-08-26	
DMW20-01 (22H3785-08) | Matrix: Water | Sampled: 2022-08-24 07:20					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-08-28	
Chloride	**111**	0.10	mg/L	2022-08-28	
Fluoride	< 0.10	0.10	mg/L	2022-08-28	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22H3785-08) | Matrix: Water | Sampled: 2022-08-24 07:20, Continued					
Anions, Continued					
Nitrate (as N)	**1.63**	0.010	mg/L	2022-08-28	HT1
Nitrite (as N)	< 0.010	0.010	mg/L	2022-08-28	HT1
Sulfate	**41.4**	1.0	mg/L	2022-08-28	
Calculated Parameters					
Hardness, Total (as CaCO3)	**402**	0.500	mg/L	N/A	
Nitrate+Nitrite (as N)	**1.63**	0.0100	mg/L	N/A	
Nitrogen, Total	**1.73**	0.0500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Barium, dissolved	**0.224**	0.0050	mg/L	2022-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-09-01	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-09-01	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-08-31	
Calcium, dissolved	**92.3**	0.20	mg/L	2022-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Copper, dissolved	**0.0173**	0.00040	mg/L	2022-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2022-08-31	
Lead, dissolved	**0.00041**	0.00020	mg/L	2022-08-31	
Lithium, dissolved	**0.00229**	0.00010	mg/L	2022-09-01	
Magnesium, dissolved	**41.7**	0.010	mg/L	2022-08-31	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-08-29	
Molybdenum, dissolved	**0.00018**	0.00010	mg/L	2022-08-31	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2022-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-08-31	
Potassium, dissolved	**1.98**	0.10	mg/L	2022-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Silicon, dissolved	**4.7**	1.0	mg/L	2022-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-08-31	
Sodium, dissolved	**59.2**	0.10	mg/L	2022-08-31	
Strontium, dissolved	**0.460**	0.0010	mg/L	2022-08-31	
Sulfur, dissolved	**14.1**	3.0	mg/L	2022-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-08-31	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22H3785-08) | Matrix: Water | Sampled: 2022-08-24 07:20, Continued					
Dissolved Metals, Continued					
Uranium, dissolved	**0.00127**	0.000020	mg/L	2022-08-31	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-08-31	
Zinc, dissolved	**0.0073**	0.0040	mg/L	2022-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-08-31	
General Parameters					
Alkalinity, Total (as CaCO3)	**359**	1.0	mg/L	2022-08-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Bicarbonate (as CaCO3)	**359**	1.0	mg/L	2022-08-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-08-30	
Bicarbonate (HCO3)	**438**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-08-27	
BOD, 5-day	< 6.6	2.0	mg/L	2022-08-31	
Chemical Oxygen Demand	< 20	20	mg/L	2022-08-30	
Conductivity (EC)	**1020**	2.0	µS/cm	2022-08-30	
Nitrogen, Total Kjeldahl	**0.091**	0.050	mg/L	2022-08-31	
pH	**8.03**	0.10	pH units	2022-08-30	HT2
Solids, Total Dissolved	**552**	15	mg/L	2022-08-30	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-08-30	
Turbidity	< 0.10	0.10	NTU	2022-08-26	

Sample Qualifiers:

HT1 The sample was prepared and/or analyzed past the recommended holding time.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	✓	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2017)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2H3279										
Blank (B2H3279-BLK1)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B2H3279-BLK2)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B2H3279-BLK3)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B2H3279-BS1)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Bromide	4.16	0.10	mg/L	4.00		104	85-115			
Chloride	15.9	0.10	mg/L	16.0		99	90-110			
Fluoride	3.88	0.10	mg/L	4.00		97	88-108			
Nitrate (as N)	4.01	0.010	mg/L	4.00		100	90-110			
Nitrite (as N)	1.95	0.010	mg/L	2.00		98	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
LCS (B2H3279-BS2)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Bromide	4.02	0.10	mg/L	4.00		101	85-115			
Chloride	15.6	0.10	mg/L	16.0		98	90-110			
Fluoride	3.81	0.10	mg/L	4.00		95	88-108			
Nitrate (as N)	3.86	0.010	mg/L	4.00		97	90-110			
Nitrite (as N)	1.96	0.010	mg/L	2.00		98	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2H3279, Continued										
LCS (B2H3279-BS2), Continued				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
LCS (B2H3279-BS3)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Bromide	4.14	0.10	mg/L	4.00		103	85-115			
Chloride	16.3	0.10	mg/L	16.0		102	90-110			
Fluoride	3.83	0.10	mg/L	4.00		96	88-108			
Nitrate (as N)	4.19	0.010	mg/L	4.00		105	90-110			
Nitrite (as N)	1.96	0.010	mg/L	2.00		98	85-115			
Sulfate	15.8	1.0	mg/L	16.0		99	90-110			
Dissolved Metals, Batch B2H3633										
Blank (B2H3633-BLK1)				Prepared: 2022-08-29, Analyzed: 2022-08-29						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2H3633-BLK2)				Prepared: 2022-08-29, Analyzed: 2022-08-29						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B2H3633-BS1)				Prepared: 2022-08-29, Analyzed: 2022-08-29						
Mercury, dissolved	0.000507	0.000010	mg/L	0.000500		101	80-120			
LCS (B2H3633-BS2)				Prepared: 2022-08-29, Analyzed: 2022-08-29						
Mercury, dissolved	0.000516	0.000010	mg/L	0.000500		103	80-120			
Dissolved Metals, Batch B2H3781										
Blank (B2H3781-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Bismuth, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Phosphorus, dissolved	< 0.050	0.050	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silicon, dissolved	< 1.0	1.0	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Sulfur, dissolved	< 3.0	3.0	mg/L							
Tellurium, dissolved	< 0.00050	0.00050	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2H3781, Continued										
Blank (B2H3781-BLK1), Continued				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Thorium, dissolved	< 0.00010	0.00010	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0050	0.0050	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
Zirconium, dissolved	< 0.00010	0.00010	mg/L							
LCS (B2H3781-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Aluminum, dissolved	3.98	0.0050	mg/L	4.00		99	80-120			
Antimony, dissolved	0.0397	0.00020	mg/L	0.0400		99	80-120			
Arsenic, dissolved	0.0407	0.00050	mg/L	0.0400		102	80-120			
Barium, dissolved	0.0380	0.0050	mg/L	0.0400		95	80-120			
Beryllium, dissolved	0.0441	0.00010	mg/L	0.0400		110	80-120			
Bismuth, dissolved	0.0407	0.00010	mg/L	0.0400		102	80-120			
Boron, dissolved	0.0512	0.0500	mg/L	0.0400		128	80-120			MES
Cadmium, dissolved	0.0390	0.000010	mg/L	0.0400		97	80-120			
Calcium, dissolved	3.94	0.20	mg/L	4.00		98	80-120			
Chromium, dissolved	0.0401	0.00050	mg/L	0.0400		100	80-120			
Cobalt, dissolved	0.0399	0.00010	mg/L	0.0400		100	80-120			
Copper, dissolved	0.0402	0.00040	mg/L	0.0400		100	80-120			
Iron, dissolved	3.94	0.010	mg/L	4.00		99	80-120			
Lead, dissolved	0.0405	0.00020	mg/L	0.0400		101	80-120			
Lithium, dissolved	0.0485	0.00010	mg/L	0.0400		121	80-120			MES
Magnesium, dissolved	4.07	0.010	mg/L	4.00		102	80-120			
Manganese, dissolved	0.0395	0.00020	mg/L	0.0400		99	80-120			
Molybdenum, dissolved	0.0389	0.00010	mg/L	0.0400		97	80-120			
Nickel, dissolved	0.0395	0.00040	mg/L	0.0400		99	80-120			
Phosphorus, dissolved	3.92	0.050	mg/L	4.00		98	80-120			
Potassium, dissolved	3.93	0.10	mg/L	4.00		98	80-120			
Selenium, dissolved	0.0394	0.00050	mg/L	0.0400		99	80-120			
Silicon, dissolved	4.1	1.0	mg/L	4.00		103	80-120			
Silver, dissolved	0.0392	0.000050	mg/L	0.0400		98	80-120			
Sodium, dissolved	4.07	0.10	mg/L	4.00		102	80-120			
Strontium, dissolved	0.0382	0.0010	mg/L	0.0400		96	80-120			
Sulfur, dissolved	39.9	3.0	mg/L	40.0		100	80-120			
Tellurium, dissolved	0.0395	0.00050	mg/L	0.0400		99	80-120			
Thallium, dissolved	0.0399	0.000020	mg/L	0.0400		100	80-120			
Thorium, dissolved	0.0401	0.00010	mg/L	0.0400		100	80-120			
Tin, dissolved	0.0398	0.00020	mg/L	0.0400		99	80-120			
Titanium, dissolved	0.0384	0.0050	mg/L	0.0400		96	80-120			
Tungsten, dissolved	0.0418	0.0010	mg/L	0.0400		104	80-120			
Uranium, dissolved	0.0411	0.000020	mg/L	0.0400		103	80-120			
Vanadium, dissolved	0.0397	0.0050	mg/L	0.0400		99	80-120			
Zinc, dissolved	0.0405	0.0040	mg/L	0.0400		101	80-120			
Zirconium, dissolved	0.0392	0.00010	mg/L	0.0400		98	80-120			
Matrix Spike (B2H3781-MS1)		**Source: 22H3785-01**		Prepared: 2022-08-30, Analyzed: 2022-08-31						
Aluminum, dissolved	4.34	0.0050	mg/L	4.00	< 0.0050	108	70-130			
Antimony, dissolved	0.0399	0.00020	mg/L	0.0400	< 0.00020	99	70-130			
Arsenic, dissolved	0.0466	0.00050	mg/L	0.0400	< 0.00050	116	70-130			
Barium, dissolved	0.0910	0.0050	mg/L	0.0400	0.0488	105	70-130			
Beryllium, dissolved	0.0395	0.00010	mg/L	0.0400	< 0.00010	99	70-130			
Bismuth, dissolved	0.0346	0.00010	mg/L	0.0400	< 0.00010	86	70-130			
Boron, dissolved	1.87	0.0500	mg/L	0.0400	1.82	142	70-130			MS2

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2H3781, Continued										
Matrix Spike (B2H3781-MS1), Continued	**Source: 22H3785-01**			Prepared: 2022-08-30, Analyzed: 2022-08-31						
Cadmium, dissolved	0.0408	0.000010	mg/L	0.0400	< 0.000010	102	70-130			
Calcium, dissolved	138	0.20	mg/L	4.00	141	NR	70-130			MS2
Chromium, dissolved	0.0401	0.00050	mg/L	0.0400	< 0.00050	100	70-130			
Cobalt, dissolved	0.0391	0.00010	mg/L	0.0400	0.00149	94	70-130			
Copper, dissolved	0.0378	0.00040	mg/L	0.0400	0.00184	90	70-130			
Iron, dissolved	3.96	0.010	mg/L	4.00	< 0.010	99	70-130			
Lead, dissolved	0.0407	0.00020	mg/L	0.0400	< 0.00020	102	70-130			
Lithium, dissolved	0.0760	0.00010	mg/L	0.0400	0.0388	93	70-130			
Magnesium, dissolved	259	0.010	mg/L	4.00	257	38	70-130			MS2
Manganese, dissolved	0.143	0.00020	mg/L	0.0400	0.104	97	70-130			
Molybdenum, dissolved	0.0429	0.00010	mg/L	0.0400	0.00034	107	70-130			
Nickel, dissolved	0.0460	0.00040	mg/L	0.0400	0.0100	90	70-130			
Phosphorus, dissolved	4.71	0.050	mg/L	4.00	< 0.050	118	70-130			
Potassium, dissolved	153	0.10	mg/L	4.00	155	NR	70-130			MS2
Selenium, dissolved	0.0491	0.00050	mg/L	0.0400	< 0.00050	122	70-130			
Silicon, dissolved	15.6	1.0	mg/L	4.00	11.6	101	70-130			
Silver, dissolved	0.0305	0.000050	mg/L	0.0400	< 0.000050	76	70-130			
Sodium, dissolved	256	0.10	mg/L	4.00	257	NR	70-130			MS2
Strontium, dissolved	1.48	0.0010	mg/L	0.0400	1.46	43	70-130			MS2
Sulfur, dissolved	266	3.0	mg/L	40.0	228	95	70-130			
Tellurium, dissolved	0.0490	0.00050	mg/L	0.0400	< 0.00050	123	70-130			
Thallium, dissolved	0.0405	0.000020	mg/L	0.0400	0.000052	101	70-130			
Thorium, dissolved	0.0427	0.00010	mg/L	0.0400	< 0.00010	107	70-130			
Tin, dissolved	0.0439	0.00020	mg/L	0.0400	< 0.00020	109	70-130			
Titanium, dissolved	0.0422	0.0050	mg/L	0.0400	< 0.0050	105	70-130			
Tungsten, dissolved	0.0438	0.0010	mg/L	0.0400	< 0.0010	109	70-130			
Uranium, dissolved	0.0501	0.000020	mg/L	0.0400	0.00683	108	70-130			
Vanadium, dissolved	0.0416	0.0050	mg/L	0.0400	< 0.0050	104	70-130			
Zinc, dissolved	0.0387	0.0040	mg/L	0.0400	< 0.0040	95	70-130			
Zirconium, dissolved	0.0457	0.00010	mg/L	0.0400	0.00018	114	70-130			
General Parameters, Batch B2H3367										
Blank (B2H3367-BLK1)				Prepared: 2022-08-26, Analyzed: 2022-08-26						
Turbidity	< 0.10	0.10	NTU							
LCS (B2H3367-BS1)				Prepared: 2022-08-26, Analyzed: 2022-08-26						
Turbidity	37.3	0.10	NTU	40.0		93	90-110			
Duplicate (B2H3367-DUP1)	**Source: 22H3785-01**			Prepared: 2022-08-26, Analyzed: 2022-08-26						
Turbidity	227	0.10	NTU		220			3	15	
General Parameters, Batch B2H3411										
Blank (B2H3411-BLK1)				Prepared: 2022-08-26, Analyzed: 2022-08-31						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B2H3411-BS1)				Prepared: 2022-08-26, Analyzed: 2022-08-31						
BOD, 5-day	192	55.0	mg/L	198		97	85-115			
Duplicate (B2H3411-DUP1)	**Source: 22H3785-08**			Prepared: 2022-08-26, Analyzed: 2022-08-31						
BOD, 5-day	< 6.6	2.0	mg/L		< 6.6				22	
General Parameters, Batch B2H3487										

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2H3487, Continued										
Blank (B2H3487-BLK1)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2H3487-BLK2)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2H3487-BLK3)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B2H3487-BLK4)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B2H3487-BS1)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.973	0.050	mg/L	1.00		97	90-115			
LCS (B2H3487-BS2)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.962	0.050	mg/L	1.00		96	90-115			
LCS (B2H3487-BS3)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.964	0.050	mg/L	1.00		96	90-115			
LCS (B2H3487-BS4)				Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.973	0.050	mg/L	1.00		97	90-115			
Duplicate (B2H3487-DUP4)		**Source: 22H3785-05**		Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.612	0.050	mg/L		0.614			< 1	15	
Matrix Spike (B2H3487-MS4)		**Source: 22H3785-05**		Prepared: 2022-08-27, Analyzed: 2022-08-27						
Ammonia, Total (as N)	0.860	0.050	mg/L	0.125	0.614	197	75-125			MS2
General Parameters, Batch B2H3525										
Blank (B2H3525-BLK1)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B2H3525-BLK2)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2H3525-BS1)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Alkalinity, Total (as CaCO3)	111	1.0	mg/L	100		111	80-120			
LCS (B2H3525-BS2)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Alkalinity, Total (as CaCO3)	117	1.0	mg/L	100		117	80-120			
LCS (B2H3525-BS3)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2H3525, Continued										
LCS (B2H3525-BS4)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
Reference (B2H3525-SRM1)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
pH	7.03	0.10	pH units	7.01		100	98-102			
Reference (B2H3525-SRM2)				Prepared: 2022-08-28, Analyzed: 2022-08-28						
pH	7.03	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B2H3580										
Blank (B2H3580-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Suspended	< 2.0	2.0	mg/L							
LCS (B2H3580-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Suspended	94.5	5.0	mg/L	100		94	85-115			
Duplicate (B2H3580-DUP1)			**Source: 22H3785-03**	Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Suspended	140	2.0	mg/L		140				20	
General Parameters, Batch B2H3621										
Blank (B2H3621-BLK1)				Prepared: 2022-08-29, Analyzed: 2022-08-30						
Solids, Total Dissolved	< 15	15	mg/L							
LCS (B2H3621-BS1)				Prepared: 2022-08-29, Analyzed: 2022-08-30						
Solids, Total Dissolved	234	15	mg/L	240		98	85-115			
Duplicate (B2H3621-DUP1)			**Source: 22H3785-02**	Prepared: 2022-08-29, Analyzed: 2022-08-30						
Solids, Total Dissolved	1460	15	mg/L		1430			2	15	
General Parameters, Batch B2H3711										
Blank (B2H3711-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2H3711-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Alkalinity, Total (as CaCO3)	118	1.0	mg/L	100		118	80-120			
LCS (B2H3711-BS2)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
Duplicate (B2H3711-DUP1)			**Source: 22H3785-03**	Prepared: 2022-08-30, Analyzed: 2022-08-30						
Alkalinity, Total (as CaCO3)	713	1.0	mg/L		735			3	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	713	1.0	mg/L		735			3	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	2370	2.0	µS/cm		2350			< 1	5	
pH	7.94	0.10	pH units		7.94			< 1	4	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22H3785
PROJECT	19-2850 - Golden	**REPORTED**	2022-09-01 17:54

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2H3711, Continued										
Reference (B2H3711-SRM1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
pH	7.04	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B2H3718										
Blank (B2H3718-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B2H3718-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Chemical Oxygen Demand	510	20	mg/L	500		102	89-115			
General Parameters, Batch B2H3746										
Blank (B2H3746-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Dissolved	< 15	15	mg/L							
LCS (B2H3746-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Dissolved	235	15	mg/L	240		98	85-115			
Duplicate (B2H3746-DUP1)	**Source: 22H3785-07**			Prepared: 2022-08-30, Analyzed: 2022-08-30						
Solids, Total Dissolved	2500	15	mg/L		2390			4	15	
General Parameters, Batch B2H3764										
Blank (B2H3764-BLK1)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
Blank (B2H3764-BLK2)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Nitrogen, Total Kjeldahl	< 0.050	0.050	mg/L							
LCS (B2H3764-BS1)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Nitrogen, Total Kjeldahl	1.07	0.050	mg/L	1.00		107	85-115			
LCS (B2H3764-BS2)				Prepared: 2022-08-30, Analyzed: 2022-08-31						
Nitrogen, Total Kjeldahl	1.06	0.050	mg/L	1.00		106	85-115			

QC Qualifiers:

MES	A number up to 10% (rounded down) of the analytes in a Multi-Element Scan may exceed control limits by up to 10% (absolute).
MS2	The native sample concentration is greater than the spike concentration hence the matrix spike limits do not apply.

22H3785

SERVICES

Caring About Results, Obviously.

CARO.ca **1-888-311-8846**

#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

CARO BC COC, Rev 2017-05

CHAIN OF CUSTODY RECORD

COC# _____ PAGE 1 OF 1

RELINQUISHED BY:	DATE: 22-08-25	RECEIVED BY:	DATE: 8.25
	TIME: 10:30	J.S/CW	TIME: 13:42

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ Other: _____

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Kelsey/ Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: ~~Ktanaka@ecoscapeltd.com~~
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: KT

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	MATRIX: OTHER WATER	MATRIX: SOIL	MATRIX: OTHER	CONTAINER QTY	SAMPLING: DATE YYYY-MM-DD	SAMPLING: TIME HH:MM	COMMENTS: CHLORINATED	COMMENTS: FILTERED	COMMENTS: PRESERVED	COMMENTS: (e.g. flow/volume media ID/notes)	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☐	METALS - WATER DISSOLVED Hg ☒	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☒ ALK ☒	TSS ☒ VSS ☐ TDS ☒	BOD ☒ COD ☒	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E. coli ☐	ASBESTOS	Dissolved Hardness as CaCO3	Chloride, Sulphate, fluoride, turbidity	Nitrate as N, Nitrate as N	Ammonia as N	bromide		HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW09-06S		✔				2022-08-24	13:55		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
MW10-08		✔					9:45		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
MW18-10		✔					15:40		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
MW18-11		✔					10:30		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
DMW-1b	✔						11:30		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
DMW-4	✔						11:15		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
MW09-06D		✔					14:35		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
~~DUP A~~		✔							✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				
DMW20-01	✔					2022-08-24	7:20		✔	✔										✔		✔	✔	✔					✔	✔	✔	✔	✔				

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 9.5 ICE: Y ☐ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

CERTIFICATE OF ANALYSIS

REPORTED TO	Ecoscape Environmental Ltd. #102 - 450 Neave Court Kelowna, BC V1V 2M2		
ATTENTION	Mike Schutten	**WORK ORDER**	22K2189
PO NUMBER	19-2850	**RECEIVED / TEMP**	2022-11-17 15:17 / 1.4°C
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44
PROJECT INFO	Golden	**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Account Manager

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22K2189-01) | Matrix: Water | Sampled: 2022-11-16 13:20					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**381**	0.10	mg/L	2022-11-18	
Fluoride	**0.16**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**35.8**	0.010	mg/L	2022-11-18	
Nitrite (as N)	**0.015**	0.010	mg/L	2022-11-18	
Sulfate	**643**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*94*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1420**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	**0.00022**	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.0490**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**1.72**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**143**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00163**	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00182**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0359**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**258**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.117**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00033**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.0104**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**150**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**12.2**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**256**	0.10	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22K2189-01) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
Dissolved Metals, Continued					
Strontium, dissolved	**1.61**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**241**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	**0.000060**	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	**0.00032**	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.00686**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	**0.00019**	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**904**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**904**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**1100**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.34**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**60**	20	mg/L	2022-11-21	
Conductivity (EC)	**3680**	2.0	µS/cm	2022-11-23	
pH	**7.78**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**2240**	15	mg/L	2022-11-23	
Solids, Total Suspended	**941**	2.0	mg/L	2022-11-20	
Turbidity	**770**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22K2189-01) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*76*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*92*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*121*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-25	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-25	
Bromoform	< 1.0	1.0	µg/L	2022-11-25	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-25	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
Chloroethane	< 2.0	2.0	µg/L	2022-11-25	
Chloroform	< 1.0	1.0	µg/L	2022-11-25	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-25	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-25	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-25	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-25	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-25	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-25	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-25	
Styrene	< 1.0	1.0	µg/L	2022-11-25	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-25	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Toluene	< 1.0	1.0	µg/L	2022-11-25	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06S (22K2189-01) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
Volatile Organic Compounds (VOC), Continued					
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-25	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-25	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-25	
Surrogate: Toluene-d8	*96*	*70-130*	%	*2022-11-25*	
Surrogate: 4-Bromofluorobenzene	*77*	*70-130*	%	*2022-11-25*	
Surrogate: 1,4-Dichlorobenzene-d4	*77*	*70-130*	%	*2022-11-25*	
MW10-08 (22K2189-02) | Matrix: Water | Sampled: 2022-11-16 13:05					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**613**	0.10	mg/L	2022-11-18	
Fluoride	**0.17**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**1.29**	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**48.8**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*89*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**713**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	**0.00286**	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.204**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**93.0**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00086**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0194**	0.00010	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22K2189-02) | Matrix: Water | Sampled: 2022-11-16 13:05, Continued					
Dissolved Metals, Continued					
Magnesium, dissolved	**117**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.00045**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00044**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.00205**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**5.92**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**9.6**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**331**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**1.37**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**16.9**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	**0.000031**	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	**0.0026**	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.00212**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**509**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**509**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**620**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.067**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**25**	20	mg/L	2022-11-21	
Conductivity (EC)	**2760**	2.0	µS/cm	2022-11-23	
pH	**8.04**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**1500**	15	mg/L	2022-11-23	
Solids, Total Suspended	**532**	2.0	mg/L	2022-11-20	
Turbidity	**310**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22K2189-02) | Matrix: Water | Sampled: 2022-11-16 13:05, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*74*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*88*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*117*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-25	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-25	
Bromoform	< 1.0	1.0	µg/L	2022-11-25	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-25	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
Chloroethane	< 2.0	2.0	µg/L	2022-11-25	
Chloroform	< 1.0	1.0	µg/L	2022-11-25	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-25	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-25	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW10-08 (22K2189-02) | Matrix: Water | Sampled: 2022-11-16 13:05, Continued					
Volatile Organic Compounds (VOC), Continued					
Dichloromethane	< 3.0	3.0	µg/L	2022-11-25	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-25	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-25	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-25	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-25	
Styrene	< 1.0	1.0	µg/L	2022-11-25	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-25	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Toluene	< 1.0	1.0	µg/L	2022-11-25	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-25	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-25	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-25	
Surrogate: Toluene-d8	*95*	*70-130*	%	*2022-11-25*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-25*	
Surrogate: 1,4-Dichlorobenzene-d4	*75*	*70-130*	%	*2022-11-25*	
MW18-10 (22K2189-03) | Matrix: Water | Sampled: 2022-11-16 16:40					
Anions					
Bromide	**0.37**	0.10	mg/L	2022-11-18	
Chloride	**396**	0.10	mg/L	2022-11-18	
Fluoride	**0.10**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**28.7**	0.010	mg/L	2022-11-18	
Nitrite (as N)	**0.065**	0.010	mg/L	2022-11-18	
Sulfate	**73.3**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*86*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1030**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	**0.00081**	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.318**	0.0050	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22K2189-03) | Matrix: Water | Sampled: 2022-11-16 16:40, Continued					
Dissolved Metals, Continued					
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**0.306**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	**0.000016**	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**99.0**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00293**	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00067**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0207**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**189**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.130**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00087**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.0344**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**18.6**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**9.7**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**141**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**1.56**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**25.2**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	**0.000106**	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.00304**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	**0.00013**	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**667**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**667**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**814**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22K2189-03) | Matrix: Water | Sampled: 2022-11-16 16:40, Continued					
General Parameters, Continued					
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.978**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**44**	20	mg/L	2022-11-21	
Conductivity (EC)	**2460**	2.0	µS/cm	2022-11-23	
pH	**7.93**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**1380**	15	mg/L	2022-11-23	
Solids, Total Suspended	**435**	2.0	mg/L	2022-11-20	
Turbidity	**250**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*74*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*91*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*119*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-25	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-25	
Bromoform	< 1.0	1.0	µg/L	2022-11-25	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-25	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
Chloroethane	< 2.0	2.0	µg/L	2022-11-25	
Chloroform	< 1.0	1.0	µg/L	2022-11-25	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-10 (22K2189-03) | Matrix: Water | Sampled: 2022-11-16 16:40, Continued					
Volatile Organic Compounds (VOC), Continued					
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-25	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-25	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-25	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-25	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-25	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-25	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-25	
Styrene	< 1.0	1.0	µg/L	2022-11-25	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-25	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Toluene	< 1.0	1.0	µg/L	2022-11-25	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-25	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-25	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-25	
Surrogate: Toluene-d8	*95*	*70-130*	%	*2022-11-25*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-25*	
Surrogate: 1,4-Dichlorobenzene-d4	*76*	*70-130*	%	*2022-11-25*	
MW18-11 (22K2189-04) | Matrix: Water | Sampled: 2022-11-16 09:20					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**105**	0.10	mg/L	2022-11-18	
Fluoride	**0.73**	0.10	mg/L	2022-11-18	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**60.5**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22K2189-04) | Matrix: Water | Sampled: 2022-11-16 09:20, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*118*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**590**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	**0.00745**	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.0133**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**0.263**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**22.3**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-11-22	
Iron, dissolved	**0.719**	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0259**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**130**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.0586**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00140**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.00421**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**5.83**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**3.1**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**113**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**0.274**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**20.2**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	< 0.000020	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22K2189-04) | Matrix: Water | Sampled: 2022-11-16 09:20, Continued					
Dissolved Metals, Continued					
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**629**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	**4.6**	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**619**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	**9.2**	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**756**	1.22	mg/L	N/A	
Carbonate (CO3)	**5.52**	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.231**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	< 20	20	mg/L	2022-11-21	
Conductivity (EC)	**1400**	2.0	µS/cm	2022-11-23	
pH	**8.32**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**819**	15	mg/L	2022-11-23	
Solids, Total Suspended	**5.5**	2.0	mg/L	2022-11-20	
Turbidity	**15.6**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*92*	*50-140*	%	*2022-11-21*	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW18-11 (22K2189-04) | Matrix: Water | Sampled: 2022-11-16 09:20, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Surrogate: Naphthalene-d8	*117*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*151*	*50-140*	%	*2022-11-21*	S02
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-25	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-25	
Bromoform	< 1.0	1.0	µg/L	2022-11-25	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-25	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
Chloroethane	< 2.0	2.0	µg/L	2022-11-25	
Chloroform	< 1.0	1.0	µg/L	2022-11-25	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-25	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-25	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-25	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-25	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-25	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-25	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-25	
Styrene	< 1.0	1.0	µg/L	2022-11-25	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-25	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Toluene	< 1.0	1.0	µg/L	2022-11-25	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-25	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-25	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-25	
Surrogate: Toluene-d8	*94*	*70-130*	%	*2022-11-25*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-25*	
Surrogate: 1,4-Dichlorobenzene-d4	*76*	*70-130*	%	*2022-11-25*	
MW22-12 (22K2189-05) | Matrix: Water | Sampled: 2022-11-16 08:35					

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW22-12 (22K2189-05) | Matrix: Water | Sampled: 2022-11-16 08:35, Continued					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**0.84**	0.10	mg/L	2022-11-18	
Fluoride	**0.90**	0.10	mg/L	2022-11-18	
Nitrate (as N)	< 0.010	0.010	mg/L	2022-11-18	
Nitrite (as N)	**0.012**	0.010	mg/L	2022-11-18	
Sulfate	**17.7**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	**341**	250	µg/L	2022-11-21	
EPHw19-32	**786**	250	µg/L	2022-11-21	
LEPHw	**341**	250	µg/L	N/A	
HEPHw	**786**	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*88*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**267**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	**0.00023**	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	**0.0234**	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.162**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**24.9**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00045**	0.00010	mg/L	2022-11-22	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.00350**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**49.7**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.0672**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00832**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.00221**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**1.22**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**5.3**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**18.1**	0.10	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW22-12 (22K2189-05) | Matrix: Water | Sampled: 2022-11-16 08:35, Continued					
Dissolved Metals, Continued					
Strontium, dissolved	**1.16**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**5.8**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.000678**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**417**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**417**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**509**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**1.53**	0.050	mg/L	2022-11-19	
BOD, 5-day	**7.8**	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**168**	20	mg/L	2022-11-21	RA5
Conductivity (EC)	**538**	2.0	µS/cm	2022-11-23	
pH	**8.09**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**290**	15	mg/L	2022-11-23	
Solids, Total Suspended	**79000**	2.0	mg/L	2022-11-20	
Turbidity	**> 4000**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					RE2
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	**0.068**	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	**0.248**	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	**0.282**	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	**0.218**	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	**0.350**	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	**0.052**	0.010	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW22-12 (22K2189-05) | Matrix: Water | Sampled: 2022-11-16 08:35, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					RE2
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*51*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*94*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*117*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-25	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-25	
Bromoform	< 1.0	1.0	µg/L	2022-11-25	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-25	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
Chloroethane	< 2.0	2.0	µg/L	2022-11-25	
Chloroform	< 1.0	1.0	µg/L	2022-11-25	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-25	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-25	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-25	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-25	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-25	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-25	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-25	
Styrene	< 1.0	1.0	µg/L	2022-11-25	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-25	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Toluene	**1.8**	1.0	µg/L	2022-11-25	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-25	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW22-12 (22K2189-05) | Matrix: Water | Sampled: 2022-11-16 08:35, Continued					
Volatile Organic Compounds (VOC), Continued					
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-25	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-25	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-25	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-25	
Surrogate: Toluene-d8	*93*	*70-130*	%	*2022-11-25*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-25*	
Surrogate: 1,4-Dichlorobenzene-d4	*75*	*70-130*	%	*2022-11-25*	
DMW-1b (22K2189-06) | Matrix: Water | Sampled: 2022-11-16 12:05					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**11.3**	0.10	mg/L	2022-11-18	
Fluoride	**0.77**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**0.279**	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**286**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*86*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**592**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	**0.00110**	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.0172**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**0.485**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**75.5**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00055**	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00343**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0546**	0.00010	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22K2189-06) | Matrix: Water | Sampled: 2022-11-16 12:05, Continued					
Dissolved Metals, Continued					
Magnesium, dissolved	**97.8**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.00313**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00047**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.00095**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**9.41**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**6.9**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**51.7**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**5.54**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**93.4**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.000856**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	**0.0143**	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	**0.00055**	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**437**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**437**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**533**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**0.856**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	< 20	20	mg/L	2022-11-21	
Conductivity (EC)	**1200**	2.0	µS/cm	2022-11-23	
pH	**8.11**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**773**	15	mg/L	2022-11-23	
Solids, Total Suspended	< 2.0	2.0	mg/L	2022-11-22	
Turbidity	**0.13**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22K2189-06) | Matrix: Water | Sampled: 2022-11-16 12:05, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*74*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*92*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*117*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-26	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-26	
Bromoform	< 1.0	1.0	µg/L	2022-11-26	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-26	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
Chloroethane	< 2.0	2.0	µg/L	2022-11-26	
Chloroform	< 1.0	1.0	µg/L	2022-11-26	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-26	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-26	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW-1b (22K2189-06) | Matrix: Water | Sampled: 2022-11-16 12:05, Continued					
Volatile Organic Compounds (VOC), Continued					
Dichloromethane	< 3.0	3.0	µg/L	2022-11-26	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-26	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-26	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-26	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-26	
Styrene	< 1.0	1.0	µg/L	2022-11-26	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-26	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Toluene	< 1.0	1.0	µg/L	2022-11-26	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-26	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-26	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-26	
Surrogate: Toluene-d8	*94*	*70-130*	%	*2022-11-26*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-26*	
Surrogate: 1,4-Dichlorobenzene-d4	*76*	*70-130*	%	*2022-11-26*	
MW09-06D (22K2189-07) | Matrix: Water | Sampled: 2022-11-16 14:20					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**385**	0.10	mg/L	2022-11-18	
Fluoride	**0.12**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**37.6**	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**621**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*83*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1430**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.0473**	0.0050	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22K2189-07) | Matrix: Water | Sampled: 2022-11-16 14:20, Continued					
Dissolved Metals, Continued					
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**1.88**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**144**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00172**	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00180**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0378**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**260**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.139**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00034**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.0109**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**155**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**12.2**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**265**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**1.60**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**237**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	**0.000062**	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.00697**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	**0.00015**	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**914**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**914**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**1120**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22K2189-07) | Matrix: Water | Sampled: 2022-11-16 14:20, Continued					
General Parameters, Continued					
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.64**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**76**	20	mg/L	2022-11-21	
Conductivity (EC)	**3700**	2.0	µS/cm	2022-11-23	
pH	**7.89**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**2190**	15	mg/L	2022-11-23	
Solids, Total Suspended	**936**	2.0	mg/L	2022-11-22	
Turbidity	**1540**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*75*	*50-140*	%	*2022-11-21*	
Surrogate: Naphthalene-d8	*95*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*121*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-26	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-26	
Bromoform	< 1.0	1.0	µg/L	2022-11-26	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-26	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
Chloroethane	< 2.0	2.0	µg/L	2022-11-26	
Chloroform	< 1.0	1.0	µg/L	2022-11-26	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
MW09-06D (22K2189-07) | Matrix: Water | Sampled: 2022-11-16 14:20, Continued					
Volatile Organic Compounds (VOC), Continued					
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-26	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-26	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-26	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-26	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-26	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-26	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-26	
Styrene	< 1.0	1.0	µg/L	2022-11-26	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-26	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Toluene	< 1.0	1.0	µg/L	2022-11-26	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-26	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-26	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-26	
Surrogate: Toluene-d8	*95*	*70-130*	%	*2022-11-26*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2022-11-26*	
Surrogate: 1,4-Dichlorobenzene-d4	*76*	*70-130*	%	*2022-11-26*	
DUP A (22K2189-08) | Matrix: Water | Sampled: 2022-11-16 13:20					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**373**	0.10	mg/L	2022-11-18	
Fluoride	**0.15**	0.10	mg/L	2022-11-18	
Nitrate (as N)	**35.3**	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**641**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22K2189-08) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*81*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**1440**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	**0.00020**	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.0493**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	**1.89**	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**144**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00171**	0.00010	mg/L	2022-11-22	
Copper, dissolved	**0.00182**	0.00040	mg/L	2022-11-22	
Iron, dissolved	< 0.010	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.0391**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**262**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.118**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000017	0.000010	mg/L	2022-11-22	RS2
Molybdenum, dissolved	**0.00040**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	**0.0104**	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**153**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**12.2**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**262**	0.10	mg/L	2022-11-22	
Strontium, dissolved	**1.60**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**241**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	**0.000060**	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	**0.00021**	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.00643**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22K2189-08) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
Dissolved Metals, Continued					
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	**0.00017**	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**911**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**911**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**1110**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	**2.16**	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	**87**	20	mg/L	2022-11-21	
Conductivity (EC)	**3700**	2.0	µS/cm	2022-11-23	
pH	**7.91**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**2310**	15	mg/L	2022-11-23	
Solids, Total Suspended	**1060**	2.0	mg/L	2022-11-22	
Turbidity	**768**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-21	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-21	
Acridine	< 0.050	0.050	µg/L	2022-11-21	
Anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-21	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-21	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-21	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Chrysene	< 0.050	0.050	µg/L	2022-11-21	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-21	
Fluoranthene	< 0.030	0.030	µg/L	2022-11-21	
Fluorene	< 0.050	0.050	µg/L	2022-11-21	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-21	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-21	
Naphthalene	< 0.200	0.200	µg/L	2022-11-21	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-21	
Pyrene	< 0.020	0.020	µg/L	2022-11-21	
Quinoline	< 0.050	0.050	µg/L	2022-11-21	
Surrogate: Acridine-d9	*75*	*50-140*	%	*2022-11-21*	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP A (22K2189-08) | Matrix: Water | Sampled: 2022-11-16 13:20, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Surrogate: Naphthalene-d8	*93*	*50-140*	%	*2022-11-21*	
Surrogate: Perylene-d12	*120*	*50-140*	%	*2022-11-21*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-26	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-26	
Bromoform	< 1.0	1.0	µg/L	2022-11-26	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-26	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
Chloroethane	< 2.0	2.0	µg/L	2022-11-26	
Chloroform	< 1.0	1.0	µg/L	2022-11-26	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-26	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-26	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-26	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-26	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-26	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-26	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-26	
Styrene	< 1.0	1.0	µg/L	2022-11-26	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-26	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Toluene	< 1.0	1.0	µg/L	2022-11-26	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-26	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-26	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-26	
Surrogate: Toluene-d8	*94*	*70-130*	%	*2022-11-26*	
Surrogate: 4-Bromofluorobenzene	*74*	*70-130*	%	*2022-11-26*	
Surrogate: 1,4-Dichlorobenzene-d4	*75*	*70-130*	%	*2022-11-26*	
DMW20-01 (22K2189-09) | Matrix: Water | Sampled: 2022-11-16 11:10					

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22K2189-09) | Matrix: Water | Sampled: 2022-11-16 11:10, Continued					
Anions					
Bromide	< 0.10	0.10	mg/L	2022-11-18	
Chloride	**57.6**	0.10	mg/L	2022-11-18	
Fluoride	< 0.10	0.10	mg/L	2022-11-18	
Nitrate (as N)	**0.538**	0.010	mg/L	2022-11-18	
Nitrite (as N)	< 0.010	0.010	mg/L	2022-11-18	
Sulfate	**27.7**	1.0	mg/L	2022-11-18	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2022-11-21	
EPHw19-32	< 250	250	µg/L	2022-11-21	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*69*	*60-140*	%	*2022-11-21*	
Calculated Parameters					
Hardness, Total (as CaCO3)	**258**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Barium, dissolved	**0.124**	0.0050	mg/L	2022-11-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2022-11-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Calcium, dissolved	**53.0**	0.20	mg/L	2022-11-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Cobalt, dissolved	**0.00011**	0.00010	mg/L	2022-11-22	
Copper, dissolved	< 0.00040	0.00040	mg/L	2022-11-22	
Iron, dissolved	**0.029**	0.010	mg/L	2022-11-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Lithium, dissolved	**0.00167**	0.00010	mg/L	2022-11-22	
Magnesium, dissolved	**30.4**	0.010	mg/L	2022-11-22	
Manganese, dissolved	**0.0121**	0.00020	mg/L	2022-11-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2022-11-22	
Molybdenum, dissolved	**0.00067**	0.00010	mg/L	2022-11-22	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2022-11-22	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2022-11-22	
Potassium, dissolved	**1.14**	0.10	mg/L	2022-11-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Silicon, dissolved	**3.5**	1.0	mg/L	2022-11-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2022-11-22	
Sodium, dissolved	**24.9**	0.10	mg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22K2189-09) | Matrix: Water | Sampled: 2022-11-16 11:10, Continued					
Dissolved Metals, Continued					
Strontium, dissolved	**0.379**	0.0010	mg/L	2022-11-22	
Sulfur, dissolved	**8.9**	3.0	mg/L	2022-11-22	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2022-11-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2022-11-22	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2022-11-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2022-11-22	
Uranium, dissolved	**0.000678**	0.000020	mg/L	2022-11-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2022-11-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2022-11-22	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2022-11-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**223**	1.0	mg/L	2022-11-23	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Bicarbonate (as CaCO3)	**223**	1.0	mg/L	2022-11-23	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2022-11-23	
Bicarbonate (HCO3)	**272**	1.22	mg/L	N/A	
Carbonate (CO3)	< 0.600	0.600	mg/L	N/A	
Hydroxide (OH)	< 0.340	0.340	mg/L	N/A	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2022-11-19	
BOD, 5-day	< 5.9	2.0	mg/L	2022-11-23	
Chemical Oxygen Demand	< 20	20	mg/L	2022-11-21	
Conductivity (EC)	**591**	2.0	µS/cm	2022-11-23	
pH	**8.20**	0.10	pH units	2022-11-23	HT2
Solids, Total Dissolved	**307**	15	mg/L	2022-11-23	
Solids, Total Suspended	**10.6**	2.0	mg/L	2022-11-22	
Turbidity	**8.80**	0.10	NTU	2022-11-19	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2022-11-22	
Acenaphthylene	< 0.200	0.200	µg/L	2022-11-22	
Acridine	< 0.050	0.050	µg/L	2022-11-22	
Anthracene	< 0.010	0.010	µg/L	2022-11-22	
Benz(a)anthracene	< 0.010	0.010	µg/L	2022-11-22	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2022-11-22	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2022-11-22	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2022-11-22	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2022-11-22	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2022-11-22	
Chrysene	< 0.050	0.050	µg/L	2022-11-22	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2022-11-22	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22K2189-09) | Matrix: Water | Sampled: 2022-11-16 11:10, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Fluoranthene	< 0.030	0.030	µg/L	2022-11-22	
Fluorene	< 0.050	0.050	µg/L	2022-11-22	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2022-11-22	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-22	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2022-11-22	
Naphthalene	< 0.200	0.200	µg/L	2022-11-22	
Phenanthrene	< 0.100	0.100	µg/L	2022-11-22	
Pyrene	< 0.020	0.020	µg/L	2022-11-22	
Quinoline	< 0.050	0.050	µg/L	2022-11-22	
Surrogate: Acridine-d9	*76*	*50-140*	%	*2022-11-22*	
Surrogate: Naphthalene-d8	*94*	*50-140*	%	*2022-11-22*	
Surrogate: Perylene-d12	*121*	*50-140*	%	*2022-11-22*	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2022-11-26	
Bromodichloromethane	< 1.0	1.0	µg/L	2022-11-26	
Bromoform	< 1.0	1.0	µg/L	2022-11-26	
Carbon tetrachloride	< 0.5	0.5	µg/L	2022-11-26	
Chlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
Chloroethane	< 2.0	2.0	µg/L	2022-11-26	
Chloroform	< 1.0	1.0	µg/L	2022-11-26	
Dibromochloromethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2022-11-26	
Dibromomethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2022-11-26	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Dichloromethane	< 3.0	3.0	µg/L	2022-11-26	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2022-11-26	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2022-11-26	
Ethylbenzene	< 1.0	1.0	µg/L	2022-11-26	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2022-11-26	
Styrene	< 1.0	1.0	µg/L	2022-11-26	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2022-11-26	
Tetrachloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Toluene	< 1.0	1.0	µg/L	2022-11-26	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2022-11-26	

TEST RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Analyzed	Qualifier
DMW20-01 (22K2189-09) | Matrix: Water | Sampled: 2022-11-16 11:10, Continued					
Volatile Organic Compounds (VOC), Continued					
Trichloroethylene	< 1.0	1.0	µg/L	2022-11-26	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2022-11-26	
Vinyl chloride	< 1.0	1.0	µg/L	2022-11-26	
Xylenes (total)	< 2.0	2.0	µg/L	2022-11-26	
Surrogate: Toluene-d8	*89*	*70-130*	%	*2022-11-26*	
Surrogate: 4-Bromofluorobenzene	*71*	*70-130*	%	*2022-11-26*	
Surrogate: 1,4-Dichlorobenzene-d4	*72*	*70-130*	%	*2022-11-26*	

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA5	The sample cannot be accurately quantified due to matrix interference. Result is Semi-Quantitative.
RE2	Result was confirmed by re-analysis prior to reporting.
RS2	The Reporting Limits for this sample have been raised due to limited sample volume.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2017)	Dissolved Oxygen Meter	✓	Kelowna
Chemical Oxygen Demand in Water	SM 5220 D* (2017)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
EPH in Water	EPA 3511* / BCMOE EPHw	Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID)	✓	Richmond
Hardness in Water	SM 2340 B (2017)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
HEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
LEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Polycyclic Aromatic Hydrocarbons in Water	EPA 3511* / EPA 8270D	Hexane MicroExtraction (Base/Neutral) / GC-MSD (SIM)	✓	Richmond
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Solids, Total Suspended in Water	Solids in Water, Filtered / SM 2540 D* (2017)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
Turbidity in Water	SM 2130 B (2017)	Nephelometry	✓	Kelowna
Volatile Organic Compounds in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
>	Greater than the specified Result
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, ph > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
BCMOE	British Columbia Environmental Laboratory Manual, British Columbia Ministry of Environment
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B2K2082										
Blank (B2K2082-BLK1)				Prepared: 2022-11-18, Analyzed: 2022-11-18						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B2K2082-BLK2)				Prepared: 2022-11-18, Analyzed: 2022-11-18						
Bromide	< 0.10	0.10	mg/L							
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B2K2082-BS1)				Prepared: 2022-11-18, Analyzed: 2022-11-18						
Bromide	3.99	0.10	mg/L	4.00		100	85-115			
Chloride	16.0	0.10	mg/L	16.0		100	90-110			
Fluoride	4.03	0.10	mg/L	4.00		101	88-108			
Nitrate (as N)	4.07	0.010	mg/L	4.00		102	90-110			
Nitrite (as N)	1.99	0.010	mg/L	2.00		100	85-115			
Sulfate	16.1	1.0	mg/L	16.0		101	90-110			
LCS (B2K2082-BS2)				Prepared: 2022-11-18, Analyzed: 2022-11-18						
Bromide	4.08	0.10	mg/L	4.00		102	85-115			
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Fluoride	4.01	0.10	mg/L	4.00		100	88-108			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	90-110			
Nitrite (as N)	2.02	0.010	mg/L	2.00		101	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
BCMOE Aggregate Hydrocarbons, Batch B2K2262										
Blank (B2K2262-BLK1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
EPHw10-19	< 250	250	µg/L							
EPHw19-32	< 250	250	µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B2K2262, Continued										
Blank (B2K2262-BLK1), Continued				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Surrogate: 2-Methylnonane (EPH/F2-4)	*1940*		*µg/L*	2220		*87*	*60-140*			
LCS (B2K2262-BS2)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
EPHw10-19	18400	250	µg/L	15400		120	70-130			
EPHw19-32	23800	250	µg/L	22100		108	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	*1480*		*µg/L*	2220		*67*	*60-140*			
LCS Dup (B2K2262-BSD2)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
EPHw10-19	18400	250	µg/L	15400		119	70-130	< 1	20	
EPHw19-32	23800	250	µg/L	22100		108	70-130	< 1	20	
Surrogate: 2-Methylnonane (EPH/F2-4)	*1440*		*µg/L*	2220		*65*	*60-140*			
Dissolved Metals, Batch B2K2414										
Blank (B2K2414-BLK1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Bismuth, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Phosphorus, dissolved	< 0.050	0.050	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silicon, dissolved	< 1.0	1.0	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Sulfur, dissolved	< 3.0	3.0	mg/L							
Tellurium, dissolved	< 0.00050	0.00050	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							
Thorium, dissolved	< 0.00010	0.00010	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0050	0.0050	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
Zirconium, dissolved	< 0.00010	0.00010	mg/L							
LCS (B2K2414-BS1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Aluminum, dissolved	4.15	0.0050	mg/L	4.00		104	80-120			
Antimony, dissolved	0.0436	0.00020	mg/L	0.0400		109	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B2K2414, Continued										
LCS (B2K2414-BS1), Continued				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Arsenic, dissolved	0.0422	0.00050	mg/L	0.0400		105	80-120			
Barium, dissolved	0.0401	0.0050	mg/L	0.0400		100	80-120			
Beryllium, dissolved	0.0400	0.00010	mg/L	0.0400		100	80-120			
Bismuth, dissolved	0.0427	0.00010	mg/L	0.0400		107	80-120			
Boron, dissolved	< 0.0500	0.0500	mg/L	0.0400		107	80-120			
Cadmium, dissolved	0.0406	0.000010	mg/L	0.0400		102	80-120			
Calcium, dissolved	4.08	0.20	mg/L	4.00		102	80-120			
Chromium, dissolved	0.0409	0.00050	mg/L	0.0400		102	80-120			
Cobalt, dissolved	0.0416	0.00010	mg/L	0.0400		104	80-120			
Copper, dissolved	0.0418	0.00040	mg/L	0.0400		104	80-120			
Iron, dissolved	4.18	0.010	mg/L	4.00		104	80-120			
Lead, dissolved	0.0404	0.00020	mg/L	0.0400		101	80-120			
Lithium, dissolved	0.0414	0.00010	mg/L	0.0400		103	80-120			
Magnesium, dissolved	4.15	0.010	mg/L	4.00		104	80-120			
Manganese, dissolved	0.0419	0.00020	mg/L	0.0400		105	80-120			
Molybdenum, dissolved	0.0416	0.00010	mg/L	0.0400		104	80-120			
Nickel, dissolved	0.0410	0.00040	mg/L	0.0400		103	80-120			
Phosphorus, dissolved	4.12	0.050	mg/L	4.00		103	80-120			
Potassium, dissolved	4.15	0.10	mg/L	4.00		104	80-120			
Selenium, dissolved	0.0398	0.00050	mg/L	0.0400		99	80-120			
Silicon, dissolved	4.5	1.0	mg/L	4.00		112	80-120			
Silver, dissolved	0.0410	0.000050	mg/L	0.0400		103	80-120			
Sodium, dissolved	4.08	0.10	mg/L	4.00		102	80-120			
Strontium, dissolved	0.0427	0.0010	mg/L	0.0400		107	80-120			
Sulfur, dissolved	41.0	3.0	mg/L	40.0		103	80-120			
Tellurium, dissolved	0.0422	0.00050	mg/L	0.0400		105	80-120			
Thallium, dissolved	0.0395	0.000020	mg/L	0.0400		99	80-120			
Thorium, dissolved	0.0410	0.00010	mg/L	0.0400		102	80-120			
Tin, dissolved	0.0435	0.00020	mg/L	0.0400		109	80-120			
Titanium, dissolved	0.0445	0.0050	mg/L	0.0400		111	80-120			
Tungsten, dissolved	0.0424	0.0010	mg/L	0.0400		106	80-120			
Uranium, dissolved	0.0408	0.000020	mg/L	0.0400		102	80-120			
Vanadium, dissolved	0.0413	0.0050	mg/L	0.0400		103	80-120			
Zinc, dissolved	0.0413	0.0040	mg/L	0.0400		103	80-120			
Zirconium, dissolved	0.0427	0.00010	mg/L	0.0400		107	80-120			
Dissolved Metals, Batch B2K2422										
Blank (B2K2422-BLK1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2K2422-BLK2)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B2K2422-BLK3)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B2K2422-BS1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	0.000544	0.000010	mg/L	0.000500		109	80-120			
LCS (B2K2422-BS2)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	0.000536	0.000010	mg/L	0.000500		107	80-120			
LCS (B2K2422-BS3)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Mercury, dissolved	0.000548	0.000010	mg/L	0.000500		110	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2K2085										
Blank (B2K2085-BLK1)				Prepared: 2022-11-18, Analyzed: 2022-11-23						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B2K2085-BS1)				Prepared: 2022-11-18, Analyzed: 2022-11-23						
BOD, 5-day	210	49.2	mg/L	198		106	85-115			
Duplicate (B2K2085-DUP2)		**Source: 22K2189-08**		Prepared: 2022-11-18, Analyzed: 2022-11-23						
BOD, 5-day	< 5.9	2.0	mg/L		< 5.9				22	
General Parameters, Batch B2K2165										
Blank (B2K2165-BLK1)				Prepared: 2022-11-19, Analyzed: 2022-11-19						
Turbidity	< 0.10	0.10	NTU							
Blank (B2K2165-BLK2)				Prepared: 2022-11-19, Analyzed: 2022-11-19						
Turbidity	< 0.10	0.10	NTU							
LCS (B2K2165-BS1)				Prepared: 2022-11-19, Analyzed: 2022-11-19						
Turbidity	40.8	0.10	NTU	40.0		102	90-110			
General Parameters, Batch B2K2177										
Blank (B2K2177-BLK1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Solids, Total Suspended	< 2.0	2.0	mg/L							
LCS (B2K2177-BS1)				Prepared: 2022-11-22, Analyzed: 2022-11-22						
Solids, Total Suspended	98.0	10.0	mg/L	100		98	85-115			
General Parameters, Batch B2K2197										
Blank (B2K2197-BLK1)				Prepared: 2022-11-19, Analyzed: 2022-11-19						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B2K2197-BS1)				Prepared: 2022-11-19, Analyzed: 2022-11-19						
Ammonia, Total (as N)	0.995	0.050	mg/L	1.00		100	90-115			
Duplicate (B2K2197-DUP1)		**Source: 22K2189-04**		Prepared: 2022-11-19, Analyzed: 2022-11-19						
Ammonia, Total (as N)	0.260	0.050	mg/L		0.231			12	15	
Matrix Spike (B2K2197-MS1)		**Source: 22K2189-04**		Prepared: 2022-11-19, Analyzed: 2022-11-19						
Ammonia, Total (as N)	0.468	0.050	mg/L	0.250	0.231	95	75-125			
General Parameters, Batch B2K2209										
Blank (B2K2209-BLK1)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Solids, Total Dissolved	< 15	15	mg/L							
LCS (B2K2209-BS1)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Solids, Total Dissolved	236	15	mg/L	240		98	85-115			
General Parameters, Batch B2K2210										
Blank (B2K2210-BLK1)				Prepared: 2022-11-20, Analyzed: 2022-11-20						
Solids, Total Suspended	< 2.0	2.0	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2K2210, Continued										
LCS (B2K2210-BS1)				Prepared: 2022-11-20, Analyzed: 2022-11-20						
Solids, Total Suspended	88.0	10.0	mg/L	100		88	85-115			
Duplicate (B2K2210-DUP1)			**Source: 22K2189-02**	Prepared: 2022-11-20, Analyzed: 2022-11-20						
Solids, Total Suspended	508	2.0	mg/L		532			4	20	
General Parameters, Batch B2K2217										
Blank (B2K2217-BLK1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B2K2217-BS1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Chemical Oxygen Demand	498	20	mg/L	500		100	89-115			
Duplicate (B2K2217-DUP1)			**Source: 22K2189-07**	Prepared: 2022-11-21, Analyzed: 2022-11-21						
Chemical Oxygen Demand	83	20	mg/L		76				14	
Matrix Spike (B2K2217-MS1)			**Source: 22K2189-07**	Prepared: 2022-11-21, Analyzed: 2022-11-21						
Chemical Oxygen Demand	217	20	mg/L	125	76	113	75-125			
General Parameters, Batch B2K2528										
Blank (B2K2528-BLK1)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B2K2528-BLK2)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B2K2528-BS1)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Alkalinity, Total (as CaCO3)	104	1.0	mg/L	100		104	80-120			
LCS (B2K2528-BS2)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Alkalinity, Total (as CaCO3)	105	1.0	mg/L	100		105	80-120			
LCS (B2K2528-BS3)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
LCS (B2K2528-BS4)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
Duplicate (B2K2528-DUP2)			**Source: 22K2189-04**	Prepared: 2022-11-23, Analyzed: 2022-11-23						
Alkalinity, Total (as CaCO3)	620	1.0	mg/L		629			1	10	
Alkalinity, Bicarbonate (as CaCO3)	608	1.0	mg/L		619			2	10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	1400	2.0	µS/cm		1400			< 1	5	
pH	8.32	0.10	pH units		8.32			< 1	4	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B2K2528, Continued										
Reference (B2K2528-SRM1)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
pH	7.02	0.10	pH units	7.01		100	98-102			
Reference (B2K2528-SRM2)				Prepared: 2022-11-23, Analyzed: 2022-11-23						
pH	7.03	0.10	pH units	7.01		100	98-102			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B2K2262										
Blank (B2K2262-BLK1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Acenaphthene	< 0.050	0.050	µg/L							
Acenaphthylene	< 0.200	0.200	µg/L							
Acridine	< 0.050	0.050	µg/L							
Anthracene	< 0.010	0.010	µg/L							
Benz(a)anthracene	< 0.010	0.010	µg/L							
Benzo(a)pyrene	< 0.010	0.010	µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L							
Benzo(k)fluoranthene	< 0.050	0.050	µg/L							
2-Chloronaphthalene	< 0.100	0.100	µg/L							
Chrysene	< 0.050	0.050	µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L							
Fluoranthene	< 0.030	0.030	µg/L							
Fluorene	< 0.050	0.050	µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L							
1-Methylnaphthalene	< 0.100	0.100	µg/L							
2-Methylnaphthalene	< 0.100	0.100	µg/L							
Naphthalene	< 0.200	0.200	µg/L							
Phenanthrene	< 0.100	0.100	µg/L							
Pyrene	< 0.020	0.020	µg/L							
Quinoline	< 0.050	0.050	µg/L							
Surrogate: Acridine-d9	*18.0*		*µg/L*	22.2		*81*	*50-140*			
Surrogate: Naphthalene-d8	*21.9*		*µg/L*	22.2		*98*	*50-140*			
Surrogate: Perylene-d12	*29.3*		*µg/L*	22.2		*132*	*50-140*			
LCS (B2K2262-BS1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Acenaphthene	19.9	0.050	µg/L	22.1		90	50-140			
Acenaphthylene	19.7	0.200	µg/L	21.9		90	50-140			
Acridine	20.3	0.050	µg/L	22.0		92	50-140			
Anthracene	21.7	0.010	µg/L	22.1		98	50-140			
Benz(a)anthracene	26.2	0.010	µg/L	22.1		119	50-140			
Benzo(a)pyrene	24.5	0.010	µg/L	21.9		112	50-140			
Benzo(b+j)fluoranthene	52.7	0.050	µg/L	43.8		120	50-140			
Benzo(g,h,i)perylene	24.4	0.050	µg/L	21.9		111	50-140			
Benzo(k)fluoranthene	25.5	0.050	µg/L	22.0		116	50-140			
2-Chloronaphthalene	21.2	0.100	µg/L	21.9		97	50-140			
Chrysene	26.3	0.050	µg/L	21.8		120	50-140			
Dibenz(a,h)anthracene	24.0	0.010	µg/L	22.2		108	50-140			
Fluoranthene	21.5	0.030	µg/L	22.2		97	50-140			
Fluorene	20.0	0.050	µg/L	22.7		88	50-140			
Indeno(1,2,3-cd)pyrene	25.0	0.050	µg/L	21.9		114	50-140			
1-Methylnaphthalene	18.1	0.100	µg/L	22.0		82	50-140			
2-Methylnaphthalene	20.2	0.100	µg/L	22.0		92	50-140			
Naphthalene	19.1	0.200	µg/L	22.0		87	50-140			
Phenanthrene	21.0	0.100	µg/L	21.9		96	50-140			
Pyrene	21.8	0.020	µg/L	22.2		98	50-140			
Quinoline	25.9	0.050	µg/L	22.2		117	50-140			
Surrogate: Acridine-d9	*17.8*		*µg/L*	22.2		*80*	*50-140*			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B2K2262, Continued										
LCS (B2K2262-BS1), Continued				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Surrogate: Naphthalene-d8	*21.4*		*µg/L*	22.2		*96*	*50-140*			
Surrogate: Perylene-d12	*26.5*		*µg/L*	22.2		*119*	*50-140*			
LCS Dup (B2K2262-BSD1)				Prepared: 2022-11-21, Analyzed: 2022-11-21						
Acenaphthene	19.8	0.050	µg/L	22.1		89	50-140	< 1	30	
Acenaphthylene	19.4	0.200	µg/L	21.9		89	50-140	1	30	
Acridine	19.9	0.050	µg/L	22.0		90	50-140	2	30	
Anthracene	21.4	0.010	µg/L	22.1		97	50-140	1	30	
Benz(a)anthracene	25.3	0.010	µg/L	22.1		115	50-140	4	30	
Benzo(a)pyrene	24.2	0.010	µg/L	21.9		110	50-140	1	30	
Benzo(b+j)fluoranthene	52.4	0.050	µg/L	43.8		120	50-140	< 1	30	
Benzo(g,h,i)perylene	24.7	0.050	µg/L	21.9		113	50-140	2	30	
Benzo(k)fluoranthene	24.8	0.050	µg/L	22.0		112	50-140	3	30	
2-Chloronaphthalene	21.4	0.100	µg/L	21.9		98	50-140	1	30	
Chrysene	25.5	0.050	µg/L	21.8		117	50-140	3	30	
Dibenz(a,h)anthracene	23.6	0.010	µg/L	22.2		106	50-140	2	30	
Fluoranthene	21.0	0.030	µg/L	22.2		94	50-140	3	30	
Fluorene	19.8	0.050	µg/L	22.7		87	50-140	1	30	
Indeno(1,2,3-cd)pyrene	24.6	0.050	µg/L	21.9		112	50-140	1	30	
1-Methylnaphthalene	19.3	0.100	µg/L	22.0		88	50-140	7	30	
2-Methylnaphthalene	19.9	0.100	µg/L	22.0		90	50-140	2	30	
Naphthalene	16.2	0.200	µg/L	22.0		74	50-140	16	30	
Phenanthrene	20.6	0.100	µg/L	21.9		94	50-140	2	30	
Pyrene	21.3	0.020	µg/L	22.2		96	50-140	3	30	
Quinoline	26.9	0.050	µg/L	22.2		121	50-140	4	30	
Surrogate: Acridine-d9	*17.3*		*µg/L*	22.2		*78*	*50-140*			
Surrogate: Naphthalene-d8	*20.4*		*µg/L*	22.2		*92*	*50-140*			
Surrogate: Perylene-d12	*26.1*		*µg/L*	22.2		*117*	*50-140*			
Volatile Organic Compounds (VOC), Batch B2K2566										
Blank (B2K2566-BLK1)				Prepared: 2022-11-25, Analyzed: 2022-11-25						
Benzene	< 0.5	0.5	µg/L							
Bromodichloromethane	< 1.0	1.0	µg/L							
Bromoform	< 1.0	1.0	µg/L							
Carbon tetrachloride	< 0.5	0.5	µg/L							
Chlorobenzene	< 1.0	1.0	µg/L							
Chloroethane	< 2.0	2.0	µg/L							
Chloroform	< 1.0	1.0	µg/L							
Dibromochloromethane	< 1.0	1.0	µg/L							
1,2-Dibromoethane	< 0.3	0.3	µg/L							
Dibromomethane	< 1.0	1.0	µg/L							
1,2-Dichlorobenzene	< 0.5	0.5	µg/L							
1,3-Dichlorobenzene	< 1.0	1.0	µg/L							
1,4-Dichlorobenzene	< 1.0	1.0	µg/L							
1,1-Dichloroethane	< 1.0	1.0	µg/L							
1,2-Dichloroethane	< 1.0	1.0	µg/L							
1,1-Dichloroethylene	< 1.0	1.0	µg/L							
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
Dichloromethane	< 3.0	3.0	µg/L							
1,2-Dichloropropane	< 1.0	1.0	µg/L							
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L							
Ethylbenzene	< 1.0	1.0	µg/L							
Methyl tert-butyl ether	< 1.0	1.0	µg/L							
Styrene	< 1.0	1.0	µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Ecoscape Environmental Ltd.	**WORK ORDER**	22K2189
PROJECT	19-2850 - Golden	**REPORTED**	2022-11-28 15:44

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B2K2566, Continued										
Blank (B2K2566-BLK1), Continued				Prepared: 2022-11-25, Analyzed: 2022-11-25						
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L							
Tetrachloroethylene	< 1.0	1.0	µg/L							
Toluene	< 1.0	1.0	µg/L							
1,1,1-Trichloroethane	< 1.0	1.0	µg/L							
1,1,2-Trichloroethane	< 1.0	1.0	µg/L							
Trichloroethylene	< 1.0	1.0	µg/L							
Trichlorofluoromethane	< 1.0	1.0	µg/L							
Vinyl chloride	< 1.0	1.0	µg/L							
Xylenes (total)	< 2.0	2.0	µg/L							
Surrogate: Toluene-d8	*23.8*		*µg/L*	25.0		*95*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.2*		*µg/L*	24.9		*77*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*19.4*		*µg/L*	24.9		*78*	*70-130*			
LCS (B2K2566-BS1)				Prepared: 2022-11-26, Analyzed: 2022-11-26						
Benzene	21.8	0.5	µg/L	20.0		109	70-130			
Bromodichloromethane	21.8	1.0	µg/L	20.1		108	70-130			
Bromoform	24.2	1.0	µg/L	20.0		121	70-130			
Carbon tetrachloride	23.6	0.5	µg/L	20.1		118	70-130			
Chlorobenzene	22.6	1.0	µg/L	20.1		113	70-130			
Chloroethane	27.0	2.0	µg/L	20.0		135	60-140			
Chloroform	22.5	1.0	µg/L	20.1		112	70-130			
Dibromochloromethane	21.3	1.0	µg/L	20.0		106	70-130			
1,2-Dibromoethane	20.7	0.3	µg/L	20.0		103	70-130			
Dibromomethane	24.1	1.0	µg/L	20.0		120	70-130			
1,2-Dichlorobenzene	23.4	0.5	µg/L	20.1		117	70-130			
1,3-Dichlorobenzene	21.8	1.0	µg/L	20.1		108	70-130			
1,4-Dichlorobenzene	21.6	1.0	µg/L	20.1		108	70-130			
1,1-Dichloroethane	23.0	1.0	µg/L	20.0		115	70-130			
1,2-Dichloroethane	22.9	1.0	µg/L	20.1		114	70-130			
1,1-Dichloroethylene	26.2	1.0	µg/L	20.0		131	70-130			SPK
cis-1,2-Dichloroethylene	21.2	1.0	µg/L	20.0		106	70-130			
trans-1,2-Dichloroethylene	20.6	1.0	µg/L	20.1		103	70-130			
Dichloromethane	23.2	3.0	µg/L	20.1		116	70-130			
1,2-Dichloropropane	21.4	1.0	µg/L	20.1		106	70-130			
1,3-Dichloropropene (cis + trans)	34.0	1.0	µg/L	40.0		85	70-130			
Ethylbenzene	20.8	1.0	µg/L	20.0		104	70-130			
Methyl tert-butyl ether	17.0	1.0	µg/L	20.0		85	70-130			
Styrene	14.7	1.0	µg/L	20.0		73	70-130			
1,1,2,2-Tetrachloroethane	23.8	0.5	µg/L	20.1		119	70-130			
Tetrachloroethylene	22.2	1.0	µg/L	20.0		111	70-130			
Toluene	22.1	1.0	µg/L	20.0		111	70-130			
1,1,1-Trichloroethane	22.9	1.0	µg/L	20.1		114	70-130			
1,1,2-Trichloroethane	22.6	1.0	µg/L	20.1		112	70-130			
Trichloroethylene	20.6	1.0	µg/L	20.1		102	70-130			
Trichlorofluoromethane	29.4	1.0	µg/L	20.0		147	60-140			SPK
Vinyl chloride	29.4	1.0	µg/L	20.0		147	60-140			SPK
Xylenes (total)	63.8	2.0	µg/L	60.0		106	70-130			
Surrogate: Toluene-d8	*24.9*		*µg/L*	25.0		*99*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.8*		*µg/L*	24.9		*100*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*25.4*		*µg/L*	24.9		*102*	*70-130*			

QC Qualifiers:

SPK The recovery of this analyte was outside of established control limits.

CARO.ca 1-888-311-8846
#110-4011 Viking Way, Richmond, BC V6V 2K9
#102-3677 Highway 97N, Kelowna, BC V1X 5C3
17225 109 Avenue NW, Edmonton, AB T5S 1H7

22K2189

RVICES bviously.

CARO BC COC, Rev 2017-05

CHAIN OF CUSTODY RECORD

COC# _____ PAGE 1 OF 1

RELINQUISHED BY:	DATE: 22/11/17	RECEIVED BY:	DATE: Nov 17
	TIME: 15:15		TIME: 1517

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION: Show on Report ☐
Canadian Drinking Water Quality ☐ BC WQG ☐ BC HWR ☐
BC CSR Soil: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: _____ Other: _____

REPORT TO:
COMPANY: Ecoscape Environmental
ADDRESS: 102-450 Neave Crt, Kelowna, BC, V1V 2M2
CONTACT: Shane / Mike
TEL/FAX: 250-491-7337
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☐ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: spedersen@ecoscapeltd.com
EMAIL 2: Mschutten@ecoscapeltd.com
EMAIL 3:

INVOICE TO: SAME AS REPORT TO ☒
COMPANY: Ecoscape Environmental
ADDRESS:
CONTACT: Misty Schleppe
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Mschleppe@ecocsapeltd.com
EMAIL 2: mschutten@ecoscapeltd.com
EMAIL 3:
PO #:

PROJECT NUMBER / INFO: Golden - 19-2850

A: Biohazard B: Cyanide C: PCBs D: Asbestos E: Heavy Metals F: Flammable G: Strong Odour H: High Contamination I: Other (please specify*)

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY: SDP

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	CONTAINER QTY	SAMPLING: DATE YYYY-MM-DD	TIME HH:MM	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
MW09-06S		✓				2022-11-16	13:20		✓	✓	
MW10-08		✓					13:05		✓	✓	
MW18-10		✓					16:40		✓	✓	
MW18-11		✓					9:20		✓	✓	
MW22-12		✓					8:35		✓	✓	
DMW-1b	✓						12:05		✓	✓	
~~DMW-4~~	✓						X		✓	✓	
MW09-06D		✓					14:20		✓	✓	
DUP A		✓					13:20		✓	✓	
DMW20-01	✓						11:10		✓	✓	
~~MW22-12~~ 18		✓					8:35		✓	✓	

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☒ VPH ☒	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☒	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL ☐ Hg ☐	METALS - WATER DISSOLVED ☒ Hg ☒	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☒ ALK ☒	TSS ☒ VSS ☐ TDS ☒	BOD ☒ COD ☒	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ *E. coli* ☐	ASBESTOS	Dissolved Hardness as CaCO3	Chloride, Sulphate, fluoride, turbidity	Nitrate as N, Nitrate as N	Ammonia as N	bromide	HOLD	POSSIBLE SAMPLE HAZARD CODE(S)
MW09-06S		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW10-08		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW18-10		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW18-11		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW22-12		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
DMW-1b		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
~~DMW-4~~		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
MW09-06D		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
DUP A		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
DMW20-01		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		
~~MW22-12~~ 18		✓		✓					✓		✓	✓	✓					✓	✓	✓	✓	✓		

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:

SAMPLE RETENTION:
30 Days (default) ☒
60 Days ☐ 90 Days ☐
Other (surcharges will apply): _____

*** OTHER INSTRUCTIONS:**

If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 4 ICE: Y ☐ N ☐
COOLER 2 (°C): 1.8 ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐ N ☐

APPENDIX H: Environmental Monitoring Plan

GOLDER

REPORT

Golden Landfill Environmental Monitoring Plan

Golden, BC

Submitted to:

Columbia Shuswap Regional District

PO Box 978
555 Harbourfront Drive NE
Salmon Arm, BC
V1E 4P1

Submitted by:

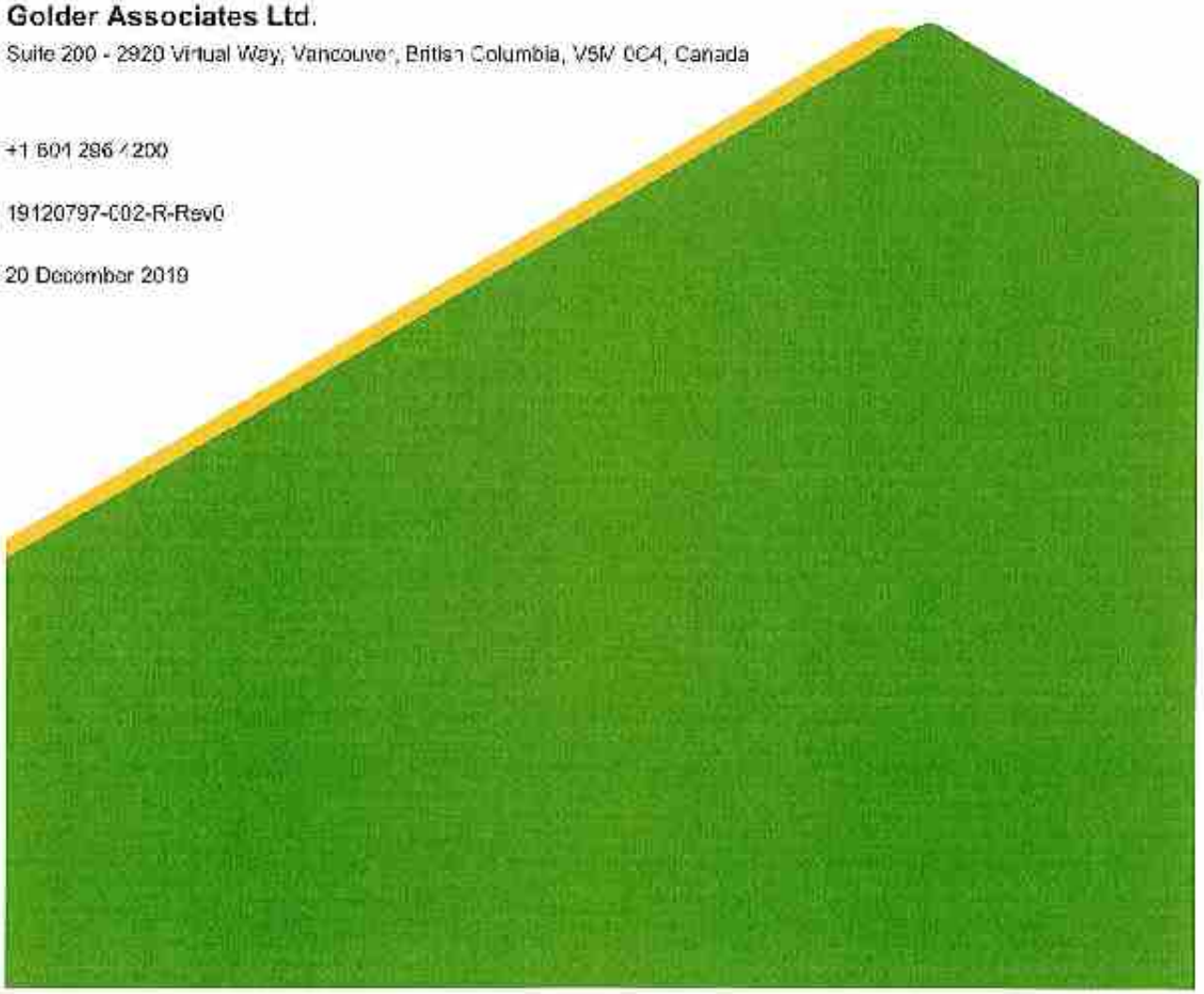
Golder Associates Ltd.

Suite 200 - 2920 Virtual Way, Vancouver, British Columbia, V5M 0C4, Canada

+1 604 296 4200

19120797-002-R-Rev0

20 December 2019



Distribution List

1 electronic copy: Columbia Shuswap Regional District

1 electronic copy: Golder Associates Ltd.

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FIGURES (END OF TEXT)

1.0 INTRODUCTION

1.1 Background

On behalf of the Columbia Shuswap Regional District (CSRD), Golder Associates Ltd. (Golder) is pleased to provide this Environmental Monitoring Plan (EMP) for the Golden Landfill (Landfill or Site), located at 350 Golden Donald Upper Road in Golden, BC approximately 2 km northwest of the town centre (Figure 1). The Site is authorized under Ministry of Environment and Climate Change Strategy Operational Certificate (OC) 17006 that was last updated 29 August 2012. This Plan is based on a review of the following documents for the Site provided by CSRD:

- Operational Certificate 17006
- most recently completed Design and Operating Plan (Golder 2013) and in-progress Design, Operations and Closure Plan (DOCP) update (Golder 2019)
- annual environmental monitoring reports (Summit 2011 and 2012)
- hydrogeological characterization report (WWAL 2018)
- most recent landfill annual report (CSRD 2018)
- BC Ministry of Environment and Climate Action Strategy (BC ENV) Environmental Impact Assessment Review (BC ENV 2018a)

1.2 Objective

This EMP has been prepared to fulfill the requirements of OC 17006 Section 4 whereby a monitoring program must be developed by Qualified Professional and submitted to the satisfaction of the Director, *Environmental Management Act*. To meet these requirements, the EMP has been designed to assess compliance of the Landfill performance with respect to groundwater quality at the landfill boundary, residential well water quality and surface water quality, and to characterize the Landfill leachate.

1.3 Regulatory Context

1.3.1 General

A description of the requirements for design and operations of the Site landfill are detailed in the DOCP (Golder 2019). The following regulatory and guidance documents were consulted in the development of this EMP:

- Operational Certificate 17006 amended August 29, 2012
- BC *Environmental Management Act* (EMA [SBC 2003]), including the *Landfill Gas Management Regulation* BC Reg 391/2008 O.C. 903/2008 brought into force on 1 January 2009.
- *Landfill Criteria for Municipal Solid Waste* (Landfill Criteria; BC ENV 2016)
- *Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills* (BC ENV 2019)
- *British Columbia Field Sampling Manual* (BC ENV 2103a)
- *British Columbia Environmental Laboratory Manual* (BC ENV 2013b)

The Landfill Criteria guidance document (BC ENV 2016) specifies that current and planned future uses of groundwater and surface water shall be identified within 1 km of the landfill footprint and after considering these uses, a Qualified Professional must recommend the appropriate water quality criteria, compliance locations, and provide related rationale and justification. As a minimum, the criteria must be satisfied at and beyond the landfill site boundary, or 150 m from the landfill footprint, whichever is closer. The water quality criteria and compliance monitoring locations are subject to approval of the Director, who may set more stringent requirements.

1.3.2 Water Quality Standards and Guidelines

The following provincial water quality standards and guidelines apply within BC:

- BC Contaminated Sites Regulation (CSR; BC Reg. 375/96 O.C. 1480/96, including amendments up to B.C. Reg. 116/2018, 24 January 2019 EMA [SBC 2003]); Schedule 3.2 Generic Numerical Water Standards.
  - One or more of Aquatic Life (AW), Irrigation (IW), Livestock (LW), or Drinking Water (DW) standards may be applicable at a site, depending on the water use determination.
  - Aquatic Life standards are typically 10 times greater than the respective BC WQGs based on the assumption that 10-fold dilutions will occur before discharge.
- BC Water Quality Guidelines (BC WQGs) for the protection of aquatic life, which apply to receiving surface waters and comprise working and approved guidelines (BC ENV 2017a; BC ENV 2018b).
  - Approved Water Quality Guidelines, which are considered safe concentrations of substances for particular water uses and have been developed to provide policy direction for decision makers within the ENV, including for the purpose of assessing allowable limits in waste discharge authorizations.
  - Working Water Quality Guidelines, which have been adopted for substances that do not have formally approved water quality guidelines. They provide benchmarks for parameters that have not been fully assessed by BC ENV; however, as they may be based on historical information or different derivation protocols from different agencies, they should be used with caution.

In addition, the Guidelines for Canadian Drinking Water Quality established by Health Canada apply to groundwater derived from water supply wells.

1.3.3 Selection of Applicable Water Quality Standards and Guidelines

The qualified professional responsible for implementing the environmental monitoring plan and interpreting the results should select appropriate guidelines for comparison of environmental monitoring program sample results that consider the current and future land use, background conditions, and provincial regulatory guidance. In addition to the regulations and standards listed above, the following guidance documents are considered applicable with respect to groundwater monitoring:

- *Technical Guidance on Contaminated Sites 3: Environmental Quality Standards* (BC ENV 2017b)
- *Technical Guidance on Contaminated Sites 15: Concentration Limits for the Protection of Aquatic Receiving Environments* (BC ENV 2017c)
- *Protocol 21 for Contaminated Sites Water Use Determination* (BC ENV 2017d)

Based on the regulations, standards and guidance documents above, the following water quality standards are considered applicable to the assessment of groundwater conditions:

- for the Site monitoring wells, CSR drinking water (DW) standards to protect drinking water in the area are applicable because groundwater is extracted for drinking water use in the area and based on *Protocol 21* (BC ENV 2017d)
- for the monitored off-Site water supply wells, CSR drinking water (DW) standards and Canadian Drinking Water Guidelines are applicable

CSR aquatic life (AW) standards are not considered applicable since the only mapped surface water bodies within 500 m of the Site are ephemeral streams. CSR standards for irrigation and livestock are not considered applicable because groundwater in the vicinity of the Landfill is not known to be used for irrigation or livestock watering.

In addition to water quality standards, the groundwater sampling results should be evaluated in the context of background groundwater chemistry.

Descriptions of the sampling locations and frequencies are presented in Section 2.0 and descriptions of regulatory limits, triggers and remedial actions are presented in Section 4.0 of this report.

1.3.4 Landfill Gas

The Landfill Criteria (BC ENV 2016) requires that:

- Soil gas concentrations at the landfill Site boundary must not exceed the lower explosive limit of methane (5 percent by volume) at any time and combustible gas concentrations measured in on-site buildings must not exceed 20 percent of the lower explosive limit of methane (1 percent by volume) at any time.
- Landfill gas must be managed in accordance with all migration and health and safety requirements, for example, WorkSafe BC.
- Landfill gas management should meet the requirements of the Landfill Gas Management Regulation. In addition to the reporting requirements of this regulation, landfills determined to be generating more than 1,000 tonnes of methane per year are required to prepare a LFG management plan and implement a LFG management system. Methane generation at the Golden Landfill is currently less than 1,000 tonnes per year and is estimated to remain below this threshold for the remaining lifespan of the facility.

It is noted that OC 17006 states that the Landfill must not cause combustible gas concentrations to exceed the lower explosive limit in soils at the property boundary or 25 percent of the lower explosive limit in on-site structures. However, it is recommended that the 20 percent LEL guideline presented in the Landfill Criteria be adopted for on-site structures since it provides a safer trigger limit.

1.4 Site Setting

Detailed descriptions of the Landfill site setting are provided in the Design and Operating Plan (Golder 2013) and hydrogeological characterization report (WWAL 2019a). A summary of the site setting and identified environmental receptors is provided below.

1.4.1 Topography, Drainage and Land Use

The Landfill property occupies a plan area of approximately 16 hectares. The Landfill generally slopes down to the southwest from elevation 955 m (above sea level) at its northeast corner, to elevations of about 925 to 930 m along the northwest southeast diagonal of the Site (Golder 2013). The topography is flatter from the northwest-southeast diagonal to the southwest corner of the Landfill. The slopes at the southwest corner of the Site are about 120 m higher than the Kicking Horse River. Currently, other than roads along its east, north and west perimeter, the Landfill is surrounded by natural terrain vegetated with trees. Based on the 2011 Town of Golden Zoning (bylaw 1294), planned future land use for land to south and west of the Landfill boundaries is residential; parks and trails; and, community education and culture.

As documented in the DOCP (Golder 2019), surface water will be directed around the Landfill footprint, including intermittent flows which enter from a ravine at the northeast corner. The ravine is normally dry but flows in extremely wet weather or periods of high runoff. Ponds will be established on-site outside of the landfill footprint to detain surface water and allow it to infiltrate into the subsurface. Any overflow from these ponds will enter the drainage system adjacent to Golden Donald Upper Road which flows to the south and then west for about 2.5 km and discharges to the Kicking Horse River. Another unnamed surface watercourse exists approximately 180 m south of the Site. This watercourse flows to the southwest for about 1.1 km and discharges to a catch-basin near Station Avenue.

Hospital Creek collects drainage from the sub-watershed area northwest of the Landfill. It is located approximately 800 m from the Landfill and flows in a southwesterly direction until discharging to the Kicking Horse River.

1.4.2 Geology

The Landfill is underlain with ablation till to the east and ice-contact materials to the west, both of which primarily comprise silt, sand and gravel (Golder 2013). Surficial deposits vary across the Site, with the surficial sediments on the east side of the Site being siltier and comprising, dense, gravelly sand and silty till-like material (Golder 2013). These deposits are estimated to have low hydraulic conductivity. Clean, bedded sand and gravel alluvial deposits are present on the south side of the Landfill and have been characterized as moderately permeable (Golder 2013).

Unconsolidated material is thicker in the southwest area of the Site and thinner toward the north and bedrock outcrops at the eastern edge of the Site (WWAL 2019a). Geological Survey of Canada mapping classifies bedrock beneath the Site as McKay Group limestone, limestone conglomerate, shale and associated meta-sedimentary rocks.

1.4.3 Hydrogeology

Conceptual Model of Regional Hydrogeology

Golder developed a regional conceptual hydrogeological model for the Town of Golden (including the area of the Landfill) as part of groundwater protection planning work (Golder 2006). Based on this model, regional groundwater flows occur in the surficial deposits (i.e., sand and gravel), and in the bedrock strata below. The upland areas are typically groundwater recharge areas, and the Columbia River valley represents a regional discharge area. Groundwater infiltrating the bedrock in the upland areas migrates downward, and then laterally into the surficial deposits that occur in the river valley, via fractures in the bedrock. Groundwater flow in the main sand and gravel aquifer that occupies the river valley is relatively slow and generally from southeast to northwest, along the Columbia River valley; however, lateral inflow also occurs (Golder 2006).

The ENV Water Resources Atlas (Province of BC 2019) has mapped one unconfined sand and gravel aquifer (No. 456) in Golden at the confluence of the Kicking Horse River and the Columbia River. Previous work by Golder indicates that there are three generally laterally continuous, sand and gravel deposits that make up the regional aquifer system (Golder 2006). The deeper water-producing strata are interlayered with finer-grained strata that act as aquitards. Most of the groundwater supply wells in the area that are completed in unconsolidated material are installed beneath confining layers and are protected from potential impacts to groundwater quality from surface activities. Based on previous publicly available groundwater protection work completed for the Town of Golden, the Landfill lies to the north, outside of the extent of Aquifer No. 456 and outside of the time-of-travel capture zones and buffer zones for municipal wells No. 4 and No. 6 (Golder 2006).

Hydrogeological Characterization of Site

A detailed description of the Site hydrogeology is provided in the recently completed hydrogeological characterization report by others (WWAL 2019a). Below is a summary of the information from the report that is relevant to the development of this environmental monitoring plan.

The ENV Water Resources Atlas (Province of BC 2019) does not report an aquifer beneath the Landfill. Based on well records for drilling completed at the Site, the unconsolidated deposits are thicker in the southwest area of the Landfill (115 m at MW18-11) and thinner toward the north, with bedrock outcropping at the eastern edge of the Site. Drilling records indicate that the unconsolidated materials in the area of the Landfill are largely unsaturated; however, there are areas where saturated conditions within the overburden sediments were encountered e.g., MW09-06 (WWAL 2019a). The saturation level of shallow unconfined sediments in the area of the Landfill will be strongly controlled by groundwater recharge from precipitation and surface water loss to ground. WWAL inferred that the majority of recharge to groundwater from precipitation infiltrating the Landfill will migrate downward to the bedrock surface.

Groundwater flow in bedrock aquifers can be complex and less predictable than flow in unconsolidated materials since fracture orientation and density are important factors. With the available information it is difficult to assess the groundwater flow paths and travel times for transport of leachate constituents from the Landfill. Based on data from four monitoring wells installed in the bedrock, groundwater flow at the site is from northeast to southwest (WWAL 2019a). The steeply dipping bedrock surface at the southern boundary makes it difficult to estimate the groundwater flow direction and gradient immediately downgradient of the Landfill, and it is uncertain how and where potential leachate-affected groundwater migrates through the bedrock aquifer and discharges to Aquifer No. 456 (WWAL 2019a).

1.5 Potential Environmental Receptors

Based on the Site setting and land use, the following potential environmental receptors were considered in the development of the Environmental Monitoring Plan:

- Groundwater used for drinking water downgradient of Site
- Aquatic receiving environments downstream of the Site
  - Kicking Horse River
  - Hospital Creek
- Soil quality on adjacent lands where daylighting of leachate seepage from the Site may occur
- Air quality within on-Site structures and crawl spaces

Based on the surface water regime described in Section 2.2, the aquatic receiving environment is not considered to be subject to a Landfill influence and therefore surface water monitoring has not been included in the Environmental Monitoring Plan. Based on the soil sampling conducted by others that is described in Section 1.6, Bullet 7, the soil quality on adjacent lands is not characterized by constituents associated with a Landfill influence and therefore the Environmental Monitoring Plan does not include monitoring of soil chemistry. The Monitoring Plan includes provisions for groundwater monitoring to assess the potential influence of the Landfill on downgradient groundwater resources (Section 2.1) and for Landfill gas monitoring (Section 2.3).

1.6 Potential Impacts

The hydrogeological characterization and analysis of environmental monitoring data for the Landfill have been completed by others. Based on the hydrogeological characterization (WWAL 2019a) and most recent environmental monitoring annual report (WWAL 2019b) contained within the 2018 Annual Operations and Monitoring Report (CSRD 2019):

- Western Water Associates Ltd. estimated the potential mass loading of chloride from the Landfill to Aquifer 456 of on the order of 384 mg/day which was estimated to represent less than 1% of the annual chloride contained in the aquifer. As a result, they infer that the Landfill is not contributing to measurable water quality degradation within Aquifer No. 456 (WWAL 2019a).
- Exceedances of drinking water guidelines/standards for arsenic, lithium, strontium, fluoride, iron, manganese, and cobalt observed at the historically-monitored wells, the two new monitoring wells installed at the Landfill in 2018, and the five additional domestic wells sampled in 2018 are interpreted by WWAL to be naturally-occurring within the bedrock (WWAL 2019a).
- Domestic wells DWM-1b and DWM-1, which are located upgradient of the Landfill, are not interpreted to be impacted by the Landfill (WWAL 2019a).
- There is the potential that groundwater beneath a portion of the neighboring property exceeds the groundwater quality standards based on chloride and nitrate exceeding applicable drinking water guidelines/standards at MW18-10, which is located at the south boundary of the Site and installed in bedrock to a depth of 36.4 m below grade (WWAL 2019a).

- Groundwater quality at MW09-6S, located near the western boundary and installed in overburden to a depth of 34.6 m below grade, shows evidence of groundwater quality impact from Landfill leachate. Concentrations of chloride and nitrate appear to have decreased since 2009 (WWAL 2019b).
- Based on one sample collected since it was drilled, groundwater quality at MW18-11, which was installed in bedrock to a depth of 146.3 m below grade, does not appear to be impacted by Landfill leachate (WWAL 2019b).
- Based on soil sampling conducted at the neighboring property to the south of the Site in 2018, no impact on soils related to metals and chloride from off-site surface water runoff were detected (WWAL 2019b).
- During spring freshet and high precipitation periods, surface water may flow onto, through and off the Landfill site, and there is evidence that this flow has at times been impacted by the Landfill (BC ENV 2018a).

In Golder's opinion, the assessment of potential impacts from the Landfill must be carried out in the context of local hydrogeological conditions, which are highly complex. Only isolated portions of the unconsolidated material in the vicinity of the Landfill are saturated. The occurrence of groundwater in the underlying bedrock, through which most local groundwater flow occurs, is variable, ranging from approximately 30 m below ground surface beneath the Landfill to 150 m below ground surface downgradient and southwest of the Landfill. This variability complicates the interpretation of the groundwater flow pattern downgradient of the Landfill. The lithologies of the underlying sedimentary bedrock material vary from limestone to argillite to slate. These differing lithologies influence the groundwater geochemistry in the monitoring wells and can result in naturally occurring exceedances of some metals and possibly dissolved anions. The occurrence of elevated chloride in groundwater that is not hydraulically downgradient of the Landfill suggests that the elevated chloride concentrations in groundwater at some locations is not related to the Landfill but rather to alternative sources, such as road salt. Finally, the decline in concentrations of chloride and nitrate in downgradient monitoring wells MW09-06S and MW09-06D raises the possibility that the elevated concentrations of these constituents at those locations could have been the result of water introduced during the drilling process, rather than the Landfill.

2.0 ENVIRONMENTAL MONITORING PROGRAM

The following sections describe the environmental monitoring program currently recommended for the Landfill. Monitoring locations are shown in Figure 2. The monitoring program should be updated when new information becomes available, and at a minimum every five-years as required by OC 17006.

2.1 Groundwater

Groundwater monitoring has been carried out at the Landfill by Sperling Hansen Associates prior to 2008, by Summit Environmental Consultants (now Associated Engineering) from 2008-2013, and Western Water Associates Ltd. since 2014. From 2010-2018 the groundwater monitoring program was carried out three times per year. The following subsections describe the groundwater monitoring program implemented in 2018 and any recommended modifications.

2.1.1 Groundwater Well Network

The monitoring wells in which groundwater levels and groundwater samples are collected are located either along or outside the Landfill perimeter. Their locations are shown in Figure 2. A summary of the Site monitoring wells and other historically monitored wells, and their respective installation details is provided in Table 1.

Table 1: Details of Groundwater Monitoring Wells at the Golden Landfill and other Wells Historically Monitored

Well ID	Screened Unit	Lithology	Location Relative to Landfill	Approximate Ground Surface Elevation (masl)	Total Depth (mbtoc)
MW99-2 (TH2) – Decommissioned	Overburden		Downgradient	915	22.5
MW09-06S (MW-6S)	Overburden	Gravel	Within Landfill footprint	920	34.5
MW09-06D (MW-6D)	Bedrock	Limestone	Within Landfill footprint	920	65.8
MW09-07 (TH-7) Status Unknown	Overburden	Gravel, sand	Downgradient	Unknown	31.7
MW10-08 (TH-8)	Bedrock	Slate and "quartz bedrock"	Upgradient	921	26.2
MW18-10	Bedrock	"Mapped as argillite, shale, limestone"	Within Landfill footprint	920	38.4
MW18-11	Bedrock	"Mapped as argillite, shale limestone"	Downgradient	915	146.3
Town Well #4	Unknown (assumed to be overburden)		Side-gradient	790	Unknown
Town Well #6	Unknown (assumed to be overburden)	Sand and gravel	Side-gradient	Unknown	Unknown
DMW-1a	Bedrock		Up-gradient	975	60
DMW-4	Unknown (assumed to be bedrock based on depth)		Up-gradient	Unknown	120

Notes:
Data is from WWAL 2019b
masl=metres above sea level, mbtoc = metres below top of casing, mbgs = meters below ground surface

2.1.2 Groundwater Sampling and Groundwater Level Monitoring

Groundwater monitoring was carried out twice per year before 2010, and three times per year after 2010. Sampling in 2018 was carried out in June, September and December, with groundwater samples collected from four monitoring wells (MW09-6S, MW10-08, MW10-10 and MW18-11); two domestic wells (DMW-1b and DMW-4) considered to represent background conditions; and, two municipal supply wells (Town Well #4 and Town Well #6). Groundwater monitoring wells MW95-2 (TH2) and MW09-07 (TH7) have been historically dry, and samples were not obtained from either well in 2018. MW95-2 was decommissioned by a qualified well driller in June 2018. Water quality monitoring of MW09-6D was stopped in 2011 because it was considered redundant to MW09-6S (WWAL 2019b).

The hydrogeological review presents a figure showing the inferred groundwater flow direction in the bedrock (WWAL 2019a); however, the 2018 annual monitoring report (WWAL 2019b) does not present groundwater level measurements.

The 2018 annual report (WWAL 2019b) contains the following recommendations regarding the groundwater monitoring program at the Site:

- Continue to monitor the newly added monitoring wells (MW18-10 and MW18-11) and, if the landowner agrees, add private water Well ID 22853 (screened in gravel and sand) to the groundwater monitoring program.
- Conduct two more years of water level and aquifer geochemical data collection to assess variation in groundwater flow direction in the bedrock and the presence of trends in concentrations of chloride and nitrate. If further exploration of the bedrock aquifer to assess for contamination is deemed appropriate, a downgradient, off-site monitoring well should be drilled, potentially at Pine Road and Golden Donald Upper Road, approximately 250 m southwest of MW18-10.

In addition to the recommendations made in the hydrogeological review (WWAL 2019a) and 2018 monitoring (WWAL 2019b) reports, Golder recommends that:

- Monitoring of bedrock monitoring well MW09-6D should be recommenced. The groundwater geochemistry at MW09-6D differs from the overburden well at that location (MW09-6S) and monitoring both wells will help to discern the potential for Landfill-impacted groundwater to migrate through both the bedrock and overburden sediments at that location.
- The groundwater monitoring frequency be increased to quarterly to assess seasonal variations in water levels and chemistry. In 2018 sampling was conducted in June, September, and December. The first quarter sampling event should be timed to target peak groundwater levels (i.e. inferred to be March).
- A water level monitoring program should be implemented at the Landfill monitoring wells to assess seasonal variations in groundwater levels and flow direction. A high-accuracy geodetic elevation survey should be completed for the monitoring wells and should include the ground surface and water level monitoring datum for each well. A round of manual groundwater level measurements should be recorded for each water quality sampling event. After a year of water level measurements is collected, the frequency of water level measurements should be re-evaluated by the qualified professional responsible for analysis of the hydrogeological monitoring data. The water level data collected during the monitoring program should be tabulated and plotted appropriately to assess for seasonal changes in groundwater flow direction and

gradient. Installation of automatic recording pressure transducers in select monitoring wells at the Landfill would be helpful for this purpose.

- Should results of the groundwater level monitoring indicate that the groundwater monitoring program is not capturing the full range of annual seasonal fluctuations in groundwater level, consideration should be given to increasing the water level monitoring and quality sampling frequency. The sampling events should be timed to capture seasonal high and low groundwater levels.
- Response testing should be carried out at monitoring wells where the hydraulic conductivity has not already been estimated.

A summary of the proposed groundwater monitoring program is presented in Table 2.

Table 2: Proposed Golden Landfill Environmental Monitoring Groundwater Program

Well ID	Location	Water Level Monitoring	Field Parameters and Water Quality Sampling
MW09-3S (MW-6S)	Within Landfill footprint	Yes, assess for seasonal variations	quarterly
MW09-3D (MW-6D)	Within Landfill footprint	Yes, assess for seasonal variations	quarterly
MW09-07 (TH-7)	Downgradient	If accessible, monitor to confirm well is dry	None
MW10-08 (TH-8)	Upgradient	Yes, assess for seasonal variations	quarterly
MW18-10	Within Landfill footprint	Yes, assess for seasonal variations	quarterly
MW18-11	Downgradient	Yes, assess for seasonal variations	quarterly
Town Well #4	Side-gradient	Not required as part of landfill monitoring	annually
Town Well #6	Side-gradient	Not required as part of landfill monitoring	annually
DMW-1b	Upgradient	If possible	quarterly
DMW-4	Upgradient	If possible	quarterly
Private Well 22363	Downgradient	Not required as part of landfill monitoring	quarterly

Well records for upgradient wells DMW-1b and DMW-4 are not available; however, based on their depths, both wells are inferred to be completed in bedrock. A review of bedrock mapping for the area indicates that bedrock upgradient, beneath and downgradient of the Site is characterized by mudstone, siltstone, shale and fine clastic rocks of the McKay Group. As a result, DMW-1b and DMW-4 are considered appropriate for monitoring of upgradient groundwater bedrock chemistry.

2.1.3 Field Measurements

At each sampling event a record should be made of the monitoring well condition, and a water level measurement should be recorded, along with the date and time of the measurement. Depending on the sampling method used, field parameter measurements should be recorded either following purging of the standing water, or stabilization (for low-flow, minimal drawdown sampling).

The following field parameters should be recorded:

- temperature
- pH
- electrical conductivity
- oxidation-reduction potential
- dissolved oxygen

In addition, the sample turbidity, colour and any other notable observations (odour, sheen) should be recorded. Efforts should be made to collect groundwater samples with a turbidity of less than 50 NTU.

2.1.4 Chemical Analyses

After the collection of groundwater samples, selected samples should be submitted to a certified analytical laboratory for chemical analyses. Each groundwater sample collected should be analyzed for the following suite of geochemical parameters, which are typical indicators of landfill leachate:

- electrical conductivity and pH
- total suspended solids and turbidity
- hardness and total alkalinity
- anions (chloride, fluoride, bromide, and sulphate)
- nutrients (ammonia, nitrate, and nitrite)
- dissolved metals

In addition, analyses should be conducted for total dissolved solids (TDS), biological oxygen demand (BOD) and chemical oxygen demand (COD).

Analysis for petroleum hydrocarbons and volatile organic compounds is recommended for each monitoring well location once per year, to evaluate potential impacts from contaminated soils that have been handled at the Landfill.

To provide additional insight into the groundwater chemistry of the site, sampling for isotopes is recommended on an annual basis over a two-year period (monitoring years 2020 and 2021). The analysis may include sampling and analysis for tritium (a leachate indicator parameter), oxygen and deuterium (an indicator of groundwater origin) and chlorine isotopes (as an indicator of chloride sources).

2.2 Surface Water Monitoring

The Landfill is located in an area with a relatively dry climate, with hot summers and moderate winters. The climate normals from 1981 to 2010 for the Golden A Climate Station (ID 1173210) from Environment Canada indicate that the average temperature at the Site is 5.1°C. The coldest month is January, with an average daily minimum temperature of -11.5°C. The warmest month is July, with an average daily maximum temperature of 24.5°C.

The general area where the Landfill is located receives an average annual precipitation of 467 mm. Most of this precipitation occurs as rainfall (325 mm), with the remainder as snowfall. Monthly precipitations vary from 24.1 to 51.1 mm.

Given the climate conditions at the Landfill, surface water is observed at or near the Landfill only during the spring melt, although ephemeral surface water might be present in the summer during and after short-duration, high-intensity rainfall events. Since surface water is not present at the Landfill consistently, no regular surface water monitoring is currently conducted at the Landfill.

The OC 17006 requires that the quality of surface water at the Site be monitored. No regular surface water monitoring is currently recommended because surface water is not present at the Landfill consistently; and, the closest water body to the Landfill is Hospital Creek, located approximately 800 m to the northwest. Similarly, the Kicking Horse River is located over 1 km to the southwest. Furthermore, upgrades to the Landfill surface water drainage are planned that would divert water around the footprint. Thus, a surface water monitoring program is not recommended at this time.

The 2019 DOCP update (Golder 2019) is recommending that future Landfill development phases be constructed with an engineered leachate containment and collection system. Leachate sampling should be included in the EMP once the leachate collection system is in place so that leachate quality can be characterized.

2.3 Landfill Gas Monitoring

As described in the DOCP (Golder 2019), the predicted annual rate of potential methane generation is expected to remain below the 1,000 tonne per year trigger in the *Landfill Gas Management Regulation* for preparing an LFG management facility design plan and the subsequent installation of such a system at the Landfill. Therefore, a detailed LFG monitoring plan is not required for the Landfill at this time.

Landfill gas has been monitored by CSRD since 2013 using two nested gas sampling probes, installed along Landfill property boundaries (CSRD 2019). Gas probe 6 (GP-6S/GP-6D) is located on the west side of the property and gas probe 7 (GP-7S/GP-7D) is located at the southwest corner of the property. The gas sampling probes are nested with monitoring wells MW09-06 and MW09-07 (Figure 2). Each probe has 3 m of screened pipe and the nested probes are isolated by a 1 m length bentonite plug. The shallow probes are screened from approximately 1-4 m below grade and the deep probes are screened approximately 5-8 m below grade within loose unsaturated sediments. The installation of additional soil gas probes is recommended on the eastern Landfill property boundary since there are off-site structures to the east of the Landfill.

The Landfill has a weigh scale and a reuse centre. The weigh scale is occupied by the Site attendant during most of the operating hours, and the reuse centre is frequented occasionally by staff or Landfill users. Typically, Landfill buildings and offices are, and will be, all built above ground to reduce the potential for LFG migration into

the structures. The scale house is equipped with a continuous gas monitoring detection unit so no additional gas monitoring is considered necessary at this time. The CSRD should carry out periodic LFG monitoring within the reuse centre and any other future enclosed structures (if any) to confirm that air in the structures and their crawlspaces complies with the *Occupational Health and Safety Regulation* BC Reg. 296/97 of the *Workers Compensation Act* (RSBC 1996).

The proposed landfill gas monitoring locations, frequency and constituents are provided in Table 3. The following QA/QC protocols should be implemented as part of the LFG monitoring program:

- The combustible gas meter used to sample ambient air within the scale house and reuse centre should be bump tested weekly and calibrated annually
- Field staff who monitor the soil gas probes should ensure that the portable landfill gas analyzer has been calibrated within the 30 days prior to the monitoring event

These QA/QC activities should be documented and included with the monitoring records.

Table 3: Landfill Gas Sampling Locations

Location	Instruments	Constituents	Monitoring Frequency
GP-6S/GP-6D	Portable landfill gas analyzer such as a Landtec GEM series or equivalent	Methane CO_2 H_2S O_2 %LEL[1]	Twice a year
GP-7S/GP-7D	Portable landfill gas analyzer such as a Landtec GEM series or equivalent		Twice a year
Soil Gas Probes on Eastern Property Boundary	Portable landfill gas analyzer such as a Landtec GEM series or equivalent		Twice a year
Reuse Centre[2]	Portable combustible gas meter to sample ambient air	%LEL	Daily or as required by OHS legislation[3]

Notes:
[1] Percent lower explosive limit
[2] Monitoring requirements can be avoided if building ventilation is enhanced as described in Section 2.3.1
[3] Air sampling to detect landfill gas in enclosed work areas should be conducted according to applicable occupational health and safety legislation. If the frequency of sampling is not specified in the legislation, then a health and safety professional should be consulted to develop a risk-based monitoring plan. In the interim, daily monitoring would provide a regular frequency that should make scheduling easier to implement along with other site operation and maintenance activities.

2.3.1 Landfill Gas Monitoring in the Reuse Centre

The Landfill reuse centre has a sliding door that is open during Landfill operating hours and some ventilation provided by gaps below the side walls. However, there is the risk that if the building door remains closed for an extended period of time, landfill gas concentrations could accumulate within the structure.

If the CSRD would rather avoid the recommended monitoring requirements associated with this structure, it is recommended that building ventilation be improved. The recommended improvements include either removing the existing door or adding four 150 mm x 300 mm vents or openings on opposite walls and positioning them so that they are 0.6 to 1.5 m off the ground. These vents should remain unobstructed by materials inside the shed.

3.0 METHODS

3.1 Field Program

3.1.1 Protocols

As indicated in OC 17006, sampling for the environmental monitoring program must be carried out in accordance with the procedures described in the most recent edition of the British Columbia Field Sampling Manual (BC ENV 2013a), or suitable alternative procedures as authorized by the Director.

3.1.2 Health and Safety

The contractor responsible for implementing the environmental monitoring program should prepare a site-specific health and safety plan to identify hazards and appropriate controls to mitigate the risks. The contractor should implement the health and safety plan and conduct daily checks during field work to verify that the controls being implemented are appropriate.

3.2 Laboratory Analyses

As indicated in OC 17006, laboratory analyses for the environmental monitoring program must be carried out by a certified analytical laboratory in accordance with the procedures described in the most recent edition of the British Columbia Environmental Laboratory Manual (BC ENV 2013b), or suitable alternative procedures as authorized by the Director.

3.3 Quality Assurance/ Quality Control

The environmental monitoring program should implement quality assurance/quality control (QA/QC) measures that meet the requirements of OC 17006, the British Columbia Field Sampling Manual (BC ENV 2013a), and the British Columbia Environmental Laboratory Manual (BC ENV 2013b). The QA/QC measures should include:

- Chain-of-Custody procedures for the collection environmental quality samples and transportation to the analytical laboratory
- Decontamination of re-useable equipment
- Calibration of field equipment
- Collection of samples in laboratory-supplied containers, preservation of samples with chemicals supplied by the laboratory (if required), and storage of samples under refrigerated conditions until delivery to the analytical laboratory
- Field blank samples to assess the potential for contamination of samples
- Field replicate samples to assess the reproducibility of the sampling
- Checks and reviews during data tabulation, analysis and reporting

The OC 17006 has a requirement for CSRD to produce, on request, "Field and Laboratory Quality Protocols and Quality Assurance Criteria" acceptable to the Director. Specific requirements of these protocols and criteria are described in OC 17006, and include: procedures to assess precision, accuracy and blank quality; procedures for sampling and handling; corrective measures; and acceptance criteria for accuracy, precision, and method blanks.

3.4 Data and Interpretation

3.4.1 Data Management and Analysis

Documentation and samples collected for the environmental monitoring program should use consistent naming conventions. It is recommended that the environmental monitoring data be saved in a secure database-type system where results can be easily queried for reporting purposes. If required, analytical laboratory results for samples with EMS IDs should be uploaded to the Province of BC Environmental Monitoring System (EMS) database.

To meet the requirements of OC 17006, the data should be tabulated in accordance with the Guidelines for Environmental at Municipal Solid Waste Landfills (BC ENV 2019) and should be analyzed using appropriate statistical and graphical analyses to evaluate the potential impacts of the discharges on the receiving environment.

4.0 REGULATORY LIMITS, TRIGGERS AND REMEDIAL ACTIONS

4.1 Groundwater

The groundwater data from the monitoring wells should be compared with the CSR drinking water standards. Groundwater data from the off-Site drinking water wells should be compared to the same standards, along with the Canadian Drinking Water Guidelines established by Health Canada. Potential exceedances of these standards should be interpreted in the context of background groundwater quality conditions.

Should exceedances of the standards and/or guidelines occur at concentrations considered above the background groundwater quality, analysis of the results by a qualified professional should be undertaken to determine whether the exceedances are attributable to the Landfill (as opposed to alternative sources, such as road salt). This assessment should consist of refining the conceptual model for the Site through additional geochemical sampling and analysis (for example, isotopic analysis and review of major ion ratios) of existing monitoring wells, and if possible, leachate characterization.

If, based on this analysis, groundwater exceedances are inferred to be attributable to the Landfill, the recommended action, which is consistent with the 2018 Hydrogeological Assessment Report (WWAL, 2019a), is to collect two years of additional water-level and aquifer geochemical data to support the interpretation. Based on discussions with the CSRD, it is recommended that this data be reviewed and the Environmental Monitoring Plan be updated to reflect the findings by the end of the 2021 monitoring year. If, based on that review, the additional data suggests a Landfill source, a field investigation (including installation of one or more additional monitoring wells) should be implemented to further investigate the extent of the Landfill influence, the inferred groundwater flow pathways, and the potential impact on downgradient receptors. This may include the installation of an off-site downgradient bedrock monitoring well near Pine Drive and Golden Donald Upper Road as recommended by WWAL (2019a), and/or an on-site overburden monitoring well near the southwest corner of the Landfill. The

investigation should include an updated survey of nearby drinking water wells in accordance with WWAL (2019a). Should the field investigation identify a potential threat to downgradient receptors as a result of the Landfill, mitigative measures should be identified and implemented. Potential mitigative measures may include a Human Health and Environmental Risk Assessment to assess potential impacts, and/or the implementation of Landfill engineering controls.

4.2 Landfill Gas

Should elevated LFG concentrations be observed in enclosed spaces at the Landfill, the contingency response plans presented in the DOCP (Golder 2019) should be implemented immediately. If LFG concentrations exceed the regulatory criteria in the gas probes at the property boundary, then a qualified professional should be retained to assess the nature of the exceedance and recommend appropriate actions. Such follow-up actions could include verification monitoring, passive gas controls or active gas controls.

4.3 Reporting

The environmental monitoring program data should be compiled and reviewed annually by a qualified professional for submission of an annual report that meets the requirements of OC 17006. The current reporting requirements are to submit an Annual Report to the Director on or before 30 April each year for the previous calendar year and to submit a Five-Year Report to the Director on or before 30 April on the five-year anniversary of the last submission. Both these reports must include an outline of the current Environmental Monitoring Program and a compendium of all environmental monitoring data in accordance with requirements specified in the most recent version of Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills and Landfill Criteria for Municipal Solid Waste. The reports must document any potential effect of the discharge on the quality of the receiving environment using appropriate statistical and graphical analysis. Trend analyses, as well as an evaluation of the potential impacts of discharges on the receiving environment must be included.

5.0 DOCUMENT TRACKING

The following table provides information on the revision status of this environmental monitoring plan.

Table 4: Document Revision Tracking Table

Version	Date Issued	Author	Reference No.	CSRD Approver	Distribution
1.0	December 20, 2019	Golder	19120797-002-R-Rev0	Ben Van Nostrand, P.Ag.	Golder CSRD

6.0 CLOSURE

This Environmental Monitoring Plan was prepared by Golder Associates Ltd. with inputs from the Columbia Shuswap Regional District. Any required updates to this Plan should be identified in each year's annual Landfill report submitted to ENV as a requirement of OC 17006.

Golder Associates Ltd.

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https://goldersassociates.sharepoint.com/sites/107300/project files/6 deliverable/issued to client_for wp/issued to client_for wp/19120797-002-r-rev0/19120797-002-r-rev0-enviro monitoring plan 20dec_19.docx

7.0 REFERENCES

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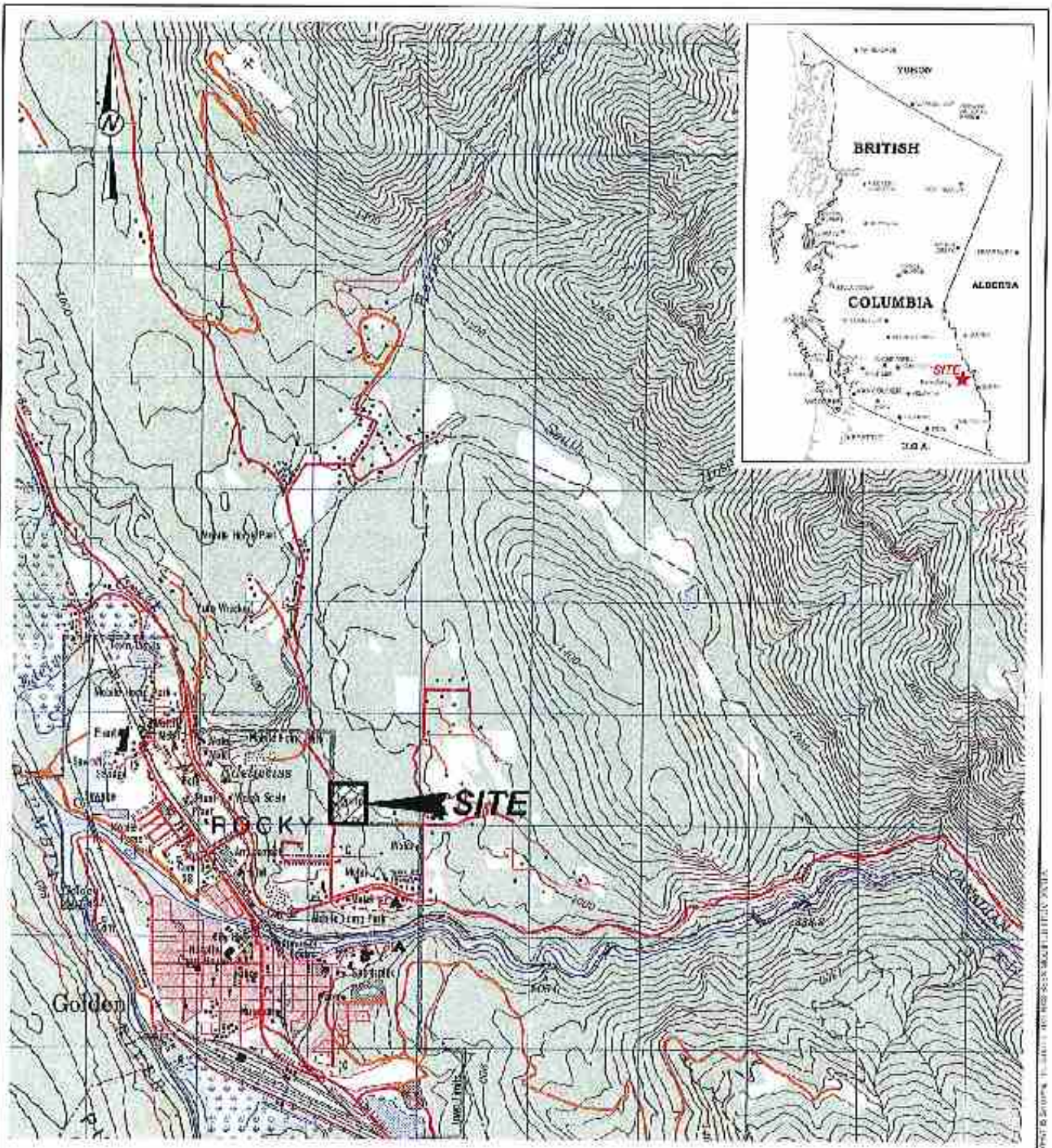

REFERENCE
BASE MAP FROM TOPO, 1:50,000 NTS MAP SERIES, EDITION 4, UTM ZONE 11.

0 300 600 900
APPROXIMATE SCALE METRES

CLIENT
COLUMBIA SHUSWAP REGIONAL DISTRICT

PROJECT
GOLDEN LANDFILL
ENVIRONMENTAL MONITORING PLAN
GOLDEN, B.C.

CONSULTANT
GOLDER

YYYY-MM-DD	2019-12-18
DESIGNED	MB
PREPARED	CB
REVIEWED	MJ
APPROVED	JB

TITLE
KEY PLAN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
19120797	1000/300	C	1

LEGEND

- DOVEST 6 MONITORING WELL BY OTHERS
- MONITORING WELL BY OTHERS
- PRODUCTION WELL BY OTHERS
- MONITORING WELL AND LANDFILL GAS MONITORING LOCATION BY OTHERS

REFERENCE

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

CLIENT
COLUMBIA SHUSWAP REGIONAL DISTRICT

CONSULTANT
GOLDER

YYYY-MM-DD	2019-12-18
DESIGNED	MB
PREPARED	CR
REVIEWED	MB
APPROVED	JS

PROJECT
GOLDEN LANDFILL
ENVIRONMENTAL MONITORING PLAN
GOLDEN, B.C.

TITLE
MONITORING LOCATION PLAN

PROJECT NO.	PHASE/TASK	REV.	FIGURE
19120797	1000/300	0	2

golder.com

2022 Water Quality Improvement Plan
Golden Refuse Disposal Facility (OC-17006)

350 Golden-Donald Upper Road, Golden, BC

Prepared By:
Ecoscape Environmental Consultants Ltd.

Prepared For:
Columbia-Shuswap Regional District

March 22, 2023

2022 WATER QUALITY IMPROVEMENT PLAN
GOLDEN REFUSE DISPOSAL FACILITY (OC-17006)

Prepared For:

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EGBC Permit to Practice No: 1002638

March 22, 2023
Version 1
File No. 19-2850

Version Control and Revision History				
Version	**Date**	**Prepared By**	**Reviewed By**	**Notes/Revisions**
A	February 14, 2023	MPS	LR	Draft for internal review
0	March 3, 2023	MPS	LR	Draft for client review
1	March 22, 2023	MPS	LR	Final Report

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ACRONYMS AND ABBREVIATIONS

CSR	BC Contaminated Sites Regulation
CSR DW	CSR Drinking Water numerical standard
CSRD	Columbia Shuswap Regional District
DOCP	Design, Operations and Closure Plan
EMA	Environmental Management Act
ENV	BC Ministry of Environment and Climate Change Strategy
GCDWQ AO	Guideline for Canadian Drinking Water Quality Aesthetic Objective
GCDWQ MAC	Guideline for Canadian Drinking Water Quality Maximum Acceptable Concentration
m bgs	Meters Below Ground Surface
m btoc	Meters Below Top of Casing
mg/L	Milligrams per Litre
OC	Operational Certificate
RDF	Refuse Disposal Facility
SHA	Sperling Hansen Associates

1.0 INTRODUCTION

Ecoscape Environmental Consultants Ltd. (Ecoscape) was retained by the Columbia Shuswap Regional District (CSRD) to prepare this Water Quality Improvement Plan (WQIP) for the Golden Refuse Disposal Facility (RDF or the Site, Figure 1), per the Site's Ministry of Environment and Climate Change Strategy (ENV) Operational Certificate (OC-17006) requirements.

As required by Section 3.5 of the OC, this WQIP was prepared because the concentration of one or more substances in groundwater migrating from the Site boundary to a neighbouring property is greater than the lowest *Contaminated Sites Regulation* (CSR) numerical water standard for the applicable water use(s) for that substance, or the local background concentration (if greater than the applicable CSR standard).

Per Section 3.5.3 of the OC, the WQIP must include a plan, details, and implementation schedules for the items listed in Table 1. Table 1 details corresponding report sections for each required component as it is addressed in this WQIP.

Table 1: OC-required Report Components and Corresponding Section Number

Requirement	Location in Report
Investigate and determine the cause(s) of the water quality exceedances	Section 3
Investigate and determine the locations of the water quality exceedances at and beyond the Site boundary	Section 3
Assess and determine the environmental and human health impacts at and beyond the Site boundary	Section 5
Determine and carry out actions to improve water quality at and beyond the Site boundary	Section 6
Specify and carry out an environmental monitoring plan at and beyond the Site boundary	Section 2
Notify affected neighbouring site owners including a description of the WQIP	Section 4

2.0 GROUNDWATER MONITORING PROGRAM

The Site's current monitoring network consists of six (6) groundwater monitoring wells, three (3) domestic supply wells and two (2) Town of Golden supply wells, as follows:

- Monitoring wells MW09-6S, -6D, MW10-8, MW18-10, MW18-11, and MW22-12;
- Domestic supply wells DMW-1b, DMW-4, and DMW20-01; and
- Town Well #4 and Town Well #6 (currently out of commission).

These wells were sampled quarterly in 2022, except Town Well #4 and MW22-12 (installed in October 2022 near the Golden Visitor Centre), which were sampled in the fall only.

Table 2 below summarizes the monitoring network, and monitoring locations are shown on Figure 2.

Table 2: Summary of Golden RDF Monitoring Network

Monitoring ID	Location	Rationale	Required Sampling Frequency	Lithology
Landfill Monitoring Wells				
MW09-6S / -6D	West Site boundary, downgradient of the landfill.	Monitor potential offsite migration of leachate impacts the west	Quarterly	Gravel (MW09-6S) Bedrock (MW09-6D)
MW10-08	150 m northwest and cross- to upgradient of the landfill	Monitor potential offsite migration of leachate impacts to the northwest	Quarterly	Bedrock
MW18-10	South Site boundary, cross- to downgradient of the landfill	Monitor potential offsite migration of leachate impacts to the south	Quarterly	Bedrock
MW18-11	20 m southwest and downgradient of the Site	Monitor potential offsite migration of leachate impacts to the southwest	Quarterly	Bedrock
MW18-12	900 m west and downgradient of the Site, next to the Golden Visitors Centre.	Monitor general downgradient impacts	Quarterly	Overburden
Private Domestic Wells				
DMW-1b	Located approximately 200 m east and upgradient of the Site	Monitor background water quality	Quarterly	Bedrock
DMW-4	130 m east and upgradient of the Site.	Monitor background water quality	Quarterly	Unknown - Presumably bedrock
DMW20-01	1.2 km west and downgradient of the Site	Monitor general downgradient impacts	Quarterly	Overburden
Town of Golden Supply Wells				
Town Well #4	1.5 km northwest and downgradient of the Site	Monitor general downgradient impacts	Annually	Unknown – presumably overburden
Town Well #6	2 km northwest and downgradient of the Site	Monitor general downgradient impacts	Annually	Unknown – presumably overburden

This monitoring network will be carried forward into 2023.

The groundwater monitoring plan will be regularly reviewed and updated, as needed, based on the interpretation of water quality results.

3.0 LOCATIONS AND LIKELY CAUSES OF WATER QUALITY EXCEEDANCES

Groundwater samples were analyzed for analytical parameters intended to illustrate potential groundwater effects from landfilling activities, consistent with the Site's Environmental Management Plan (Golder Associates Ltd. [Golder], 2019).

Groundwater quality data from the monitoring wells were compared to the BC *CSR Drinking Wate*r (CSR DW) numerical standards. Groundwater data from the offsite drinking water wells were compared to the same standards along with the *Guidelines for Canadian Drinking Water Quality* Maximum Acceptable Concentration (health-based guideline) (GCDWQ MAC) and Aesthetic Objective (based on aesthetic considerations) (GCDWQ AO).

2022 groundwater chemistry results are provided in detail in the 2022 *Annual Environmental Monitoring Report* (Ecoscape, 2022), with exceedances from the quarterly sampling events summarized in Table 3 below.

Table 3: Summary of 2022 Water Quality Exceedances

Monitoring Location	Guideline or Standard	Exceeding Parameter
MW09-6S	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N), Sodium (dissolved), Sulfate
MW09-6D	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N), Sodium (dissolved), Sulfate
MW10-8	CSR DW	Chloride, Lithium (dissolved), Sodium (dissolved), Tungsten (dissolved)
MW18-10	CSR DW	Chloride, Lithium (dissolved), Nitrate (as N), Nitrate + Nitrite (as N)
MW18-11	CSR DW	Arsenic (dissolved), Lithium (dissolved)
MW22-12	CSR DW	Benzo(a)pyrene, Benzo(b+j)fluoranthene, Dibenz(a,h)anthracene
DMW-4	CSR DW	Lithium (dissolved), Strontium (dissolved)
	GCDWQ AO	Total dissolved solids
DMW-1B	CSR DW	Arsenic (dissolved), Lithium (dissolved)
	GCDWQ AO	pH (field), Iron (dissolved), Total dissolved solids

Table 3: Summary of 2022 Water Quality Exceedances		
Monitoring Location	**Guideline or Standard**	**Exceeding Parameter**
	GCDWQ MAC	Arsenic (dissolved)
DMW20-01	GCDWQ AO	Temperature (field), Total dissolved solids
Town Well #4	GCDWQ AO	Total dissolved solids

All other parameters analyzed by the laboratory were found at concentrations less than the applicable CSR standards for the Site.

Dissolved lithium exceeded the BC CSR DW standard of 0.008 mg/L in samples from nearly all monitoring locations in 2022. Per BC ENV Protocol 9, the background groundwater concentration for lithium in the Thompson-Okanagan Region is 96 µg/L. While the Site is not within this mapped region, on-site lithium concentrations are below this value and are likely naturally elevated in the area given nearly monitoring network-wide exceedances of the CSR DW standard.

Background Water Quality

Background groundwater quality at the Site is represented by samples collected from upgradient domestic wells DMW-1b and DMW-4.

Consistent with previous years, dissolved arsenic exceeded the GCDWQ MAC guideline and CSR DW standard of 0.01 mg/L in all samples collected from DMW-1b ranging from 0.81 mg/L to 0.0485 mg/L in 2022. Dissolved arsenic concentrations are orders of magnitude lower at remaining monitoring locations (except for concentrations of approximately 0.01 in MW18-11 samples), with many concentrations near or below the laboratory detection limit.

Dissolved strontium concentrations in all samples from DMW-4 once again exceeded the CSR DW standard of 2.5 mg/L in 2022, ranging from 3.5 mg/L to 5.5 mg/L. Dissolved strontium has historically exceeded the CSR DW standard at this location.

Dissolved lithium exceeded the CSR DW standard of 0.008 mg/L in all 2022 samples collected from both DMW-1b and DMW-4. Given nearly monitoring network-wide exceedances, and a BC ENV background concentration of 0.096 mg/L in other nearby regions of the province, it is likely that dissolved lithium is naturally elevated in the area.

Dissolved iron (Figure 8) was detected above GCDWQ AO guideline of 0.3 mg/L in the winter and spring samples from DMW-1b, which may be attributable to erosion and weathering of soil and minerals near the well.

Field measured pH was slightly below the GCDWQ AO acceptable range of 7 to 10.5 in the fall 2022 sample from DMW-1B, but the lab measured pH was within the acceptable range.

Finally, total dissolved solids exceeded the GCDWQ AO concentration of 500 mg/L in all 2022 samples from domestic wells DMW-1b and DMW-4. Samples from DMW-1 had TDS concentrations ranging from 681 mg/L to 735 mg/L, while samples from DMW-4 had TDS concentrations ranging from 713 mg/L to 834 mg/L.

Based on the above, concentrations of arsenic, iron, lithium, strontium and TDS are likely naturally elevated above applicable guidelines and standards in the local bedrock aquifer and are not necessarily attributable to ongoing landfilling activities.

Onsite and Near Site Monitoring Wells

Monitoring wells MW09-6S, -6D, MW18-10 and MW18-11 are situated on or immediately adjacent to the Site, cross- to downgradient of the landfill, and are thus used to monitor potential offsite migration of leachate-impacted groundwater.

Similar to previous years, the following parameters exceeded applicable standards on and immediately adjacent to the Site in 2022: chloride (Figure 5), dissolved sodium (Figure 5), sulfate (Figure 6), nitrate (Figure 7), and dissolved lithium. Additionally, dissolved arsenic exceeded in the spring sample from MW18-11 in 2022. As discussed above, dissolved lithium and arsenic may be naturally occurring in the area based on measured background groundwater chemistry.

Downgradient wells MW09-6S and -6D continued to exhibit the greatest number of exceedances and highest leachate-indicator concentrations compared to remaining monitoring locations, suggesting ongoing leachate impacts at the western Site boundary. Chloride, nitrate, sulfate, dissolved lithium, and dissolved sodium concentrations exceeded provincial standards in 2022.

Groundwater samples from cross- to downgradient monitoring well MW18-10 exceeded applicable standards for chloride, nitrate, dissolved lithium and dissolved sodium concentrations, indicating leachate impacted groundwater is likely migrating beyond the south Site boundary.

Most leachate indicator parameter concentrations at MW18-11 were at or near background levels; however, tritium concentrations from the 2022 isotope analysis were slightly elevated above background, which means leachate impacts at this well cannot be ruled out. Dissolved lithium and dissolved arsenic concentrations exceeded in samples from MW18-11; however, these parameters are likely naturally elevated in the area.

Offsite Monitoring Wells

Monitoring well MW10-08, MW22-12, DMW20-01, and Town Well #4 are situated well beyond the Site boundary.

Groundwater samples from cross- to upgradient monitoring well MW10-08 exceeded applicable standards for chloride (Figure 5), dissolved lithium, dissolved sodium (Figure 5), and dissolved tungsten during one or more sampling events, with chloride and sodium concentrations being the highest measured concentrations at any well in 2022. Dissolved tungsten concentrations have only been elevated in samples from MW10-08 since 2018, and samples from remaining monitoring locations have never shown a dissolved tungsten concentration above drinking water standards.

Most leachate indicator parameter concentrations at MW18-11 were low compared to those in monitoring wells near the landfill; however, select PAHs exceeded their respective drinking water standards. The elevated PAH concentrations are likely not attributable to landfill operations, as PAHs were not detected in any of the remaining samples collected in 2022. They could be attributable to an organic layer encountered above the well's screened interval, or may have been introduced during drilling activities. PAHs should be carefully monitored at this well moving forward to confirm or refute these inferences.

TDS concentrations in the Town Well #4 and DMW20-01 samples exceeded the GCDWQ AO guideline of 500 mg/L.

4.0 NOTIFICATIONS OF OFFSITE MIGRATION

Sections 57 and 60.1 of the CSR stipulates those owners of affected parcels and the BC ENV should be notified of potential offsite migration of leachate-impacted groundwater. These notices are called Notifications of Likely or Actual Offsite Migration (NOMs). The CSRD is actively preparing NOMs to be issued to potentially affected parcels, and the BC ENV.

In the meantime, the CSRD continues to fulfill its reporting requirements to ENV by submitting annual environmental monitoring reports. Furthermore, the CSRD has maintained open dialogue with neighbouring parcels regarding potential offsite groundwater impacts, and continues to publish and make publicly available the annual environmental monitoring reports and water quality data on its website.

5.0 POTENTIAL HUMAN HEALTH AND ECOLOGICAL RISKS

The two primary receptors to consider when assessing potential impacts from leachate impacted groundwater at the Site are drinking water users, and aquatic habitat.

Drinking Water Users

5.1. We understand that many of the wells mapped within the northern portion of the Town of Golden (i.e., north of the Kicking Horse River) have been decommissioned and replaced with municipal service from the Town of Golden's (the Town) wells. The Town's Manager of Operations, Chris Cochran, A.Sc.T. is not aware of any residential properties drawing well water apart from the Town's municipal system. Some residential properties have private wells which remain unused or are used for irrigating (pers. comm., 2021). A drive-by and walk-around survey of drinking water wells was conducted in 2022 in the Granite Drive, Pine Drive, Quartz Crescent, and Deer Ridge Road area to confirm the absence of wells in the area. **Consistent with previous well surveys (WWAL 2018), no water wells were observed in the area; however, a door-to-door survey was not conducted.** We recommend that a door-to-door survey be conducted every 5 years as part of the 5-year Hydrogeological Characterization Assessment.

The Town sources its water supply from the ENV-mapped Aquifer 456, at the confluence of the Kicking Horse River and Columbia River. The municipal water supply is obtained from five (5) wells at locations shown on Figure 2. Golder completed a *Groundwater at Risk of Containing Pathogens* (GARP) study of the five wells (Golder, 2018). The Golden RDF was considered a potential source of viral contamination; however, it is not located within the estimated capture zones for each supply well, and is situated more than 300 m from the wells. Based on the study, no GARP hazards were considered to be present, and the Town's water supply wells were considered to be at low risk of containing pathogens, based on location of likely or known viral sources, deep well intake depths (>15m), and the notion that Aquifer 456 was not considered highly vulnerable at the time of the assessment.

The estimated 10-year time-of-travel capture zones for Town Wells 4 and 6 were mapped approximately 830 m and 170 m southwest and downgradient of the Site, respectively (Golder, 2018). Remaining Town wells are beyond the Kicking Horse River, which represents a groundwater divide, and are thus not expected to be impacted by leachate migration.

Based on this, Town Wells #4 and #6 represent potential drinking water receptors in the area. Given the estimated groundwater travel times, and that the Golden RDF has been operating since the 1970s, we would expect that leachate impacted groundwater would have migrated to portions of the aquifer occupied by these wells if natural

attenutation was not occurring. However, water quality in these wells has been monitored since 2002 and 2013, respectively, with no signs of leachate impacts (e.g., nitrate concentrations are typically less than 20% of the 10 mg/L CSR DW standard, and chloride concentrations have been less than half of the 250 mg/L CSR DW standard). With that being said, good water quality in the Town Wells thus far does not rule out the potential for future impacts.

Monitoring well MW15-1 and domestic well DMW20-01 serve as sentry wells for Town Well #4, and newly installed MW22-12 will act as a sentry well for Town Well #6. These wells should be monitored moving forward.

5.2. Aquatic Habitat

Hospital Creek is situated approximately 1.2 km north to northwest of the Site and flows southwest towards the Columbia River. The Kicking Horse River is approximately 1.3 km south to southwest and downslope of the Site, at an elevation of approximately 800 m asl, and flows northwest into the Columbia River. The Columbia River flows northwest, and at its nearest point is approximately 3 km from the Site.

As part of the *2018 Hydrogeological Characterization Study*, WWAL (2019) collected water quality samples from the Kicking Horse River and Hospital Creek. No exceedances of the BC *Approved Water Quality Guidelines* for freshwater aquatic life were noted.

Based on their distance from the Site, and 2018 water quality samples results, nearby waterbodies are not expected to be at risk of impacts from landfill operations.

6.0 WATER QUALITY IMPROVEMENT STRATEGIES

The Golden RDF is classified as a natural attenuation landfill because it does not have a low permeability liner or a leachate collection system below the waste mass. The RDF relies on its small size, relatively low leachate generation potential (based on climatic conditions), deep groundwater conditions (greater than 1.2 m below the landfill waste mass) and the use of appropriate operating and closure procedures at the Site to protect the receiving environment from potential leachate impacts.

Nonetheless, groundwater potentially impacted by landfill leachate has been identified at the south and west Site boundaries. As such, the following mitigation strategies have been recently implemented or are planned for the Site to help improve water quality:

- A stormwater management implementation plan was developed for the Site in 2021. As part of this plan, a series of ditches and infiltration galleries were constructed throughout the Site to help mitigate clean water interaction with and infiltration into the landfill waste mass. These structures will also help mitigate offsite migration of potentially contaminated surface runoff. Stormwater infrastructure details are presented in Sperling Hansen Associates' *Golden Landfill Stormwater Management Implementation Plan*, included as Appendix A.
- Refuse will be covered with suitable materials as soon as practical to reduce infiltration into the waste mass. Metal plates will be used to cover exposed waste on a daily basis. A 300 mm intermediate soil cover will be applied to areas where disposal is not anticipated for 30 days or more. A final cover comprising soil and vegetation will be used to close landfill areas that have attained their design closure elevations.
- Future landfill phases will be constructed with an engineered base liner and leachate collection system. This approach will help reduce future impacts to groundwater quality.
- Leachate monitoring and sampling will be initiated once the next lined landfill phase is developed, and leachate collection begins. Leachate sampling will allow for the characterization of site-specific leachate chemistry and will be useful in evaluating whether downgradient monitoring locations exhibit similar chemistry.
- The CSRD has committed to maintaining a 50+ m buffer between future landfill areas and the Site boundary, which will provide increased potential for onsite contaminant attenuation.
- Quarterly groundwater monitoring (annual at Town Wells) will be continued to closely track groundwater quality trends. Water quality data will be compiled and reviewed annually by a qualified professional. Reports will document any potential effect of landfilling activities on the quality of the receiving environment. The groundwater monitoring plan will be regularly reviewed and updated, as needed, based on the interpretation of water quality results.

- Additional mitigating measures will be considered if future groundwater quality monitoring identifies potential risks to downgradient receptors as a result of ongoing landfilling activities. This may include a Human Health and Ecological Risk Assessment (HHERA) and/or the design and installation of landfill engineering controls.

7.0 LIMITATIONS

This report has been prepared by Ecoscape Environmental Consultants Ltd. for Columbia Shuswap Regional District and is intended for the sole and exclusive use of the CSRD. Except for the CSRD, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without express written permission from Ecoscape.

Nothing in this report is intended to constitute or provide a legal opinion. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

This report has been prepared for specific application to the Site and Site conditions present at the time work was completed. The conclusions and recommendations provided herein are based solely upon our professional judgment and the availability of information pertaining to environmental conditions and historic and present land use at the site with time available to consider data. Ecoscape has relied fully upon information provided or collected by other parties and does not warranty data collected from third party sources used in this report.

This report has been prepared with the understanding that all available information on the past, present, and proposed conditions of the Site have been disclosed. If additional information becomes available that is inconsistent with the information provided herein Ecoscape should be contacted to reassess the conclusions provided in this report.

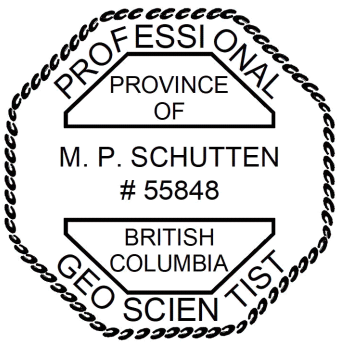
8.0 CLOSURE

We trust that this report satisfies your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Respectfully Submitted

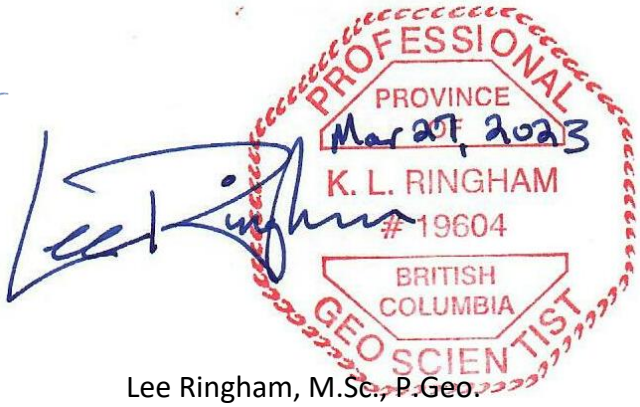
Ecoscape Environmental Consultants Ltd.,

Written By:



Mike Schutten, M.A.Sc., P.Geo.
Hydrogeologist
Direct Line: 778-940-1964

Reviewed By:



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Attachments: Figures

Appendices

REFERENCES

British Columbia Ministry of Environment and Climate Change Strategy (ENV). 1997. Contaminated Sites Regulation. http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/375_96_00

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FIGURES

FIGURE 1
Site Location

Project:	Annual Monitoring Report
Location:	CSRD
Project No.:	19-2850
Prepared for:	CSRD
Prepared by:	Ecoscape Environmental Consultants Ltd. Mike Schutten, M.A.Sc., P.Geo.
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Map Date:	February 14, 2023

LEGEND

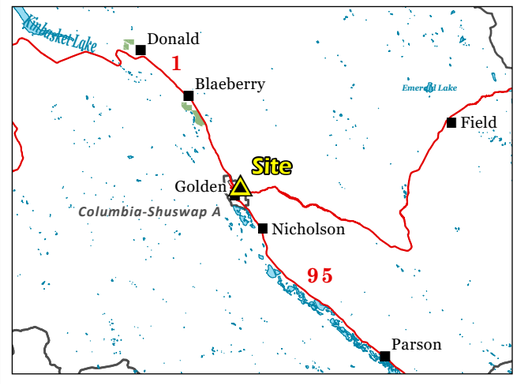
- ENV-Mapped Aquifer
- Approximate RDF Boundary
- Cadastre

Site
350 Golden-Donald Upper Road
Golden, BC

Hospital Creek
Golden-Donald Upper Rd
Lafontaine Rd
12th St N
11th Ave N
10th Ave N
9th Ave N
9th St N
Trans Canada Hwy
Granite Dr
Pine Dr
Kicking Horse Dr
10 Ave N
Station Ave
456
7th St N
Fisher Rd
Elk Rd
5th St S
6th St S
7th St S
8th St S
9th St S
10th St S
11th St S
12th St S
13th St S
14th St S
5th Ave S
7th Ave S
9th Ave S
10 Ave S
Golden
Kicking Horse River
Mt 7 Forest Se
Maple Dr
Columbia River
95

0 100 200 400 600 800
Meters

Regional Location of Site



ECOSCAPE

FIGURE 2
Site Plan and Sample Locations

Project:	Annual Monitoring Report
Location:	CSRD
Project No.:	19-2850
Prepared for:	CSRD
Prepared by:	Ecoscape Environmental Consultants Ltd. Mike Schutten, M.A.Sc., P.Geo
Coordinate System:	NAD83-UTM Zone 11
Imagery:	ESRI World Imagery
Map Date:	February 14, 2023

LEGEND

- Gas Probe
- Town Well
- Monitoring Well
- Domestic Well
- BC Well Database (WTN)
- Approximate RDF Boundary
- ENV Mapped Aquifer

ECOSCAPE Environmental Consultants Ltd.

APPENDIX A: Stormwater Management Implementation Plan

SPERLING
HANSEN
ASSOCIATES

• Landfill Engineering
• Solid Waste Planning
• Environmental Monitoring
• Landfill Fire Risk Control

November 12th, 2021

Mr. Ben VanNostrand
Team Lead, Environmental Health Services
Columbia Shuswap Regional District

Re: Golden Landfill Stormwater Management Implementation Plan – 2021 Work Completed and Remaining for 2022

Sperling Hansen Associates (SHA) was retained by the Columbia Shuswap Regional District (CSRD) to complete the Stormwater Management Implementation Plan for the Golden Landfill (the Landfill) to address the requirements of the Ministry of Environment and Climate Change Strategy (ENV) as described per Item 1 in the letter "*Environmental Management Act* approval with conditions of "Golden Landfill Design, Operations, and Closure Plan Update" Golder Associates Ltd. 19120797-003-R-Rev 0 dated 17 January 2020", dated May 4th, 2020, and in Section 5.2 of the 2020 DOCP Update, such as:

- Infiltration galleries to be established. These galleries will be designed to accommodate the increase in runoff attributed to landfill development for a 1:100 year, 24-hour storm event.
- Upgradient diversion ditches to be established. These respective ditches will convey overland flow in a controlled manner to the infiltration galleries.
- A ditch to be established along the inside edge of the existing bench road that is cut into the north slope of the property. This ditch will convey overland run-on flow to an infiltration gallery.
- Delineation ditching to minimize leachate impacts caused by clean run-on and internal surface water flows.
- The existing ditching northeast of the Phase 1 fill area and vehicle scale should be enhanced and extended to ensure the central portion of the site is well drained.

SHA completed a design plan, construction drawings and specification that address the above noted conditions by ENV in early 2021 and construction commence shortly afterwards.

This report describes the construction and inspection activities conducted by SHA for the construction of the Stormwater Management Works completed at the Landfill in 2021. The majority of the works proposed in the design plan were completed this year with a few minor tasks to be completed post freshet in 2022.

This report documents that the project construction completed to date was completed in general conformance with the project requirements as defined by the construction drawings and specifications.

Figure 1 attached outlines, in plan view, the stormwater management design components that were constructed to specification in 2021 and the remaining works to be completed in 2022 (shown with 'red cloud').

As shown in Figure 1, the CSRD and their contractor focused their efforts on the southern portion of the site in 2021, completing the Southern Infiltration Gallery, armored inflow ditches along the east and west slopes of Phase 1, Western Infiltration Gallery and cleaning out and re-shaping internal stormwater ditches including armoring at culvert inlets and outlet locations. Works to be completed in early 2022 include the north run-on ditches along the north access ramp road, re-defining the central drainage channel (north of borrow area) and installing a culvert along the new active face access road on the north toe of Phase 1.

To ensure works were completed to design and specification, SHA completed three (3) site visits as outlined below:

- May 7th, 2021 – Project Understanding, Surveying and Construction Kick-Off
- September 9th, 2021 – Construction Progress Site Inspection
- November 2nd, 2021 – 2021 Construction Wrap Up

Stormwater Management works completed in 2021 are summarized below with accompanying photographs included in Appendix A – Photo Log.

South Infiltration Gallery:
The Southern Infiltration Gallery was constructed to design specification and will accommodate clean run-on from the eastern slopes (future Ph.2) and run-off from the east, west and south slopes of Phase 1. Works included the following:

- Subgrade Preparation – geometry of the infiltration gallery was prepared by excavating into previously placed waste and native soils along the southern boundary of the site. Excavated materials were hauled to the active face where waste materials were landfilled and clean soils were stockpiled for use as operational cover soils. A portion of the clean soils excavated were used provide a 300mm clean soil cap over areas of exposed waste.
- Infiltration Trench – the 1,000 x 1,000 mm infiltration trench along the base of the gallery was backfilled with onsite owner supplied recycled crushed concrete.
- Armoring – Internal side slopes and base of the gallery were lined with 150-300mm imported rip rap from a local quarry.
- Topsoil – a 5m band of topsoil, placed 150mm in depth was installed along the upper north side of the Southern Infiltration Gallery and seeded to promote early germination in Spring 2022. This vegetative band will control soil migration, aid with moisture retention and uptake as well as promote re-vegetation planning on completed portion of the Landfill.

Eastern Inflow Ditches and Run-on Control:
Ditching was completed along the south east corner of the site and along the toe of the borrow area to aid in controlling run-on from the site and minimizing clean water interaction and infiltration into the existing Phase 1 waste mass. Run-on ditching at the south east corner was armored and re-directs flows to the Southern Infiltration Gallery. Operational ditching along the toe of the borrow area was enhances to promote positive drainage towards the south and will need to be maintained and alignments altered as the borrow area is developed.

Western Infiltration Gallery:
The Western Infiltration Gallery was re-contoured, sloped and cleaned out as designed to accommodate internal stormwater run-off from existing ditches and catchments around the scale, diversion area, z-wall and north portion of Phase 1. Silt and soil built up over the past year was removed and the inflow culvert was cleaned out and sumps constructed to better manage any suspended sediments.

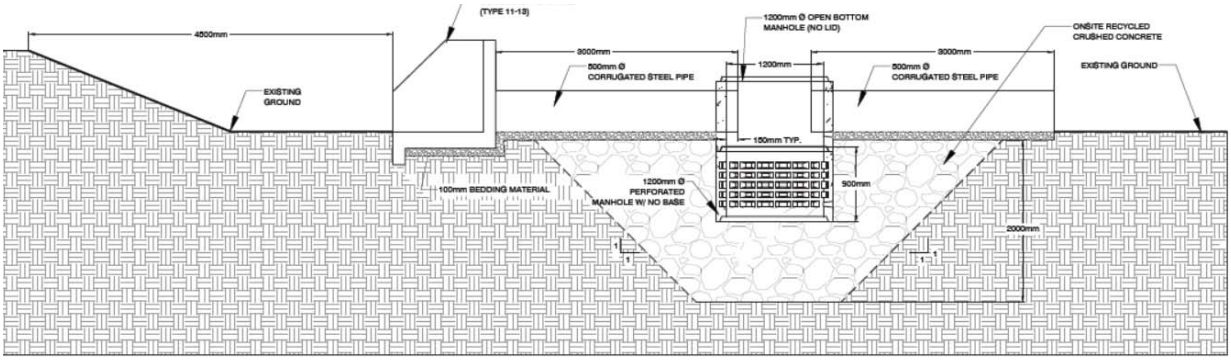
Western Inflow Ditching:
Stormwater run-off ditching was completed along the lower portions of the western slopes of Phase 1 and directs flow both north to the Western Infiltration Gallery and south, to Southern Infiltration Gallery. Onsite clean fill from the borrow area was utilized in creating the ditch geometry which was then capped with a 150mm layer of topsoil and seeded.

Internal Ditch Network Re-shaping and Cleaning:
Internal Ditching and culvert inlet and outlet sumps were cleaned out and re-shaped to design specification. Existing ditch grades range from 2–10% and include small rip rap check dams where necessary to manage stormwater velocity and minimize soil loss. Sumps at all culvert inlet and outlet locations were established to provide future silt clean up and soil removal as required and should be maintained 2-3 times per year, as needed.

Remaining Works to be Completed in 2022:
As mentioned above, a few minor works included in the design plan will be completed in early 2022, including:

- Completion of North Run-on ditching works along the north ramp access road to the existing Infiltration Gallery at the NW corner of the site;
- Completion of the Central drainage clean up and sump establishment works at the base of the borrow area; and
- Installation of an operational culvert at the north toe of Phase 1 filling area in preparation for a new access road being developed around the north and western slopes of Phase 1 to enable filling on the crest.

Design Change for 2022 works:
As part of the Stormwater Management Implementation Plan, an infiltration manhole and accompanying culvert and headwall were designed to manage stormwater and clean run-off from the Central drainage and northern portion of the borrow area (as shown below) . During site inspections completed by SHA in 2021, it became clear that these works, as designed, will not work due to the ever changing geometry in the borrow area due to soil extraction as well as soil stockpiling which would render the infiltration manhole obsolete shortly after installation. Based on these observations, SHA is recommending these works be removed from the plan and replaced with a large (3m x 3m x1m) sedimentation trap that can be relocated and re-established as operational ditching and stormwater ditch alignments change along the toe of the borrow area as it develops.



INFILTRATION MANHOLE DETAIL G/02
SCALE: 1:50

SHA will continue to work with the CSRD to make certain the remaining works are completed in early 2022 as designed and will provide site inspection and construction support as necessary. During the 2022 works, the works completed in 2021 will be inspected to ensure they are functioning as design and will provide any minor changes or updates as needed.

Should you have any questions on this report regarding completed 2021 works and future 2022 please do not hesitate to contact the undersigned at 778-471-7088.

Attached:

- Figure 1 – 2021 completed works and 2022 proposed works
- Appendix A – Photo Log of 2021 works.

LIMITATIONS

The report has been prepared by Sperling Hansen Associates (SHA) on behalf of the Columbia Shuswap Regional District in accordance with generally accepted engineering practices to a level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions in British Columbia, subject to the time limits and financial and physical constraints applicable to the services.

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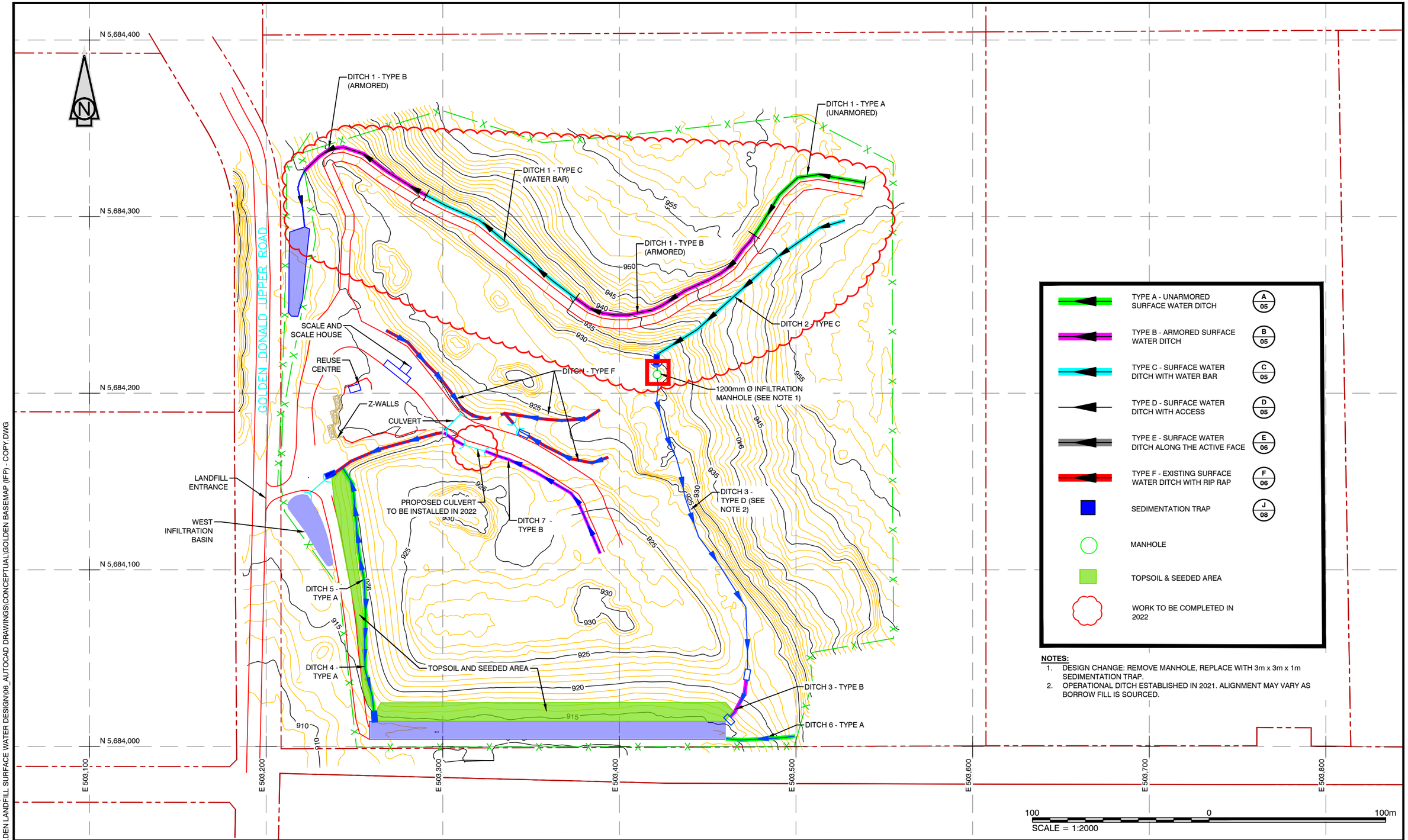
The material in this report reflects the best judgment of Sperling Hansen Associates Inc. in the light of the information available to it, at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Sperling Hansen Associates Inc. accepts no responsibility for damages, if any, suffered by third party as a result of decisions made or actions based on this report. Should additional new data become available in the future, Sperling Hansen Associates should be requested to re-evaluate the findings of this report and modify the conclusions and recommendations drawn, as required.

Yours truly,

SPERLING HANSEN ASSOCIATES

Scott Garthwaite, AScT
Senior Engineering Technologist, Office Manager



NOTES:

1. DESIGN CHANGE: REMOVE MANHOLE, REPLACE WITH 3m x 3m x 1m SEDIMENTATION TRAP.
2. OPERATIONAL DITCH ESTABLISHED IN 2021. ALIGNMENT MAY VARY AS BORROW FILL IS SOURCED.

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X:\PRJ\PRJ20\PRJ20077 - GOLDEN LANDFILL SURFACE WATER DESIGN\06_AUTOCAD DRAWINGS\CONCEPTUAL\GOLDEN BASEMAP (IFP) - COPY.DWG

SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723
Fax: (604) 986-7734

SEAL

No.	DATE yr/m/day	REVISIONS	DRAWN	CHK'D	APP'D

CLIENT:

DESIGN BY:	SG	SHA PROJECT #	20077
DRAWN BY:	DB	DATE CREATED:	2021/07/14
CHECKED BY:	SG	HORIZONTAL SCALE:	1:2000
APPROVED BY:		VERTICAL SCALE:	1:2000

ADJUST SCALE 50% FOR 34"x22" SHEET

GOLDEN LANDFILL SURFACE WATER DESIGN

SURFACE WATER WORKS GOLDEN LANDFILL 2021/2022

DRAWING NO:	REV	SHEET
20077-01	A	01

Appendix A

Photo Log – 2021 Completed Works

Photo-1: CSRD staff completing design layout of infiltration galleries and ditches

Photo-2: Southern Infiltration Pond Excavation

Photo-3: Infiltration key-trench being backfilled with owner supplied recycled crushed concrete in Southern Infiltration Gallery

Photo-4: Southern Infiltration Gallery completed with 150-300mm rip rap and topsoil being applied to south toe of Phase 1. Photo taken from east, looking west.

Photo-5: Completed Southern Infiltration Gallery with armored run-on and inflow ditching. Photo taken from SE corner of site, looking west.

Photo-6: Western Infiltration Gallery near landfill entrance.

Photo-7: Western run-off control ditch directing stormwater to both Western and Southern Infiltration Galleries, pre topsoil and seeding.

Photo-8: Western run-off control ditch directing stormwater to both the Western and Southern Infiltration Galleries. Outer side slopes of ditch received an application of topsoil and seed.

Photo-9: Internal ditches near scale shack, cleaned up and re-shaped.

Photo-10: Internal ditches near z-wall and inlet to Western Infiltration Gallery, cleaned up and re-shaped.

Photo-11: Photo taken from SE corner of site looking north with active borrow area on the left and Phase 1 to the right. With ever changing geometry and drainage paths in the borrow area, as cover and intermediate soils are extracted, onsite contractor is to maintain positive drainage along toe of borrow area directing run-on to the Southern Infiltration Gallery.

SPERLING HANSEN ASSOCIATES

- Landfill Engineering
- Solid Waste Planning
- Environmental Monitoring
- Landfill Fire Risk Control

December 21st, 2022

Mr. Ben Van Nostrand
Team Lead, Environmental Health Services
Columbia Shuswap Regional District

Re: Golden Landfill Stormwater Management Implementation Plan – 2022 Work Completed and Remaining for 2023

Sperling Hansen Associates (SHA) was retained by the Columbia Shuswap Regional District (CSRD) to complete the Stormwater Management Implementation Plan for the Golden Landfill (the Landfill) to address the requirements of the Ministry of Environment and Climate Change Strategy (ENV) as described per Item 1 in the letter "*Environmental Management Act* approval with conditions of "Golden Landfill Design, Operations, and Closure Plan Update" Golder Associates Ltd. 19120797-003-R-Rev 0 dated 17 January 2020", dated May 4th, 2020, and in Section 5.2 of the 2020 DOCP Update, such as:

- Infiltration galleries to be established. These galleries will be designed to accommodate the increase in runoff attributed to landfill development for a 1:100 year, 24-hour storm event.
  - Completed in 2021/2022
- Upgradient diversion ditches to be established. These respective ditches will convey overland flow in a controlled manner to the infiltration galleries.
  - Completed in 2021/2022
- A ditch to be established along the inside edge of the existing bench road that is cut into the north slope of the property. This ditch will convey overland run-on flow to an infiltration gallery.
  - Completed in 2022
- Delineation ditching to minimize leachate impacts caused by clean run-on and internal surface water flows.
  - Completed in 2021/2022
- The existing ditching northeast of the Phase 1 fill area and vehicle scale should be enhanced and extended to ensure the central portion of the site is well drained.
  - Ditching Complete in 2021/2022, Sump and Culvert to be completed in 2023

In 2022, the majority of the proposed works were wrapped up, as outlined above (in Blue), with the exception of an energy dissipation / infiltration sump, as outlined above (in Red). In addition to the above mentioned sump, a conveyance pipe / culvert will also be needed to direct clean run-off from the borrow area, in a controlled manner, to the internal ditching network that has already been established and sized accordingly.

Figure-1 below outlines the work completed in 2022 as well as the remaining work for 2023:

- 2022 works completed:
  - Northern ditch re-establishment and armoring – outlined in the upper portion of Figure 1
  - Redefined Western infiltration Gallery - outlined on the left side of Figure 1
- Remaining 2023 works:
  - Construct Energy Dissipation and Sediment Knock-out Sump at the base of the Eastern Borrow Area - outlined in the middle of Figure 1
  - Construct a surface water culvert from the Energy Dissipation Sump to the existing internal ditch network – outlined in the middle of Figure 1.

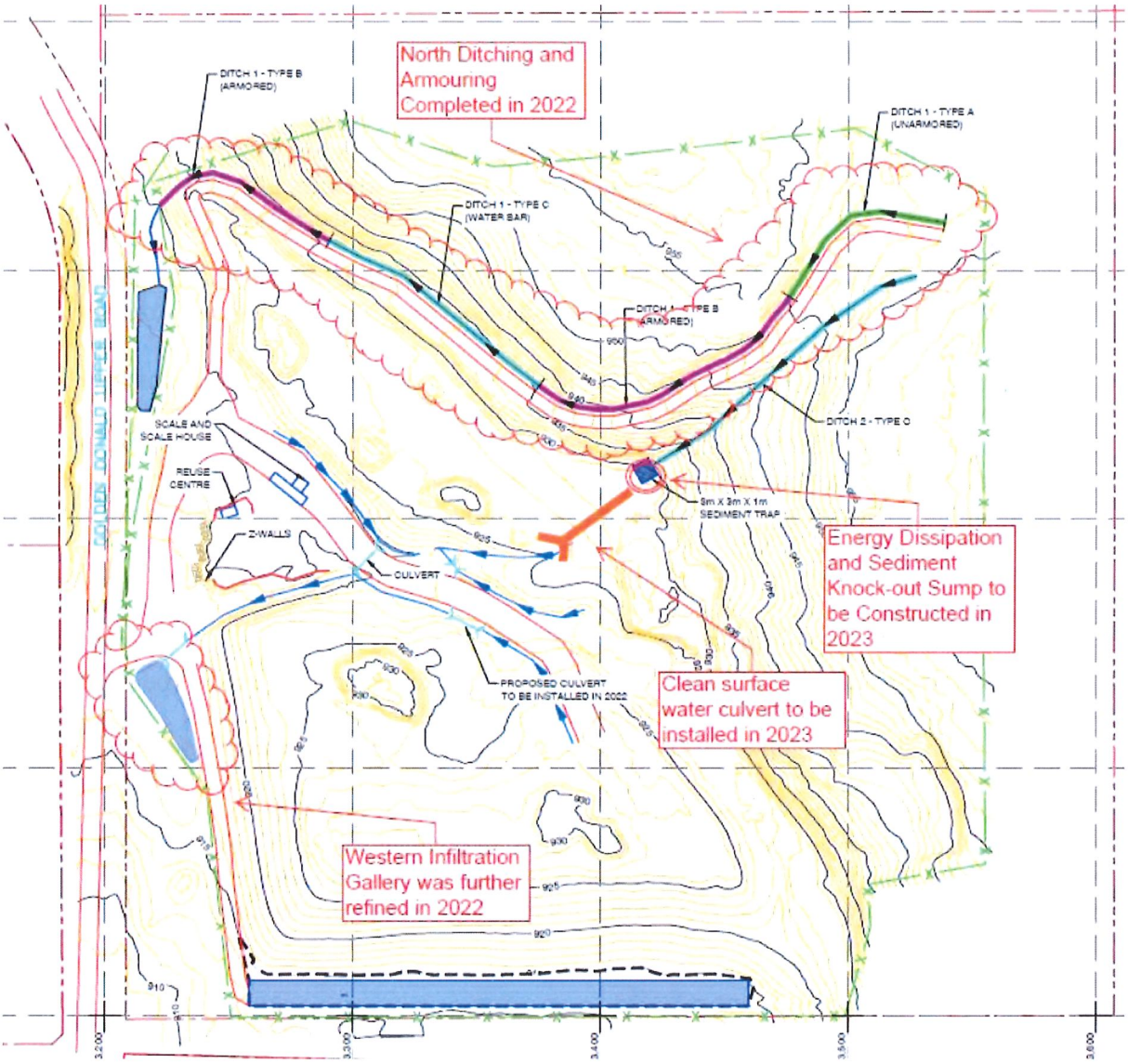

Figure 1 – 2022 Works Completed and 2023 Remaining Works

The photos below represent the ditching upgrades work completed at the Landfill in 2022.

Photo 1 – North Access Road – Ditch geometry re-establishment to design specifications – this work was completed in 2022.

Photo 2 – Armoring of North Access Road Ditch utilizing onsite recycled products.

SHA will continue to work with the CSRD to ensure all future 2023 drainage works proposed are completed per the original design plan / specifications and modifications outlined in our 2021 Construction Summary Letter.

LIMITATIONS

The report has been prepared by Sperling Hansen Associates (SHA) on behalf of the Columbia Shuswap Regional District in accordance with generally accepted engineering practices to a level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions in British Columbia, subject to the time limits and financial and physical constraints applicable to the services.

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Yours truly,

SPERLING HANSEN ASSOCIATES

Scott Garthwaite, AScT
Senior Engineering Technologist, Office Manager

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Damage or Danger Permit

Permits are issued under the *Migratory Birds Convention Act, 1994* (S.C. 1994, c.22) pursuant to paragraph 12(1)(b) and sections 63-71 & 73 of the *Migratory Birds Regulations, 2022*.

Permit number:

DA-BC-2023-0238

Valid From: *(yyyy/mm/dd)*	**Expiry date:** *(yyyy/mm/dd)*
2022/12/20	2023/12/31

Report due by: *(yyyy/mm/dd)*

2024/01/15

Permit holder(full name, or name of organization):

Ben Van Nostrand
Columbia Shuswap Regional District

Mailing address:

555 Harbourfront Drive NE
Salmon Arm British Columbia
V1E 4P1 Canada

Telephone number:	**Email address:**
250-833-5940	bvannostrand@csrd.bc.ca

Activities authorized under this permit:

Activities	**Species**	**Applicable location(s)**
Kill to support scaring	Ring-billed Gull (Larus delawarensis)	1

Location(s):

1. 350 Upper Donald Road Golden British Columbia Canada (Golden Landfill)

General Terms and Conditions:

1. This permit is valid only:
    a. during the specific dates, locations, and for the specified activities as indicated on the permit;

Canada

   b. if it is not altered in any way; and
   c. for the migratory bird species listed on this permit.
2. This permit is not transferable to any other person(s).
3. The permit holder and/or nominee(s) must carry a copy of the signed permit at all times while conducting any activities authorized by the permit.
4. The permit holder and any nominees are bound by the terms and conditions of the permit.
5. Permitted management activities apply only to those species specified on the permit. Disturbance or management of other species present or nesting on the site is prohibited.
6. The permit holder and nominees must comply with all other applicable federal, provincial, territorial and municipal laws, bylaws and regulations.
7. The permit holder and nominee(s) cannot sell, expose for sale, and offer for sale, trade or exchange any migratory birds, eggs, nests, carcasses or skins of migratory birds or any other part thereof taken under the authority of this permit.
8. The permit holder must ensure compliance with the Species at Risk Act (SARA) prior to undertaking any actions in relation to SARA listed species.
9. The permit holder must provide a report on all activities undertaken, with the exception of permits issued solely for scaring activities where no birds are injured or killed. Failure to submit a satisfactory report may result in the delay or refusal of future permit requests.
10. Where bands or markers are found on migratory birds that were killed, these must be reported by the permit holder to the Bird Banding Office at www.reportband.gov or by contacting the issuing regional CWS office.
11. It is the responsibility of the permit holder to address concerns raised by the public regarding the activities.
12. Any permit holder or nominee(s) carrying out activities authorized by this permit must, at the request of a game officer, present a valid government-issued ID with photo, and present the permit signed by the permit holder.
13. Any employee of the permit holder carrying out activities authorized by this permit must, at the request of a game officer, present a copy of the permit signed by the permit holder, and be able to demonstrate that they are employees of the permit holder.
14. Any person or corporation – whose services have been retained by the permit holder to perform the activities authorized by the permit – must, at the request of an enforcement officer, present a copy of the permit signed by the permit holder and a letter signed by the permit holder, identifying that person or corporation and the activities which that person or corporation will perform for the permit holder. They must also be able to demonstrate that they are the person identified in the letter or a representative of the corporation identified in the letter.

Specific Terms and Conditions:

Kill to support scaring

Kill to Scare MBR s. 65
The purpose of this activity is to kill a certain number of migratory birds to scare away other birds from the area specified on the permit. The carcasses should be left in the open on the

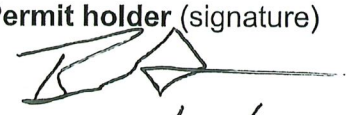
ground to act as a deterrent to other birds.
Kill-to-support Scaring

1. The permit holder and nominee(s) may kill up to two (2) individuals of Ring-billed Gull per week using falconry,
2. Kill to scare activities authorized on this permit cannot be conducted on flightless birds or adults with flightless young.
3. It is not permissible to use decoys, duck or goose calls, or blinds or other methods of concealment.
4. The permit holder and nominee(s) are not required to hold a hunting license for this specific activity.
5. The permit does not allow the killing of migratory birds on lands other than those specified on this permit.
6. The permit holder is responsible to provide accurate record keeping of the operations and must submit a report to Environment and Climate Change Canada within 15 days of expiry of this permit.

Nominee(s):

Name	**Organization**
Amanda McDiarmid	Shuswap Bird of Prey

I declare that I have read and understood all the information contained in this permit, including all of the terms and conditions. I understand that this permit may be cancelled should I, or any nominees, be found in violation of the permit conditions.

Permit holder (full name)	**Permit holder** (signature)
Ben Van Nostrand	 **Date:** 2022/12/20 *(yyyy/mm/dd)*

Permit issuer (full name)	**Permit issuer** (signature)
Laura Boettcher Canadian Wildlife Service, on behalf of the Minister of Environment and Climate Change Canada	 **Date:** 2022/12/20 *(yyyy/mm/dd)*

General Information:

1. The holder and their nominee(s) of a damage or danger permit shall have the permit on his person at all times when attempting to take any migratory bird, nest or egg and when in possession of any migratory bird, nest or egg and shall show the permit to any game officer upon request.
2. The holder of an damage or danger permit must ensure compliance with the Species at Risk Act, S.C. 2002, c. 29 (SARA) when undertaking any actions affecting migratory bird species, or their residences or habitat, that are listed as threatened, endangered or extirpated pursuant to Schedule 1 of SARA.