Line Creek Operations
2021 Annual Water Report
Permit 5353

March 31, 2022

Teck

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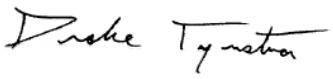

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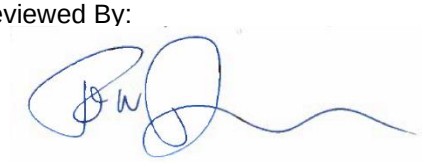

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Executive Summary

The 2021 Annual Report was completed in accordance with Section 4.3 of Effluent Permit 5353 issued to Line Creek Operations (LCO) under the provisions of the *Environmental Management Act*, most recently amended on July 22, 2021. As of July 22, 2021, the LCO Phase II development (previously regulated under Order In Council Permit 106970) has been moved to Permit 5353 (and Valley Wide Effluent Permit 107517) and includes the Dry Creek drainage. Dry Creek is a tributary that flows northward into the Fording River, which then flows into the Elk River.

Maintenance activities of authorized works were conducted at LCO in 2021, which included sediment/material cleanout of the Rail Loop Ponds (E210372/LC_EPOUT) and Steam Bay Ponds (E288269). Additional maintenance activities include No Name Creek inlet pond repair works, design and initial works for upgrades to the Sewage Treatment System, and sediment curtain upkeep in the Dry Creek Sedimentation Ponds.

Throughout 2021 there were a total of 105 sets of duplicates samples collected, resulting in 210 parameters being evaluated for relative percent difference in accordance with Permit 5353. Of the 210 parameters that were evaluated, 12 did not meet acceptable relative percent difference assessment criteria, 94.29% of the analyses completed were non-detects. A total of 108 sets of field blank samples were collected in 2021, for a total of 216 parameters being evaluated in accordance with Permit 5353. Of the 216 parameters evaluated, two had results above analytical method detection limits and 99.08% were non-detects.

In 2021, LCO had two quality assurance and quality control (QA/QC) issues related to hold-time exceedances. The two hold-time exceedances were due to exceeding the recommended hold-time prior to analysis (was received by the lab prior to expiry). In addition, in 2021 there were no exceedances of hold-time prior to sample receipt at the laboratory.

LCO had 12 non-compliances in 2021. Ten of these non-compliances were associated with discharge of effluent from the Sewage Treatment System (E102494/LC_LC11), specifically for exceedances of the biochemical oxygen demand permit limit (130 mg/L). One non-compliance was for failure to notify during an emergency pumping event, and one was due to unauthorized bypass of the No Name Creek Sedimentation Pond and Bypass structure. There were no missed samples for Permit 5353 in 2021. All other locations met permit limit requirements (Table i). All unattainable data was due to frozen or dry streams. The Contingency Treatment System on Line Creek (E219411/LC_LC8) was not used for management of total suspended solids in 2021.

Monitoring for total suspended solids, turbidity, extractable petroleum hydrocarbons, and flow was conducted as per the Permit 5353 requirements. Discharge of stored pit water from Horseshoe Ridge Pit (E308146/LC_HSP) occurred from March 16 to December 19, 2021. Discharge from Horseshoe Pit was sampled in accordance with LCO's 2021 Horseshoe Ridge Pit Dewatering Plan (submitted on June 9, 2020 and updated March 11, 2021). On December 2, 2021, LCO initiated emergency pumping from the MSX Pit in response to a period of heavy precipitation and continued pumping until December 7, 2021. This discharge was sampled in accordance with LCO's MSX Pit Pumping Plan (July 2021). As the Contingency Treatment System (E219411/LC_LC8) did not discharge in 2021, no samples were collected at these locations. All other parameters are monitored in accordance with Permit 107517 and are reported in the 107517 annual water report.

Table i. Exceedances of permit limits and Water Quality Guidelines for Protection of Aquatic Life (BCWQG) in site receiving waters in 2021

EMS ID	Location Code	Parameter	Permit Limits	BCWQG	Frequency of Exceedance (%)
E102494	LC_LC11	Flow-Daily	45 m^3/day	-	0/365 (0%)
E102494	LC_LC11	Biochemical Oxygen Demand, Five Day	130 mg/L	-	10/13 (77%)
E102494	LC_LC11	Total Suspended Solids, Lab	130 mg/L	-	0/13 (0%)
E288269	LC_SBPIN	EPH (C10-C32)	15 mg/L	-	0/12 (0%)
E288269	LC_SBPIN	Flow- Daily Average	150 m^3/day	-	0/45 (0%)
E216144	LC_LC7	Total Suspended Solids, Lab	50 mg/L	-	0/12 (0%)
E219411	LC_LC8	Total Suspended Solids, Lab	50 mg/L	-	0/0 (0%)
E221268	LC_LC9	Total Suspended Solids, Lab	50 mg/L	-	0/0 (0%)
E210372	LC_EPOUT	Freeboard*	>1 m	-	0/365 (0%)
E308146	LC_HSP	Total Suspended Solids, Lab	50 mg/L	-	0/42 (0%)
E308146	LC_HSP	Dissolved Oxygen	-	5 mg/L	0/42 (0%)
E308146	LC_HSP	Dissolved Oxygen	-	8 mg/L	5/42 (12%)
E308146	LC_HSP	Total Iron	-	1 ug/L	1/42 (2%)
E308146	LC_HSP	Mercury	-	0.00125 ug/L	2/42 (5%)
E308146	LC_HSP	Nitrite-Nitrogen as N	-	0.2 mg/L*	0/42 (0%)
E308146	LC_HSP	Total Selenium	-	2 ug/L	42/42 (100%)
E308146	LC_HSP	Temperature (field)	-	15 ºC	5/42 (12%)

*Guideline is variable and dependant on chloride. Value referenced is for low chloride water.

**New permit limit applicable from August 12 to December 31, 2019 in accordance to the current PE5353. This limit replaces LC_EPOUT maximum and average flow limits.

1 Description of Mine Operation and Discharges

1.1 Introduction

Teck Coal Limited (Teck) – Line Creek Operations (LCO) is located within the front ranges of the southern Canadian Rocky Mountains, approximately 18 kilometers northeast of Sparwood, British Columbia, and is comprised of 4,344 hectares of permitted land. Mining operations at LCO commenced in 1981, with the primary focus on producing steelmaking coal, although a lesser amount of thermal coal is also produced. In 2021, LCO produced 3,462,736 metric tonnes clean coal (MTCC) and 39.3 million bank cubic meters (MBCM) of waste rock. 1.2 MBCM of coarse coal refuse (CCR) was sent to the East Rejects Extension (ERX) CCR spoil.

As of December 31, 2021, total surface development at LCO was 2,673.3 ha with 584.0 ha reclaimed**.** Mine development at LCO in 2021 resulted in 107.7 ha of new disturbance. The majority of the new disturbance occurred in the Mount Michael pit, Burnt Ridge North pit, and Dry Creek waste rock spoil.

Current mining operations associated with Permit 5353 have the potential to impact the Line Creek drainage, which is the main drainage of the active mining area. Line Creek joins the Fording River which then flows into the Elk River. Five main tributaries feed Line Creek; (beginning at the headwaters and moving downstream) Tornado Creek, No Name Creek, West Line Creek, South Line Creek and Teepee Creek. As of July 22, 2021, permit requirements for the LCO Phase II development (previously regulated under Order In Council permit 106970) have been transferred to Permit 5353 and includes the Dry Creek drainage. Dry Creek is a tributary that drains to the north into the Fording River, which then flows into the Elk River.

1.2 Overview of Operations

In 2021, LCO operated in accordance with Permit 5353, most recently amended July 22, 2021, and issued to LCO under the provisions of the *Environmental Management Act*. This annual report reflects the requirements outlined in Section 4.3 of Permit 5353 and in the Annual Status Form (ASF) is located in Appendix A.

Currently, 15 discharge and 20 receiving sites are specified in Permit 5353 as monitoring locations, as shown in Figure 1 and Table 1. Of those sites, two discharge sites and two receiving sites are not actively monitored under Permit 5353 as they are either not constructed or not in use (E295316/LC_SP3SW, E295231/LC_SPFR), or do not have associated monitoring requirements (E295232/LC_FRUS, E288271/LC_FRUSDC). The bypass to the Contingency Treatment System (219411/LC_LC8), which diverts Line Creek (downstream of 200337/LC_LC3) into the pond system to treat suspended solids, remained closed through 2021 and was not utilized for water treatment as Line Creek did not exhibit total suspended solids above 50 mg/L in 2021.

Mine development at LCO in 2021 resulted in 107.7 ha of new disturbance. The majority of the new disturbance occurred in the Mount Michael (MTM) pit, Burnt Ridge North (BRN) pit, and Dry Creek waste rock spoil. Development of the ERX CCR spoil also contributed to new disturbance, as did small areas on Horseshoe Ridge (HSR) and Burnt Ridge North (BRN) for exploration drilling activities. The Burnt Ridge Extension (BRX) and Mine Services Area Extension (MSX) pits in LCO Phase I, and the MTM pit and BRN pit in LCO Phase II, were actively mined throughout 2021.

Access remained periodically limited to upstream areas of the MSA North Settling Ponds (E216144/LC_LC7) system in 2021 due to geotechnical safety restrictions.

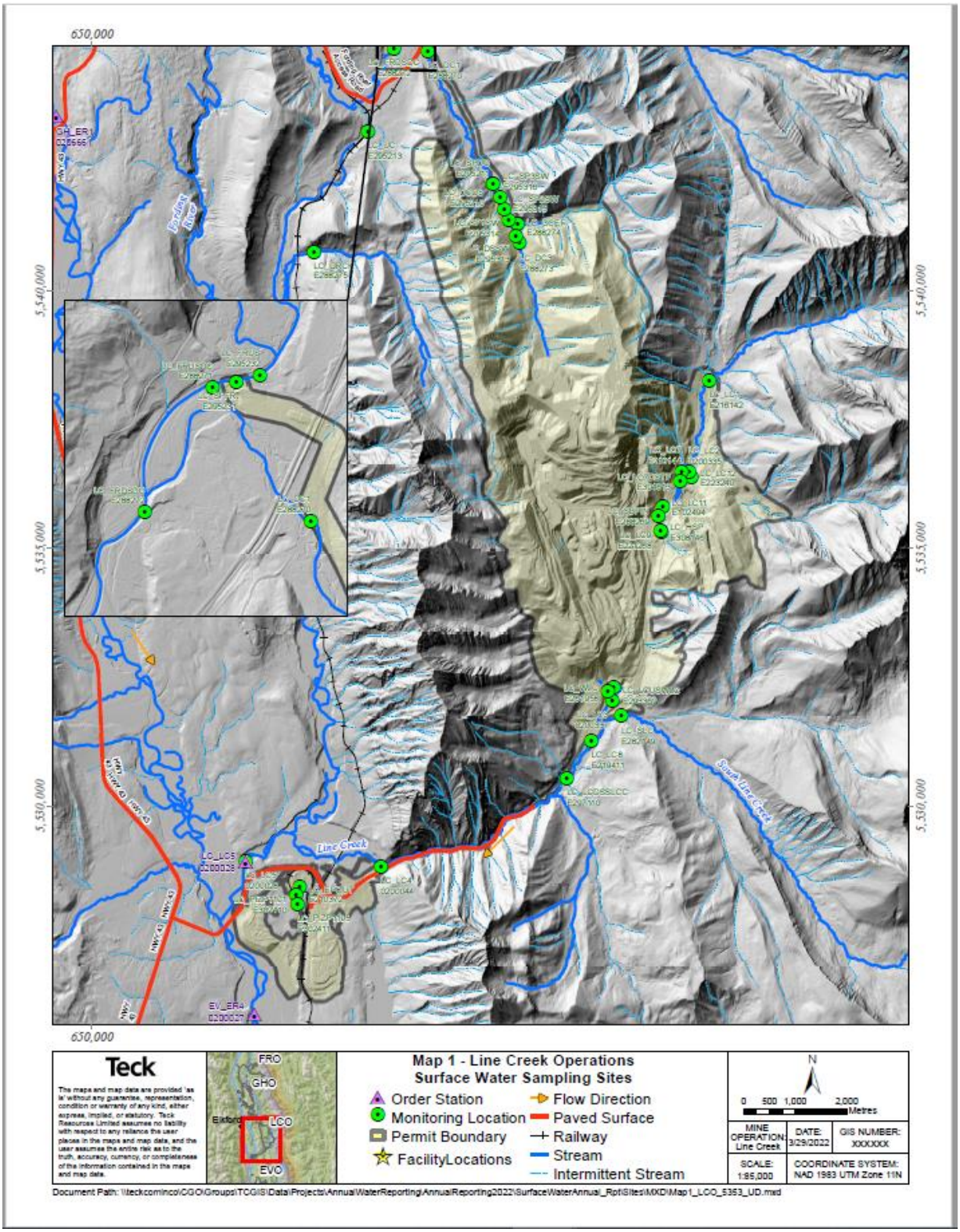

Figure 1. Surface Water Monitoring Locations

Table 1. Summary of Permitted Sampling Sites

EMS ID	Site ID	UTM		Type	Description
		Northing	Easting		
E102494	LC_LC11	5535808	661072	Discharge	Mine Service Sewage Effluent to Ground
E216144	LC_LC7	5536472	661436	Discharge	MSA North Ponds Effluent to Line Creek
E219411	LC_LC8	5531255	659692	Discharge	Contingency Treatment System Effluent to Line Creek
E221268	LC_LC9	5535328	661033	Discharge	No Name creek Pond Effluent to Line Creek
E288269	LC_SBPIN	5535623	660991	Discharge	Wash Bay Effluent Discharge to Steam Bay Ponds to Ground
E302410	LC_PIZP1101	5528264	653956	Discharge	Rail Loop Ponds Effluent to Ground
E302411	LC_PIZP1105	5528075	653984	Discharge	Rail Loop Ponds Effluent to Ground
E308146	LC_HSP	5535319	661042	Discharge	Discharge of stored pit water from Horseshoe Pit
E295211	LC_SPDC	5542042	657821	Discharge	Dry Creek Sedimentation Pond effluent to Dry Creek
E295231	LC_SPFR	n/a	n/a	Discharge	Dry Creek Sediment Ponds effluent to Fording River
E253313	LC_DSSW	5541049	658225	Discharge	Diversion Structure Spillway
E295314	LC_SP1SW	5541366	658085	Discharge	Sedimentation Pond 1 Spillway
E295315	LC_SP2SW	5514710	655646	Discharge	Sedimentation Pond 2 Spillway
E295316	LC_SP3SW	n/a	n/a	Discharge	Sedimentation Pond 3 Spillway
E308147*	LC_MSAWCULV	5535205	660702	Discharge	Discharge of stored pit water from MSAW Pit (in accordance with MSX Pit Pumping Plan)
0200028	LC_LC5	5528919	652976	Receiving	Fording River downstream of Line Creek
0200044	LC_LC4	5528823	655604	Receiving	Line Creek upstream of Process Plant
0200337	LC_LC3	5532022	660090	Receiving	Line Creek downstream of West Line Creek
0200335	LC_LC2	5536473	661579	Receiving	Line Creek upstream of Rock Drain
E223240	LC_LC12	5536374	661629	Receiving	North Horseshoe Creek Near Mouth
E216142	LC_LC1	5538253	661978	Receiving	Line Creek upstream of MSA North Pit
E282149	LC_SLC	5531737	660271	Receiving	South Line Creek
E293369	LC_LCUSWLC	5532280	660124	Receiving	Lune Creek upstream of WLC Below Rock Drain
E261958	LC_WLC	5532208	660004	Receiving	West Line Creek
E297110	LC_LCDSSLCC	5530522	659218	Receiving	Line Creek Immediately downstream of south Line Creek Confluence
E288274	LC_DCEF	5541295	658260	Receiving	East Tributary of Dry Creek
E295210	LC_DCDS	5542073	657766	Receiving	Dry Creek Downstream of sedimentation ponds
E288270	LC_DC1	5544658	656520	Receiving	Dry Creek near mouth (at bridge)
E295213	LC_UC	5543086	655351	Receiving	Unnamed Creek
E288275	LC_GRCK	5540755	654303	Receiving	Grace Creek upstream of the CP rail tracks
E295232	LC_FRUS	5545243	656317	Receiving	Fording River 100m upstream of conveyance outfall
E288271	LC_FRUSDC	5545195	656126	Receiving	Fording River upstream of Dry Creek, 100m downstream of conveyance outfall
E288272	LC_FRDSDC	5544699	655856	Receiving	Fording River downstream of Dry Creek
E295214	RC_CH1	5552839	655796	Receiving	Chauncey Creek
E288273	LC_DC3	5540918	658294	Receiving	Dry Creek upstream of East Tributary Creek

Monitored in **accordance with MSX Pit Pumping Plan*

1.3 Maintenance of Works

This section provides a summary of maintenance activities of authorized works throughout 2021 (e.g. sediment removal, culvert maintenance, etc.).

In 2021, sediment was removed from the Rail Loop Settling Ponds (Rail Loop Pond A) and the Steam Bay Ponds to maintain their design performance (Table 2). Sediment was disposed of in accordance with LCO's approved Sediment Management Plan. Final reports for all sediment characterization tests are provided in Appendix J. As detailed in Section 3.3 (Non-Compliances), following discovery of the uncontrolled No Name Creek Diversion and Sediment Pond bypass in November 2021, work was completed to stop and prevent future recurrence of such uncontrolled bypassing discharge from E221268/LC_LC9.

Notification was provided in 2021 for the removal of sediment from the No Name Creek Diversion and Sediment Ponds. However, this work was not completed in 2021 due to resource challenges with heavy duty equipment and staffing shortages due to COVID-19. The removal of sediment will continue to be pursued in 2022 to ensure effective sediment control within the No Name Creek Diversion and Sediment Ponds.

No infrastructure changes were made to the authorized works for the MSA North Ponds (E216144/LC_LC7) or the Contingency Treatment System (E219411/LC_LC8).

In 2021, LCO began work on upgrading the Sewage Treatment System (E102494/LC_LC11) to incorporate a membrane bioreactor (MBR) wastewater treatment unit to supplement the existing system. LCO submitted a process modification notification to ENV on May 28, 2021, to incorporate the MBR system as authorized works to supplement the existing sewage treatment system. The engineering design was completed on September 30, 2021, and contractors were procured in Q4 2021 to begin work. The repair and upgrades within the MBR commenced the week of November 15, 2021, with the MBR placed into position on December 17, 2021, following the completion of the civil work. Work is continuing in 2022 to complete the electrical and mechanical/piping components of the project with the goal of commissioning the system once this work is complete.

In June 2021, the sediment curtains present in the Dry Creek Water Management System Head Pond and Sediment Pond 1 were repaired. Work included re-anchoring the curtains to ensure sediments remain controlled in the ponds.

Table 2. Maintenance of Works Summary

Notification Date	EMS ID	Site ID	Location	Maintenance Complete
June 25, 2021	E210372	LC_EPOUT	Rail Loop Ponds	July 2021 – sediment cleanout of Pond A (~7300 m^3)
n/a	E295211	LC_SPDC	Dry Creek Sediment Ponds	Re-anchoring of sediment curtains
September 30, 2021	E288269	LC_SBPIN	Steam Bay Pond	Sediment removal (550 m^3)
November 18, 2021	E221268	LC_LC9	No Name Creek Diversion and Sediment Pond Bypass	Sediment repair around bypass structure
May 28, 2021	E102494	LC_LC11	Sewage Treatment System	Completion of civil works, upgrades and repairs of components inside MBR, placement of MBR onto location, and initiation of mechanical/plumbing work.

2 Incidents and Compliance Summary

2.1 Incidents

Incidents resulting in the release of unauthorized effluent into the environment or resulting in non-compliance, including spills, discharges that bypassed authorized treatment works, and unscheduled and emergency release are tracked and reported, summarized in Table 4.

The *Spill Reporting Regulation* is followed for reporting spills onsite. Emergency Management B.C. (EMBC) provides a reference number (DGIR number), which is included in any additional incident reporting to external agencies. A summary of all spills and incidents (not related to water quality) reported to EMBC can be found in Appendix B.

2.1.1 INCIDENTS RELATED TO WATER QUALITY

There were two reportable spills or incidents related to water quality at LCO in 2021 listed in Appendix B.

February 11, 2021 – Burnt Ridge North (BRN) Pit Spoil Failure

On February 11, 2021, a portion of waste rock spoil in the Burnt Ridge North (BRN) mining area experienced a failure resulting in material runout. The event occurred quickly and was not ongoing. This resulted in an unanticipated release of waste rock and sediments. Further investigation determined that the failure contained approximately1.99 Mm^3 (million cubic meters) of material. The waste rock traveled approximately 1.1 km downslope and reached Dry Creek in the valley bottom below. The volume of the material, which was deposited over Dry Creek, was approximately 0.176 Mm^3 and covered about 435 m of creek. The impacted section of Dry Creek is not fish-bearing. This water flows through the Dry Creek Water Management System (DCWMS) downstream, which then discharges back into Dry Creek, which is fish bearing downstream of the DCWMS.

The spoil runout area is entirely within the permitted mine boundary (C-129 permit under the *Mines Act*). Teck reported this incident to the Ministry of Energy, Mines, and Low Carbon Innovation (EMLI), Ministry of Environment and Climate Change Strategy (ENV), and the Ktunaxa Nation Council (KNC) on February 12, 2021. In addition, this event was reported as a spill to EMBC on February 12, 2021 (DGIR# 204168).

Following this incident, Teck engaged third-party QPs to conduct environmental impact assessments or studies for geochemistry, water quality modeling, hydrogeology, hydrology, aquatic health, fish and fish habitat, and wildlife. On January 13, 2022, Teck and supporting QPs presented findings and updates to regulators (EMLI, ENV, Department of Fisheries and Oceans, Ministry of Forests, Lands, Natural Resource Operations and Rural Development) and KNC.

December 2, 2021 – Mine Services Area Extension (MSX) Pit

On December 2, 2021, LCO initiated emergency pumping from the MSX Pit following a period of heavy precipitation and continued pumping until December 7, 2021. Over this period, approximately 8,175 m^3 was pumped from the MSX Pit. Water from the MSX Pit discharges to the Mine Services Area West (MSAW) backfilled pit. This is the case when both during active dewatering (i.e., pumping) and when water from MSX Pit passively decants via a blasted drainage ditch. The MSAW Pit then decants into the Line Creek Rock Drain, which is approximately 3 km long. Water from the Line Creek Rock Drain then discharges from the toe of the rock drain to the receiving environment (Line Creek upstream of West Line Creek, LC_LCUSWLC), upstream of the West Line Creek Active Water Treatment Facility (WLC AWTF) intake/outfall structure.

On December 2, 2021, samples were collected from a sump in the MSX Pit (MSX Pit sump, LC_MSXS) for water quality analysis and acute toxicity testing. On December 3, 2021, samples from MSX Pit were collected again after communication with the labs confirmed they did not receive the December 2 samples due to shipping delays. Acute toxicity test results for the sample collected on December 3 showed 0% mortality for Rainbow trout test and the *Daphnia magna*.

On December 6, 2021, another set of samples was collected from a sump in the MSX Pit for water quality analysis and acute toxicity testing. Results from the December 6, 2021, sample showed 0% mortality to Rainbow trout through the first 72 hours of testing, then 100% mortality after 96 hours. There was 0% mortality to *Daphnia magna*. The testing results for the December 3 and December 6, 2021, samples were provided from the labs via an email to LCO. The final 96-hour testing result for the December 6 sample was inadvertently overlooked until January 18, 2022, when LCO was compiling data for the Q4 2021 Elk Valley Regional Water Quality Report. Teck reported this incident to EMBC on January 19, 2022 (DGIR # 214353) and provided an update to the same file number on January 24, 2022. The End of Spill Report was submitted on February 18, 2022, and details of the incident were included in the Q4 2021 Elk Valley Regional Water Quality Report (January 30, 2022).

Following discovery of the December 6, 2021 acute toxicity failure, subsequent samples were collected at the MSX Pit and at the downstream receiving environment monitoring location (Line Creek upstream of West Line Creek Below Rock Drain [LC_LCUSWLC; E293369]) on a regular recurring basis. Additionally, since January 25, 2022, LCO has been collecting samples for water quality and acute toxicity from groundwater wells within the backfilled MSAW Pit. Sampling data to date has indicated minimal to no toxicity in water samples collected from the MSAW Pit wells or from the downstream receiving environment (Line Creek).

In addition, as supported by a Toxicity Identification Evaluation (TIE) report and by conducting parallel testing at the lab (standard method, and pH-controlled method), observed toxicity to fish at the lab occurs under different conditions than what has been measured in the field. Toxicity in the lab observed in MSX Pit sump samples has been determined (by QP) to be due to generation of un-ionized ammonia, which is generated as lab-aeration of the water sample results in an increase of pH in the standard test. In the pH-controlled test, Rainbow trout mortality has generally been zero; one pH-controlled test showed 10% mortality to Rainbow trout.

At this time, LCO continues to sample MSX Pit sump, MSAW wells, and receiving environment (LC_LCUSWLC) for water quality and toxicity on a weekly basis. Active pumping of the MSX Pit sump ceased on December 7, 2021. Teck has engaged a Qualified Professional (QP), Golder, to inform the short-term monitoring plan (implemented), and to complete an effects assessment to determine any impact to the receiving environment (Line Creek).

2.1.2 ALL OTHER REPORTABLE SPILLS AND INCIDENTS

Reporting of spills is done in accordance with *Spill Reporting Regulation*. In 2021, a total of 99 spills and incidents (not related to water quality) occurred at LCO and were reported to Emergency Management B.C. A summary of all spills and incidents reported to EMBC can be found in Appendix B.

2.2 Compliance Summary

All effluent and process monitoring are conducted in accordance with the monitoring schedule identified in Appendix 2A of PE5353, and summarized in Section 4.1, Table 8 of this report. All monitoring results are compared to applicable permit requirements and limits, summarized in Table 3below.

Table 3. Summary of Site Permit Limits

EMS ID	Site ID	Parameter	Permit Limit Value
E102494	LC_LC11	Biochemical Oxygen Demand (Maximum)	130 mg/L
E102494	LC_LC11	Total Suspended Solids (Maximum)	130 mg/L
E102494	LC_LC11	Flow (Maximum)	45 m^3/day
E288269	LC_SBPIN	EPH (Maximum)	15 mg/L
E288269	LC_SBPIN	Flow (Average)	150 m^3/day
E216144	LC_LC7	Total Suspended Solids (Maximum)	50 mg/L
E216144	LC_LC7	Flow	0.84 m^3/sec
E219411	LC_LC8	Total Suspended Solids (Maximum)	50 mg/L
E219411	LC_LC8	Flow	3 m^3/sec
E221268	LC_LC9	Total Suspended Solids (Maximum)	50 mg/L
E221268	LC_LC9	Flow	2.3 m^3/sec
E210372	LC_EPOUT	Freeboard	>1 m
-	Miscellaneous Oil/Water Separators	EPH (Maximum)	15 mg/L
E308146	LC_HSP	Total Suspended Solids (Maximum)	50 mg/L
E308146	LC_HSP	Water Quality Characteristics	As per dewatering plan
E295211	LC_SPDC	Total Suspended Solids	50 mg/L
E295211	LC_SPDC	Flow	1.8 m^3/sec
E295231	LC_SPFR	Total Suspended Solids	50 mg/L
E295231	LC_SPFR	Flow	1.8 m^3/sec

2.3 Non-Compliances

There were 12 non-compliances reported in 2021 (Table 4).

Table 4. Summary of Permit 5353 Non-compliances

#	EMS ID	Site ID	Date	Parameters	Description/Corrective Actions
1 to 10	E2102494	LC_LC11	4/16/2021 4/26/2021 5/4/2021 5/12/2021 5/19/2021 5/28/2021 6/8/2021 6/16/2021 6/28/2021 10/21/2021	BOD	Following the April 16 exceedance, additional sampling was conducted throughout Q2 to assess compliance. Results indicated the discharge continued to be above the permit limit value of 130 mg/L for BOD until two samples taken in July 2021 demonstrated effluent was compliant. Once quarterly sampling in October returned a result showing BOD was exceeding the BOD permit limit, LCO implemented actions to cease discharge from the sewage treatment system by engaging a contractor (a vacuum truck service) to remove wastewater from the septic tank and transport it offsite for disposal. The contractor is on a recurring schedule to remove loads of wastewater from the septic tank as required until the upgraded system has been fully commissioned. Based on recommended options provided by Golder Associates, the long-term corrective action involves upgrading the Sewage Treatment System (E102494/LC_LC11) to incorporate a membrane bioreactor (MBR) wastewater treatment system to supplement the existing treatment system (septic tanks). LCO submitted a process modification notification to ENV on May 28, 2021, to incorporate the MBR system as authorized works for the existing sewage treatment system. The engineering design package was completed on September 30, 2021, and several contractors were enlisted in Q4 2021 to begin work on the various components involved in the installation and integration of the MBR with the existing sewage treatment system, as well as conducting repairs and upgrades of the MBR. The repair and upgrades within the MBR commenced the week of November 15, 2021, with the MBR moved into position on December 17, 2021, following the completion of the civil work. Work is currently underway in 2022 in completing the electrical and mechanical/piping components of the project with the goal of commissioning the system once this work is complete.
11	--	No Name Creek Diversion and Sediment Pond bypass	11/18/2021	--	During a routine inspection on November 18, 2021, it was discovered that water on the south side of the diversion culvert inlet pond, near the concrete weir bypass structure, was infiltrating to ground. This water was flowing below the bypass structure and into the Line Creek Rock Drain. A field turbidity measurement was taken and a water sample was collected for a rush TSS analysis. The field turbidity measurement was 1.70 NTU and the lab TSS result was <1.0 mg/L. Upon discovery of the unauthorized bypass, LCO manually redirected the flowing water away from the bypass structure by hand-digging a temporary ditch to the No Name Creek settling pond system inlet. Daily inspections of the effectiveness of the temporary ditch occurred until heavy equipment was available to permanently mitigate the issue by Dec 23, 2021. This was done by applying additional material to the base of the concrete weir bypass structure to prevent further infiltration of the No Name Creek water to ground.
12	--	LC_MSXS	12/02/2021	--	On December 1, 2021, at approximately 13:00, LCO submitted a notification to ENV indicating that emergency pit pumping from the Mine Services Area Extension (MSX) Pit was required as a result of a heavy

#	EMS ID	Site ID	Date	Parameters	Description/Corrective Actions
					precipitation event. However, continued heavy precipitation resulted in the ditches in MSX Pit reaching maximum capacity, and pumping had to be initiated at approximately 02:00 on December 2, 2021. This was approximately 11 hours before the end of the 24-hour notification period. A high precipitation (atmospheric river) event was experienced during the day which caused a significant amount of water to pool in the pit. The LCO operations team was forced to begin water management procedures before the end of the 24-hour notification period.

2.4 Missing and Unattainable Data

All monitoring is conducted in accordance with Permit 5353. When data is not obtained it is categorized as either missed data or unattainable data (Table 5). Missed sample non-compliances are the result of either human error, or issues with the Sample Planning Module (SPM) of Teck's Environmental Quality Information System (EQuIS) database. Data categorized as unattainable occurs when circumstances prevent the collection of water samples from authorized discharges and/or receiving environment sampling sites throughout the calendar year. Such circumstances are generally out of Teck's control and include, but are not necessarily limited to, unsafe sampling conditions for personnel, no flow due to freezing conditions, or cessation of discharge activities.

MISSING DATA SUMMARY

There was no missed data in 2021.

UNATTAINABLE DATA SUMMARY

Table 5. Summary of Unattainable Data

EMS ID	Site ID	Date	Parameters	Reason
E216142	LC_LC1	Q1 2021 Except March 19	All parameters	No flow (frozen)
E219411	LC_LC8	Q1 2021	All parameters	No flow (not discharging)
		Q2 2021	All parameters	No flow (not discharging)
		Q3 2021	All parameters	No flow (not discharging)
		Q4 2021	All parameters	No flow (not discharging)
E221268	LC_LC9	Q1 2021	All parameters	No flow (not discharging)
		Q2 2021	All parameters	No flow (not discharging)
		Q3 2021	All parameters	No flow (not discharging)
		Q4 2021	All parameters	No flow (not discharging)
E223240	LC_LC12	Q1 2021	All parameters	No flow (not discharging)
		April 2021	All Parameters	No flow (not discharging)
		August 2021	All parameters	No flow (not discharging)
		September 2021	All parameters	No flow (not discharging)
		Q4 2021	All parameters	No flow (not discharging)
E288275	LC_GRCK	February 2021	Flow	Unattainable flow (partially frozen)
		March 2021	Flow	Unattainable flow (partially frozen)
E295214	RG_CH1	January 2021	Flow	Unattainable flow (partially frozen)
		February 2021	Flow	Unattainable flow (partially frozen)
		December 2021	Flow	Unattainable flow (partially frozen)
E308147	LC_MSAWCULV	December 2021	All parameters	Unattainable Sample (well obstruction)

Note that any site where flow was absent (no flow, not discharging), a result was uploaded to EMS as a zero flow and the water quality parameters were therefore not attainable.

3 Data Quality Assurance and Quality Control (QA/QC)

3.1 QA/QC Program

In accordance with Section 3.1.3.3 of Permit 5353, LCO has implemented a Quality Assurance and Quality Control (QA/QC) Plan in accordance with the *Environmental Data Quality Assurance Regulation* and guidance provided in the *British Columbia Field Sampling Manual for continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples* and the *British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air*. A summary of LCO's QA/QC program is provided below.

3.1.1 PERSONNEL TRAINING

LCO personnel are trained using Teck Standard Practices & Procedures (SP&P), hands-on training, and mentoring from more senior or experienced personnel. Training covers environmental monitoring (including sampling procedures, shipping methods, and equipment calibration procedures), data management, and reporting activities. Teck Coal Limited's operations employ a dedicated Training Department and utilize a Training History system for scheduling reviews of SP&Ps at set frequencies and tracking records of training.

3.1.2 EQUIPMENT CALIBRATION

Equipment used for measuring real time field parameters include a flow meter, turbidity meter and three multi-parameter meters that are used to measure pH, temperature, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity. All meters are calibrated with the methodology and frequency recommended in the manufacturers' manuals. All in-house calibrations are conducted using certified calibration solutions per manufacturers' recommendations. Records of calibration and any required remedial actions are recorded in the equipment logbook. The calibration requirements for these instruments were met for 2021 (Table 6).

Table 6. Equipment Calibration Summary.

Equipment	Model	Calibration Frequency	Last Calibration	Due Date
Field Parameter Meter	YSI Exo 3	Daily/Weekly	Nov 16, 2021	Prior to scheduled sampling event
Field Parameter Meter	Pro DSS	Daily/Weekly	Dec 29, 2021	Prior to scheduled sampling event
Field Parameter Meter	Pro DSS	Daily/Weekly	Dec 29, 2021	Prior to scheduled sampling event
Field Parameter Meter	YSI Pro Plus	Daily/ Weekly when in use	March 8, 2021*	Prior to scheduled sampling event
Hach Company, Flow Meter	Hach Model FH950.1	As required* (Completed by Manufacturer upon purchase in October 2020)	October 2020	As required*
KROHNE; Electromagnetic Flowmeter	Tidalflux X300F	As required by manufacturer	March 2021	As required
Turbidity Meter	YSI Photometer 9500	Prior to each use	November 18, 2021	Prior to scheduled sampling event

*There is no manufacturer specification on calibration frequency; item is calibrated as needed.

3.1.3 RECORD KEEPING

Data quality is maintained by storing all sampling data in a controlled database. The current data management application at LCO is EQuIS. User defined rules are applied to the uploading of data to ensure quality is maintained. Additionally, all data is compared to applicable limits or guidelines (e.g., *British Columbia Water Quality Guidelines*). If a value entered exceeds a limit or guideline, the user is advised in an report generated by the database. This enables users to determine if the value is entered incorrectly, if there is a possible laboratory error, or if values have truly exceeded the applicable standards.

3.1.4 SAMPLE ANALYSIS

In 2021, third-party analysis was conducted by:

- ALS Laboratory Group
  8081 Loughheed HWY
  Suite 100
  Burnaby, B.C. V5A 1W9

- ALS Laboratory Group
  2559 29 Street Northeast
  Calgary, AB T1Y 7B5

- ALS Laboratory Group
  9450 – 17 Avenue
  Edmonton, AB T6N 1M9

- ALS Laboratory Group
  2103 – Dollarton HWY
  Vancouver, B.C. V7H 0A7

- Nautilus Environmental Company Inc.
  8664 Commerce Court
  Burnaby, B.C. V5A 4N7

- Nautilus Environmental Company Inc.
  10823 27 Street SE
  Calgary, AB. T2Z 3V9

Analyses were carried out in accordance with procedures described in the most recent edition of the *British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air*, or by suitable alternative procedures as authorized by the Director.

3.1.5 LAB QA/QC DATA

ALS reports QA/QC results for sample submission through determination of a relative-percent difference (RPD) value (as defined in the *British Columbia Field Sampling Manual*). Results of lab QA/QC can be made available upon request.

3.1.6 FIELD DUPLICATES

Field Duplicate sample precision was evaluated using RPD, which is the difference between the duplicates as a function of their average (Appendix C). Four criteria were used to evaluate each set of duplicate samples:

- RPD of < 20% = Pass
- RPD of >20% with results < 5 times the detection limit = Pass-1
- RPD of > 20% and <50% with results > 5 times the detection limit = Pass-2
- RPD of >50% with results > 5 times the detection limit = Fail

Throughout 2021 there were a total of 105 sets of duplicate samples collected, resulting in 210 parameters being evaluated for RPD. Of the 210 parameters that were evaluated, 12 (5.71%) did not meet acceptable RPD assessment criteria, which makes 94.29% non-detects.

3.1.7 BLANK SAMPLES

Control blank sampling (field blanks and trip blanks) was conducted throughout the year in accordance with procedures established in *British Columbia Field Sampling Manual for Continuous Monitoring* as well as *The Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples*.

A total of 61 sets of trip blank samples were collected in 2021. A total of 121 parameters were analyzed with two hits (positive results above the analytical method detection limit); 98.35% were non-detects.

Throughout 2021, a total of 108 sets of field blank samples were collected. A total of 216 parameters were analyzed with two hits (positive results above the analytical method detection limit); 99.08% were non-detects. Refer to Appendix D.

3.2 QA/QC Issues

Teck monitors QA/QC results to identify any potential issues with laboratory precision or sample contamination. Due to the relative infrequency of RPD failures and blank sample detection, the dataset is considered to be of high quality and meets the intent of the surface water monitoring program. In accordance with the QA/QC Plan, concerns identified in the field and/or laboratories are tracked. Table 7 summarizes all QA/QC concerns for 2021 under Permit 5353. Data quality issues encountered in 2021 were the result of hold-time exceedances, RPD failures and blank sample detects.

Table 7. Summary of QA/QC Issues

Date	EMD ID	Location Code	Parameter	Reason
1/18/2021	E261958	LC_WLC	Turbidity, Lab	Blank Sample Detect
1/25/2021	0200377	LC_LC3	Turbidity, Lab	RPD Failure
3/7/2021	E295211	LC_SPDC	Turbidity, Lab	EHT
3/24/2021	E302411	LC_PIZP1105	Total Suspended Solids, Lab	RPD Failure
			Turbidity, Lab	
4/1/2021	E295214	RG_CH1	Turbidity, Lab	EHT
4/28/2021	E288272	LC_FRDSDC	Turbidity, Lab	RPD Failure
6/11/2021	E302411	Lc_PIZP1105	Turbidity, Lab	RPD Failure
6/15/2021	E288272	LC_FRDSDC	Total Suspended Solids, Lab	RPD Failure
			Turbidity, Lab	
9/8/2021	E288270	LC_DC1	Turbidity, Lab	RPD Failure
9/13/2021	E288275	LC_GRCK	Turbidity, Lab	RPD Failure
9/16/2021	E302411	LC_PIZP1105	Turbidity, Lab	RPD Failure
10/25/2021	0200044	LC_LC4	Turbidity, Lab	RPD Failure
11/2/2021	E297110	LC_LCDSSLCC	Total Suspended Solids, Lab	Blank Sample Detect
11/23/2021	E302410	LC_PIZP1101	Turbidity, Lab	RPD Failure

EHTR Exceeded ALS recommended hold-time prior to sample receipt.
EHTL Exceeded ALS recommended hold-time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT Exceeded recommended hold-time prior to analysis.
HTD Hold-time exceeded for re-analysis, but initial testing was conducted within hold-time.
RPD Relative Percent Difference

There were 16 QA/QC issues in 2021 for samples collected at LCO locations under Permit 5353: two were related to hold-time exceedances, 12 were related to RPD failures and two were blank sample detects. The two hold-time exceedances occurred as ALS was unable to complete analysis prior to the recommended hold-time, even though sample was received prior to the hold-time expiration.

As discussed in Section 2.5.3 of *Permit 107517 Surface Water Quality Monitoring 2021 Annual Report*, Teck continues to address the causes of hold-time exceedances by working with the laboratories to improve the timely reporting of issues such as equipment malfunctions, sample volumes, shipping delays, and laboratory resources. Timely reporting of these issues to Teck often provides field samplers enough time to resample to meet permit requirements

As detailed in Section 2.5.1 of *Permit 107517 Surface Water Quality Monitoring 2021 Annual Report*, in response to the higher number of results outside RPD acceptance criteria in 2021 relative to previous years, Teck contracted a qualified professional (Azimuth Consulting Group Inc.) to evaluate our field duplicate data and investigate whether the precision in surface water quality measurements in the Elk Valley has diminished over time. Field duplicates are the best starting point for analysis of precision because they integrate all possible sources of variability and error on both the field and the lab. The main conclusions from Azimuth's evaluation were:

- RPDs were typically <10% and were generally consistent among Teck Coal operations for any given constituent. For most cases, RPDs appear to be declining (improving) over time.
- The total number of sample-duplicate pairs collected has increased over time; therefore, we would expect the absolute number of RPD exceedances to increase over time. However, there is no

indication that the frequency at which RPDs exceed the screening criterion of 50%[1] has been increasing over time.

For RPD values outside the acceptance criteria for total suspended solids (TSS) and turbidity, a qualified professional (SRK) has indicated that TSS and turbidity are both prone to high variability because they are affected by suspended particles, which are dependent on turbulence and mixing at the time of sample collection. The variability of duplicates at concentrations near the analytical detection limit and measurements of suspended particles are not unexpected, unusual, or cast aspersions on the quality of the sample collection or the data. ALS has also attributed the variability in TSS and turbidity to sample heterogeneity, and due to the nature of these parameters they can vary significantly within the sample due to the presence of both fine and coarse particles.

[1] According to the BC ENV Field Sampling Manual (ENV 2013), field duplicate RPD values greater than 50% typically indicate a problem such as sample contamination or lack of sample representativeness.

4 Water Monitoring Program Description

4.1 Water Quality and Quantity Monitoring Requirements

In 2021, monitoring was conducted in accordance with the sampling sites, frequencies and parameters defined in Permit 5353 (July 22, 2021 version), and is summarized below (Table 8). A complete list of required parameters can be found in Table 5 of Appendix 2A in Permit 5353.

Additional sampling was conducted in 2021 in accordance with LCO's Horseshoe Pit Dewatering Plan (February 2021) and MSX Pit Pumping Plan; both are presented in Table 9. A complete list of required parameters can be found in Section 2.3.3 of the Horseshoe Pit Dewatering Plan and Section 3.1 of the MSX Pit Pumping Plan.

Table 8. Permit 5353 Monitoring Requirements

EMS ID	Site ID	Permitted location since	Parameters								
			Permit Limit	Permit Limit	Permit Limit	Permit Limit	Field Parameters*	Conventional Parameters*	Major Ions*	Nutrients*	Metals Scan*
			Flow	EPH	TSS & Turbidity	BOD					
E102494	LC_LC11	1981	Q	-	Q	Q	-	-	-	-	-
E288269	LC_SBPIN	2012	M	M	-	-	M	M	M	M	M
E216144	LC_LC7	1991	W/M	Q	-	-	-	-	-	-	-
E219411	LC_LC8	1994	W/M	-	-	-	-	-	-	-	-
E221268	LC_LC9	1994	W/M	Q	-	-	-	-	-	-	-
E302410	LC_PIZP1101	2015	-	Q	-	-	Q	Q	Q	-	Q
E302411	LC_PIZP1105	2015	-	Q	-	-	Q	Q	Q	-	Q
E292521	LC_SPDC	2021	C	-	BP-W/M	-	-	-	-	-	-
E295231	LC_SPFR	2021	C	-	W/M	-	-	-	-	-	-
E293113	LC_DSSW	2021	D*/W	-	D*/W	-	-	-	-	-	-
E295314	LC_SP1SW	2021	D*/W	-	D*/W	-	-	-	-	-	-
E295315	LC_SP2SW	2021	D*/W	-	D*/W	-	-	-	-	-	-
E295316	LC_SP3SW	2021	D*/W	-	D*/W	-	-	-	-	-	-
0200028	LC_LC5	1981	-	-	W/M	-	-	-	-	-	-
0200044	LC_LC4	1981	-	-	W/M	-	-	-	-	-	-
0200337	LC_LC3	1981	-	-	W/M	-	-	-	-	-	-
0200335	LC_LC2	1981	-	Q	W/M	-	-	-	-	-	-
E293369	LC_LCUSWLC	2014	-	-	M	-	-	-	-	-	-
E216142	LC_LC1	1991	-	-	W/M	-	-	-	-	-	-
E282149	SLC	2012	-	-	M	-	-	-	-	-	-

EMS ID	Site ID	Permitted location since	Parameters								
			Permit Limit	Permit Limit	Permit Limit	Permit Limit	Field Parameters*	Conventional Parameters*	Major Ions*	Nutrients*	Metals Scan*
			Flow	EPH	TSS & Turbidity	BOD					
E297110	LC_LCDSSLCC	2014	-	-	M	-	-	-	-	-	-
E261958	LC_WLC	2012	-	Q	M	-	-	-	-	-	-
E223240	LC_LC12	1996	-	-	W/M	-	-	-	-	-	-
E288274	LC_DCEF	2021	Gauged Flows (hourly)	-	-	-	-	-	-	-	-
E288273	LC_DC3	2021	C	-	-	-	-	-	-	-	-
E295210	LC_DCDS	2021	BP-W/M	-	-	-	-	-	-	-	-
E288270	LC_DC1	2021	C	-	-	-	-	-	-	-	-
E295213	LC_UC	2021	M	-	-	-	-	-	-	-	-
E288275	LC_GRCK	2021	M	-	-	-	-	-	-	-	-
E295232	LC_FRUS	2021	-	-	-	-	-	-	-	-	-
E288272	LC_FRDSDC	2021	-	-	-	-	-	-	-	-	-
E295214	RG_CH1	2021	M	-	-	-	-	-	-	-	-

**A complete list of parameters can be found in Appendix 2A of Permit 5353*
M – Monthly Frequency
Q – Quarterly frequency
W – Weekly frequency
W/M – Weekly frequency for March 15 – July 15, monthly during the rest of the year
C – Continuous
BP-W/M -- Weekly frequency March 15 to at least August 31 during bypass of DCWMS, monthly during the rest of depending on unexpected monitoring results that indicate potential ortho-P uptake or the generation of organic selenium species
D/W One sample within the first 24 hours when actively discharging at spillway, then weekly*

Table 9. HSP Dewatering Plan and MSX Pit Pumping Plan Monitoring Requirements

EMS ID	Site ID	Parameters								
		Flow	Turbidity	Field Parameters*	Conventional Parameters*	Major Ions*	Nutrients*	Metals Scan*	Acute Toxicity*	Selenium Speciation*
E308146	LC_HSP*	W (Total volume)	W	W	W	W	W	W	M	M
n/a	LC_MSXS	W	W	W	W	W	W	W	-	W
E3081479	LC_MSAWCULV**	M	M	M	M	M	M	M	Q	M
E293369	LC_LCUSWLC	-	M	M	M	M	M	M	Q***	-

**A complete list of parameters can be found in Section 3.2 of the HSP Dewatering Plan and Section 3.1 of the LCO MSX Pit Pumping Plan. **Monitoring required only during period when MSX pit pumping is occurring ***Monitoring only required if sample from MSAW cannot be obtained.*
M – Monthly Frequency, Q – Quarterly frequency, W – Weekly frequency

4.2 Sampling Methodology

All samples are conducted in accordance with procedures in *British Columbia Field Sampling Manual – For Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment and Biological Samples* (2013) published by the Water, Air and Climate Change Branch, Ministry of Water, Land and Air Protection, Province of British Columbia. A summary of sample analysis details is provided in Table 10.

Table 10. Sample Analysis Summary

Parameter	Fraction	Unit	Analytic Method	Detect Limit
48-h Static acute lethality test using Daphnia ma	N	%	EPS1RM14	
96-Hr 100% Conc. Acute lethality test for R. Trout	N	%	EPS1RM13	
ALKALINITY, TOTAL (As CaCO3)	N	mg/l	SM2320B	1.0
ALUMINUM	D	mg/l	SW6020A	0.003
ALUMINUM	T	mg/l	EPA 200.2/6020A	0.003
ANTIMONY	D	mg/l	SW6020A	0.0001
ANTIMONY	T	mg/l	EPA 200.2/6020A	0.0001
ARSENIC	D	mg/l	SW6020A	0.0001
ARSENIC	T	mg/l	EPA 200.2/6020A	0.0001
BARIUM	D	mg/l	SW6020A	0.0001
BARIUM	T	mg/l	EPA 200.2/6020A	0.0001

Parameter	Fraction	Unit	Analytic Method	Detect Limit
BERYLLIUM	D	mg/l	SW6020A	0.00002
BERYLLIUM	T	mg/l	EPA 200.2/6020A	0.00002
BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	N	mg/l	SM5210B	2.0
BISMUTH	D	mg/l	SW6020A	0.00005
BISMUTH	T	mg/l	EPA 200.2/6020A	0.00005
BORON	D	mg/l	SW6020A	0.010
BORON	T	mg/l	EPA 200.2/6020A	0.010
BROMIDE	D	mg/l	EPA300.1 (mod)	0.050
CADMIUM	D	mg/l	SW6020A	0.000005
CADMIUM	T	mg/l	EPA 200.2/6020A	0.000005
CALCIUM	T	mg/l	EPA 200.2/6020A	0.050
CARBON, DISSOLVED ORGANIC	D	mg/l	APHA 5310B	0.50
CHLORIDE	D	mg/l	EPA300.1 (mod)	0.5
Chlorophyll-a	N	mg/L	EPA 445.0	0.01
CHROMIUM	D	mg/l	SW6020A	0.0001
CHROMIUM	T	mg/l	EPA 200.2/6020A	0.0001
COBALT	D	mg/l	SW6020A	0.0001
COBALT	T	mg/l	EPA 200.2/6020A	0.0001
CONDUCTIVITY, FIELD	N	us/cm	FIELD MEASURE	
CONDUCTIVITY, LAB	N	us/cm	APHA 2510	2.0
COPPER	D	mg/l	SW6020A	0.0005
COPPER	T	mg/l	EPA 200.2/6020A	0.0005
DISSOLVED OXYGEN, FIELD	N	mg/l	FIELD MEASURE	
Extractable Petroleum Hydrocarbons C10-C19	N	mg/l	EPH by GCFID	0.25
Extractable Petroleum Hydrocarbons C19-C32	N	mg/l	EPH by GCFID	0.25
FLUORIDE	D	mg/l	EPA300.1 (mod)	0.02
Hardness, Total or Dissolved CaCO3	N	mg/l	SM2340B	0.5
IRON	D	mg/l	SW6020A	0.01
IRON	T	mg/l	EPA 200.2/6020A	0.01
LEAD	D	mg/l	SW6020A	0.00005
LEAD	T	mg/l	EPA 200.2/6020A	0.00005
LITHIUM	D	mg/l	SW6020A	0.001
LITHIUM	T	mg/l	EPA 200.2/6020A	0.001
MAGNESIUM	T	mg/l	EPA 200.2/6020A	0.1
MANGANESE	D	mg/l	SW6020A	0.0001
MANGANESE	T	mg/l	EPA 200.2/6020A	0.0001
MERCURY	D	mg/l	EPA 1631E	0.000005
MERCURY	D	ug/l	A3030B/EPA1631 REV-E	0.0005
MERCURY	T	mg/l	EPA 1631E	0.000005
MERCURY	T	ug/l	EPA 1631 REV-E	0.0005
MOLYBDENUM	D	mg/l	SW6020A	0.00005
MOLYBDENUM	T	mg/l	EPA 200.2/6020A	0.00005
NICKEL	D	mg/l	SW6020A	0.0005

Parameter	Fraction	Unit	Analytic Method	Detect Limit
NICKEL	T	mg/l	EPA 200.2/6020A	0.0005
NITRATE NITROGEN (NO3), AS N	N	mg/l	EPA300.1 (mod)	0.005
NITRITE NITROGEN (NO2), AS N	N	mg/l	EPA300.1 (mod)	0.001
NITROGEN, AMMONIA (AS N)	N	mg/l	JENVMON	0.005
ORTHO-PHOSPHATE	N	mg/l	A4500P	0.001
pH, Field	N	pH units	FIELD MEASURE	
pH, LAB	N	pH units	APHA 4500-H	0.1
PHOSPHORUS	N	mg/l	A4500P	0.002
POTASSIUM	T	mg/l	EPA 200.2/6020A	0.05
SELENIUM	D	ug/l	E1638M	0.053
SELENIUM	D	ug/l	SW6020A	0.05
SELENIUM	T	ug/l	E1638M	0.053
SELENIUM	T	ug/l	EPA 200.2/6020A	0.05
SILVER	D	mg/l	SW6020A	0.00001
SILVER	T	mg/l	EPA 200.2/6020A	0.00001
SODIUM	T	mg/l	EPA 200.2/6020A	0.05
STRONTIUM	D	mg/l	SW6020A	0.0002
STRONTIUM	T	mg/l	EPA 200.2/6020A	0.0002
SULFATE (AS SO4)	D	mg/l	EPA300.1 (mod)	0.3
SULFIDE	T	mg/l	A4500SE	0.0015
SULFIDE	T	mg/L	SM4500S2D	0.002
TEMPERATURE, FIELD	N	°C	FIELD MEASURE	
THALLIUM	D	mg/l	SW6020A	0.00001
THALLIUM	T	mg/l	EPA 200.2/6020A	0.00001
The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32.	N	mg/l	EPH_CALC	0.5
TIN	D	mg/l	SW6020A	0.0001
TIN	T	mg/l	EPA 200.2/6020A	0.0001
TITANIUM	D	mg/l	SW6020A	0.01
TITANIUM	T	mg/l	EPA 200.2/6020A	0.01
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	N	mg/l	SM2540C	20
TOTAL KJELDAHL NITROGEN	N	mg/l	APHA 4500-NORG	0.05
TOTAL KJELDAHL NITROGEN	N	mg/l	FIELD MEASURE	0.05
TOTAL ORGANIC CARBON	T	mg/l	APHA 5310B	0.50
TOTAL SUSPENDED SOLIDS, LAB	N	mg/l	SM2540D	1.0
TURBIDITY, LAB	N	NTU	E180.1	0.1
URANIUM	D	mg/l	SW6020A	0.00001
URANIUM	T	mg/l	EPA 200.2/6020A	0.00001
VANADIUM	D	mg/l	SW6020A	0.0005
VANADIUM	T	mg/l	EPA 200.2/6020A	0.0005
ZINC	D	mg/l	SW6020A	0.001
ZINC	T	mg/l	EPA 200.2/6020A	0.003

T – Total, D – Dissolved, N – No fraction/not applicable

5 Monitoring Results

5.1 Water Quality Results

5.1.1 INTRODUCTION

Parameters monitored (as per Table 8) are compared to applicable permit limits (Table 3). Exceedances of permit water quality limits are trended for further assessment. All 2021 water quality data required under permit 5353 can be found in Appendix E.

5.1.2 PERMIT LIMITS

5.1.2.1 Authorized Discharges

5.1.2.1.1 Mine Service Area (MSA) Sewage Effluent to Ground (E102494/LC_LC11)

TSS remained in compliance on all sample occasions for 2021 (Figure 2). Biochemical oxygen demand (BOD) exceeded the permit limit of 130 mg/L on nine sample occasions between Q2 and Q4 2021, with results ranging from 136 to 190 mg/L (Figure 2). Further information on the BOD exceedances and corresponding corrective actions is outlined in Table 4.

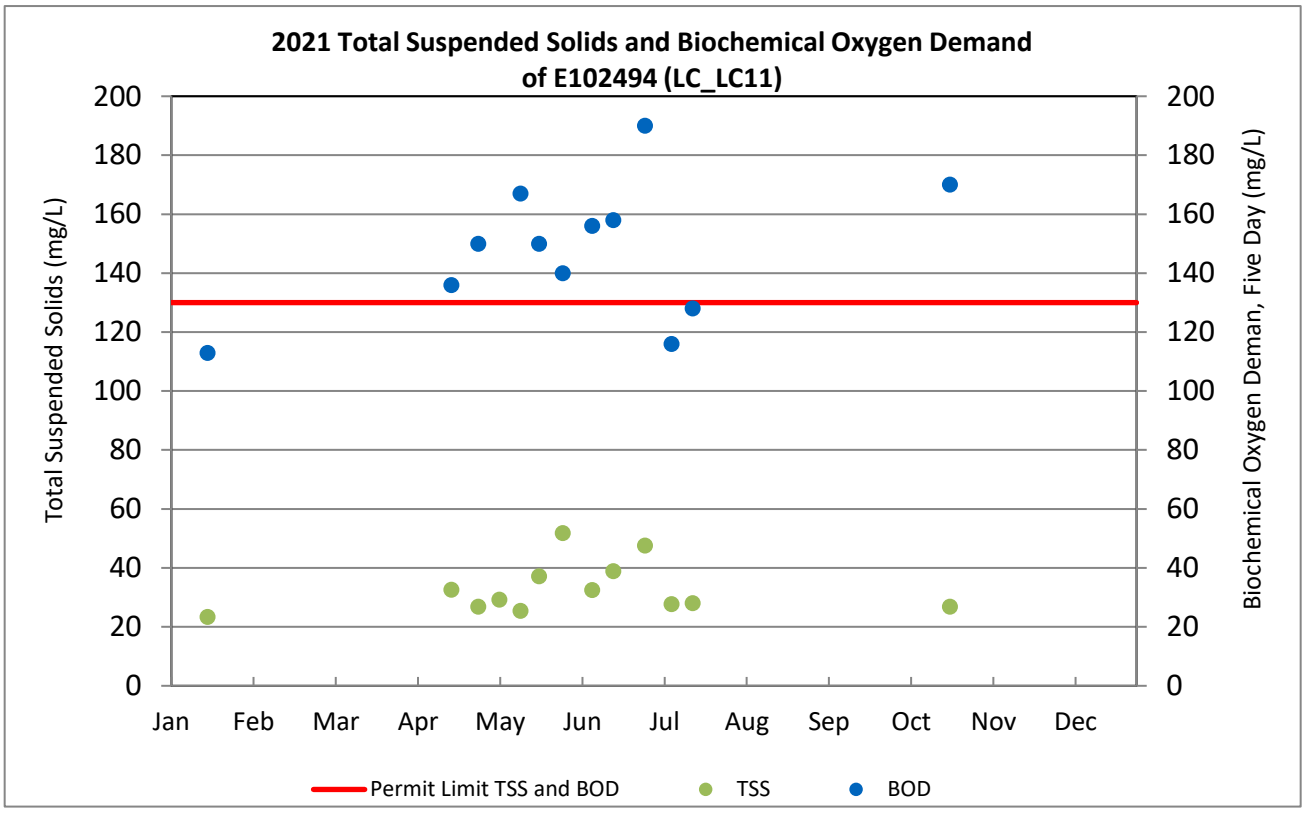

Figure 2. 2021 TSS & BOD at the MSA Sewage Effluent (E102494/LC_LC11)

5.1.2.1.2 Heavy Duty Wash Bay Effluent Discharge to Steam Bay Ponds to Ground (E288269/LC_SBPIN)

Discharge to the Steam Bay Ponds from the Heavy Duty Wash Bay occurred throughout 2021. Sample results presented in Figure 3 represent all samples below the EPH permit limit for effluent discharged to the receiving environment.

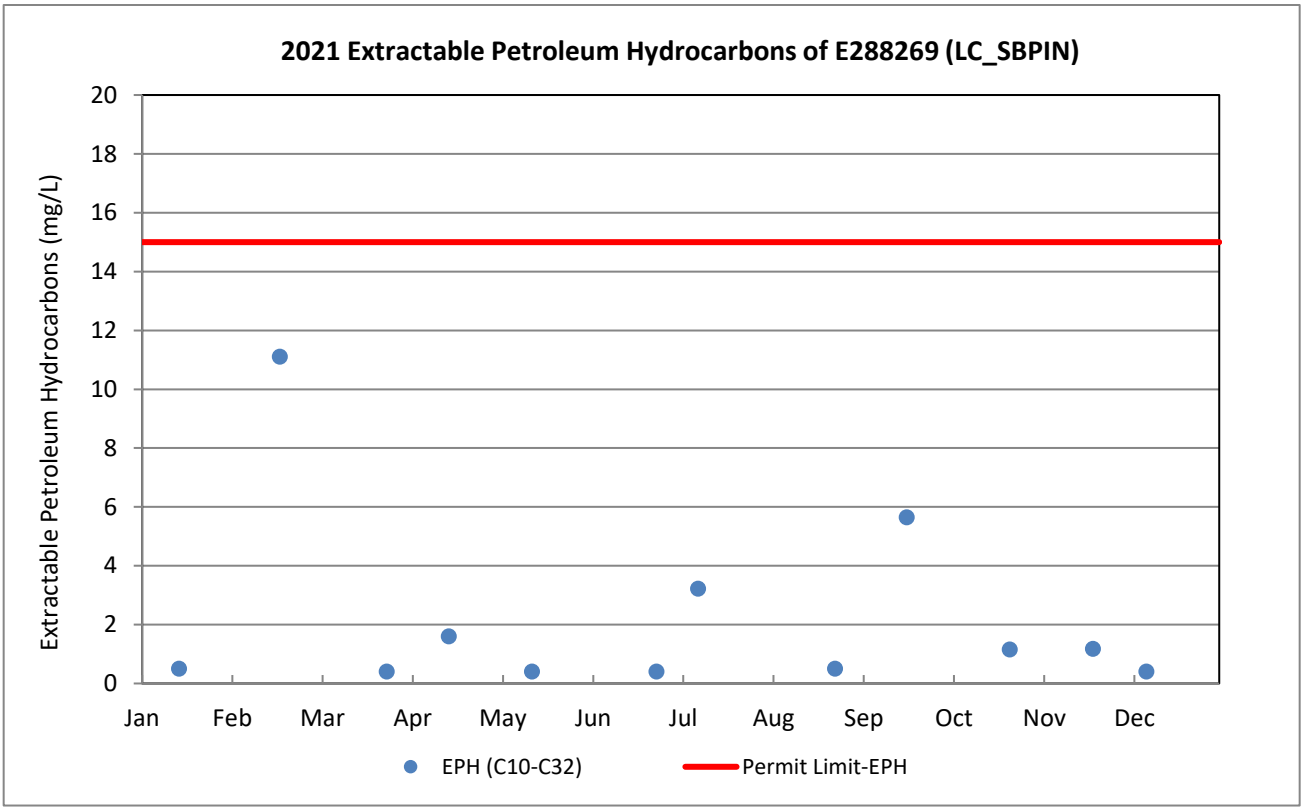

Figure 3. 2021 EPH at the Wash Bay Effluent (E288269/LC_SBPIN)

5.1.2.1.3 Miscellaneous Oil water separators (LC_LVWB)

Samples are collected quarterly from the Light Vehicle Wash Bay (LVWB), which discharges to ground via the Steam Bay Ponds. In Q1 2021, a sample result (86.6 mg/L) from the LVWB was observed to exceed the EPH limits of 15 mg/L. Upon investigation, it was determined that the sample was collected directly from the wash bay sump, prior to the OWS. Therefore, this sample was not representative of discharge from the OWS. The sample collection process at this location was revised, and a sample was collected in Q2 from the discharge location and showed results to be within the EPH permit limit (15 mg/L). 2021 results can be found in Figure 3. These results and interpretation were shared with ENV via email in June 2021.

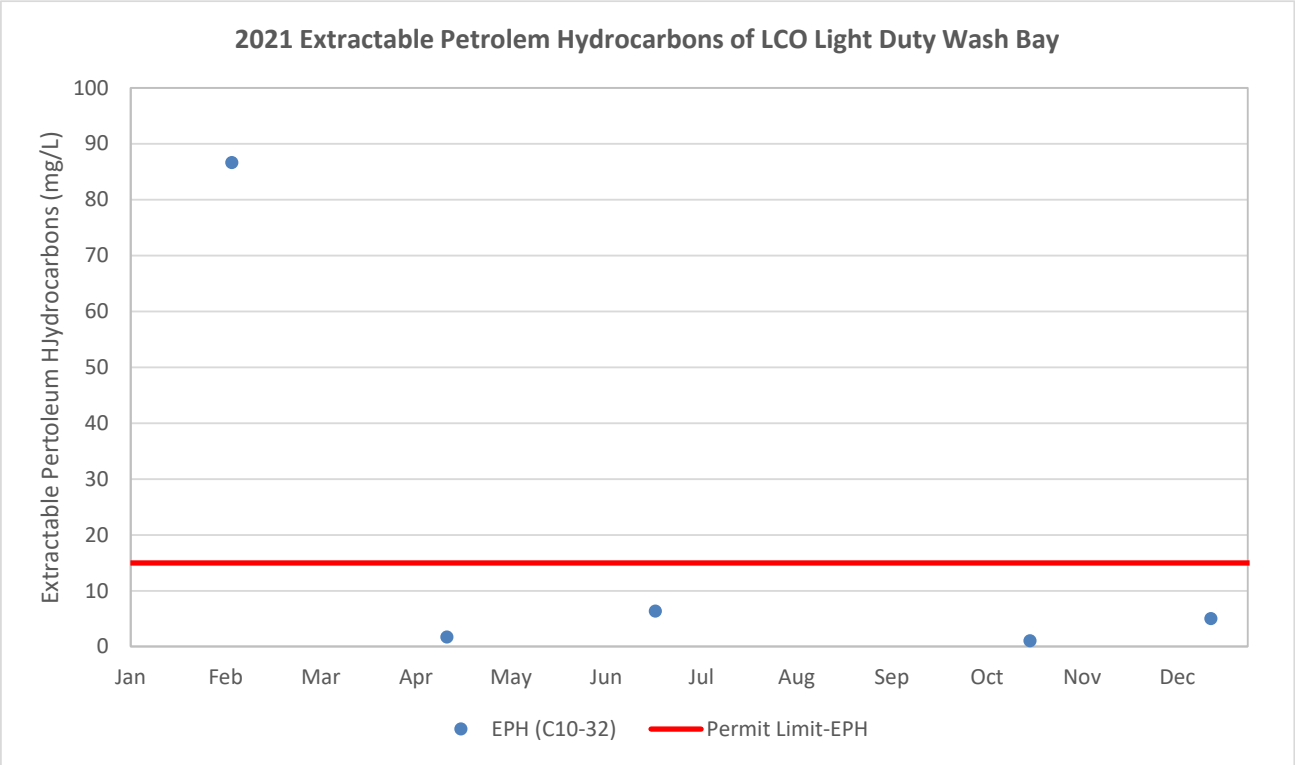

Figure 4. 2021 EPH at the Light Vehicle Wash Bay Effluent

5.1.2.1.4 MSA North Ponds Effluent to Line Creek (E216144/LC_LC7)

The MSA North Ponds were in compliance for the TSS permit limit (50 mg/L) for all of 2021 (Figure 4). EPH was also monitored as required within the permit (i.e., quarterly); there is no associated permit limit at this monitoring location for EPH

In 2016, sediment removal was conducted at the MSA North Ponds to re-establish retention time and increase pond capacity in-order to improve sediment removal. Additionally, sediment curtains are in place in two of the pond system cells to further enhance sediment removal.

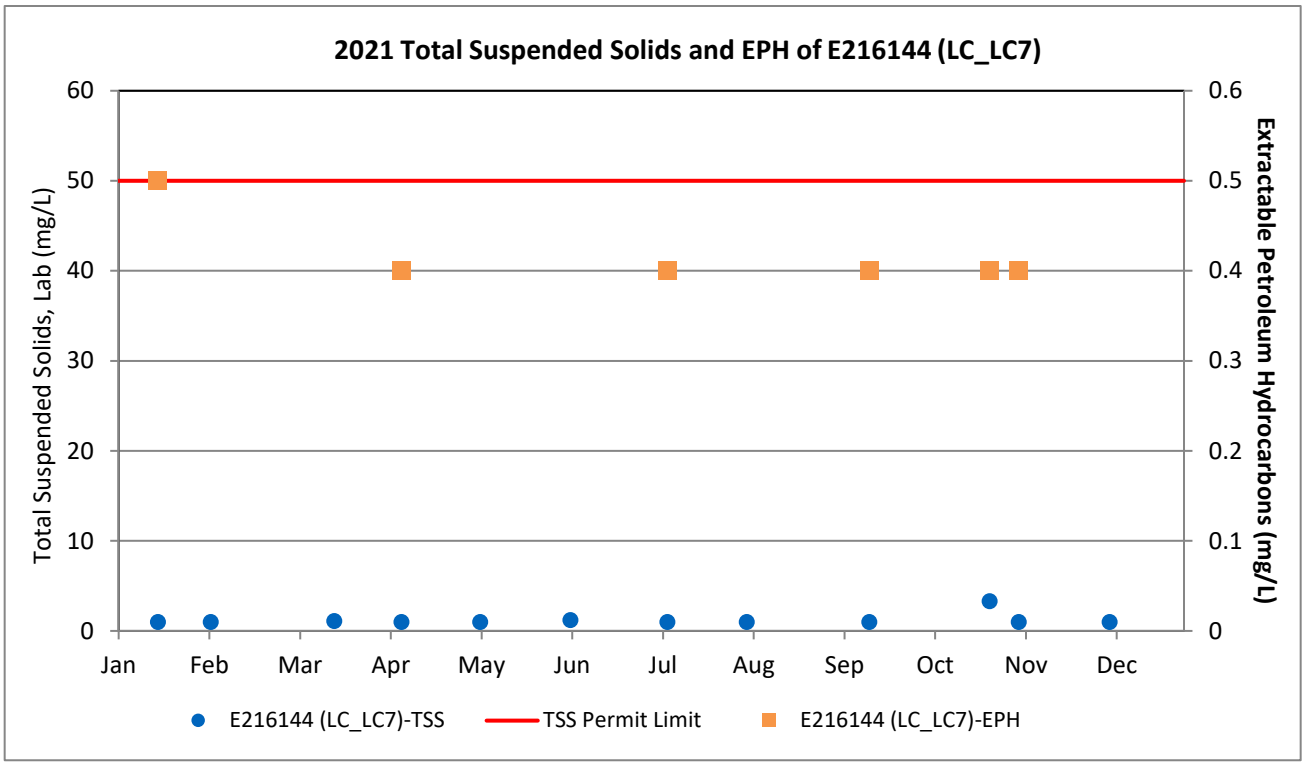

Figure 5. 2021 Total Suspended Solids at the MSA North Ponds Effluent (E216144/LC_LC7)

5.1.2.1.5 Contingency Treatment System Effluent to Line Creek (E219411/LC_LC8)

The Contingency Treatment System was not utilized in 2021 for treating water quality (i.e., TSS) in Line Creek as Line Creek did not exhibit TSS above 50 mg/L in 2021. The pond system did not discharge, and therefore no water quality data is available to be compared to applicable permit limits or trended.

5.1.2.1.6 No Name Creek Pond Effluent to Line Creek (E221268/LC_LC9)

In Q1 2019, sediment removal was completed for the No Name Creek Ponds to re-establish retention time and increase pond capacity to improve sediment removal. The No Name Creek Pond did not discharge in 2021 and therefore no water quality data is available to be compared to applicable permit limits or trended.

5.1.2.1.7 Rail Loop Ponds Effluent to Ground (E302410/LC_PIZP1101 and E302411/LC_PIZP1105)

The Rail Loop Ponds effluent to ground (E302410/LC_PIZP1101 and E302411/LC_PIZP1105) were sampled in all quarters of 2021 (**Error! Reference source not found.**). All parameters, with the exception of extractable petroleum hydrocarbons (EPH), are discussed in the groundwater monitoring report submitted under separate cover (titled "*2021 Annual Report: Elk Valley Regional and Site Specific Groundwater Monitoring Programs*"). EPH at the Rail Loop Ponds effluent to ground for 2021 is illustrated below (**Error! Reference source not found.**), and were all found to be below the detection levels of EPH. Higher detection levels were found in Q1, 2021 due to sample dilution requirements for lab analysis.

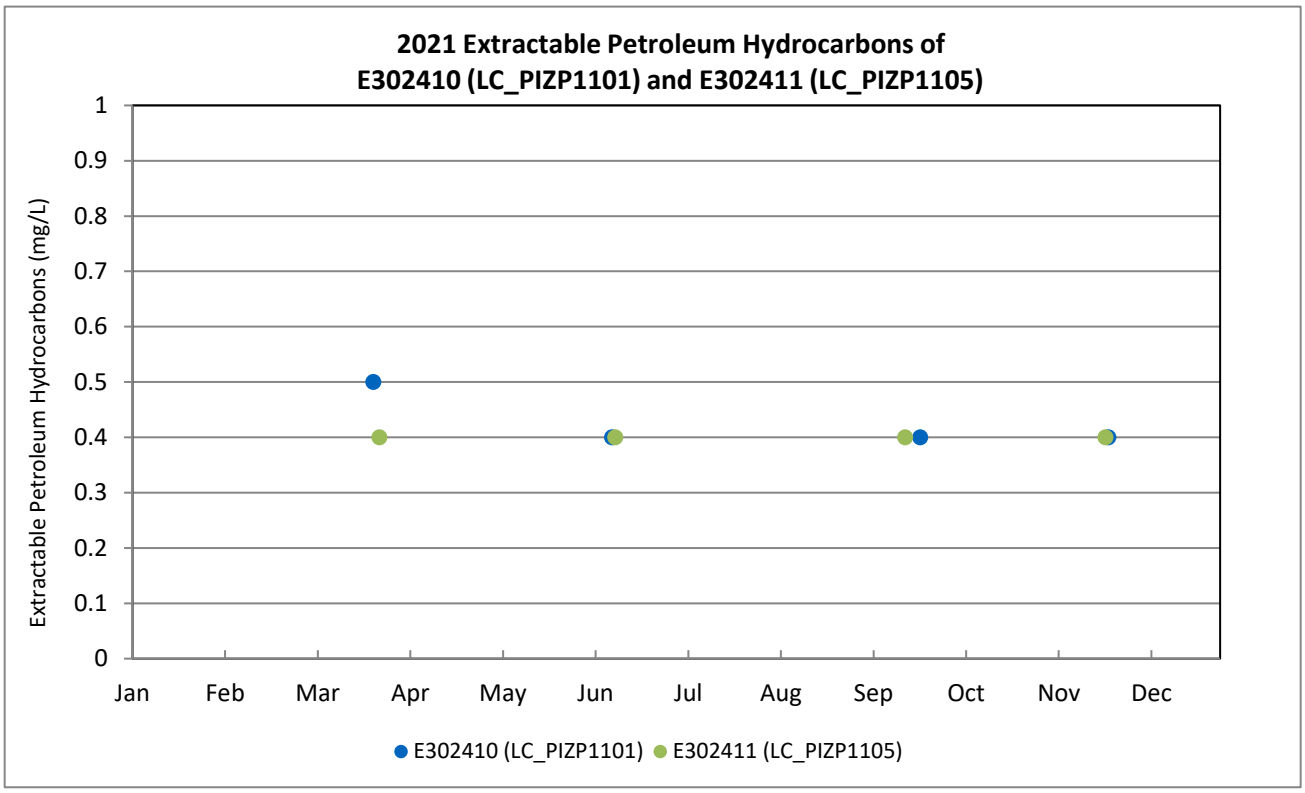

Figure 6. 2021 EPH from Rail Loop Ponds Effluent to Ground (302410/LC_PIZP1101 and E302411/LC_PIZP1105)

5.1.2.1.8 Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

Discharge of stored pit water from Horseshoe Pit (E308146/LC_HSP) occurred from March 16 to December 19, 2021. Discharge from Horseshoe Pit was sampled in accordance with LCO's 2021 Horseshoe Pit Dewatering Plan (submitted on June 9, 2020 and updated March 11, 2021). Acute toxicity tests for *Daphnia magna* and Rainbow trout taken from the discharge from Horseshoe Pit all remained at 0% mortality except for one result where there was a 10% Rainbow trout mortality (Figure 7).

TSS at the discharge from Horseshoe Pit remained below the limit of 50 mg/L for 2021 (Figure 8). In addition to the permit limit for TSS specified in Section 1.8 of Permit 5353 (July 22, 2021), the 2021 Horseshoe Pit Dewatering Plan identified the following parameters as constituents of potential concern: phosphorus, ammonia, nitrite, cobalt (total), nickel (total), mercury (total), copper (dissolved), dissolved oxygen, and selenium species. Results from samples collected of water discharged from Horseshoe Pit during the 2021 dewatering program are provided in Figure 8 to Figure 22. A discussion on the water quality monitoring results from Horseshoe Pit Dewatering is provided in Section 6.3.2.

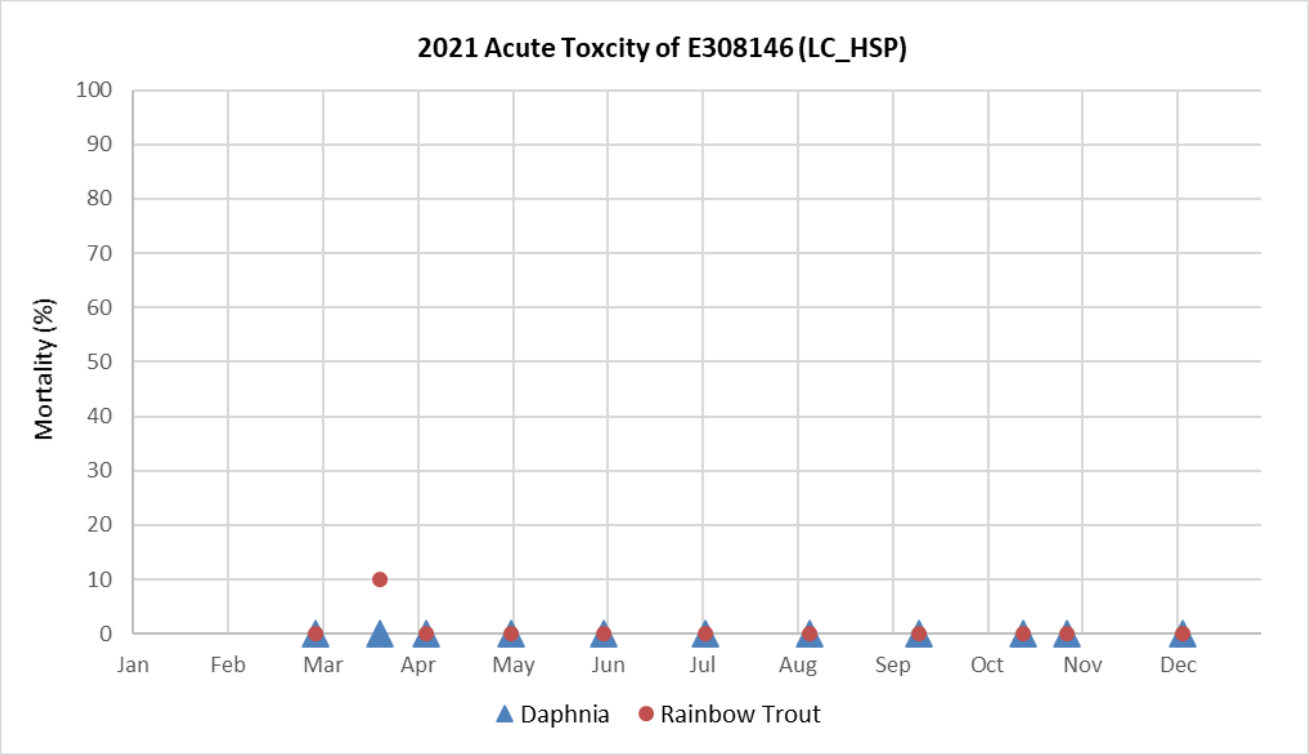

Figure 7. 2021 Acute Toxicity from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

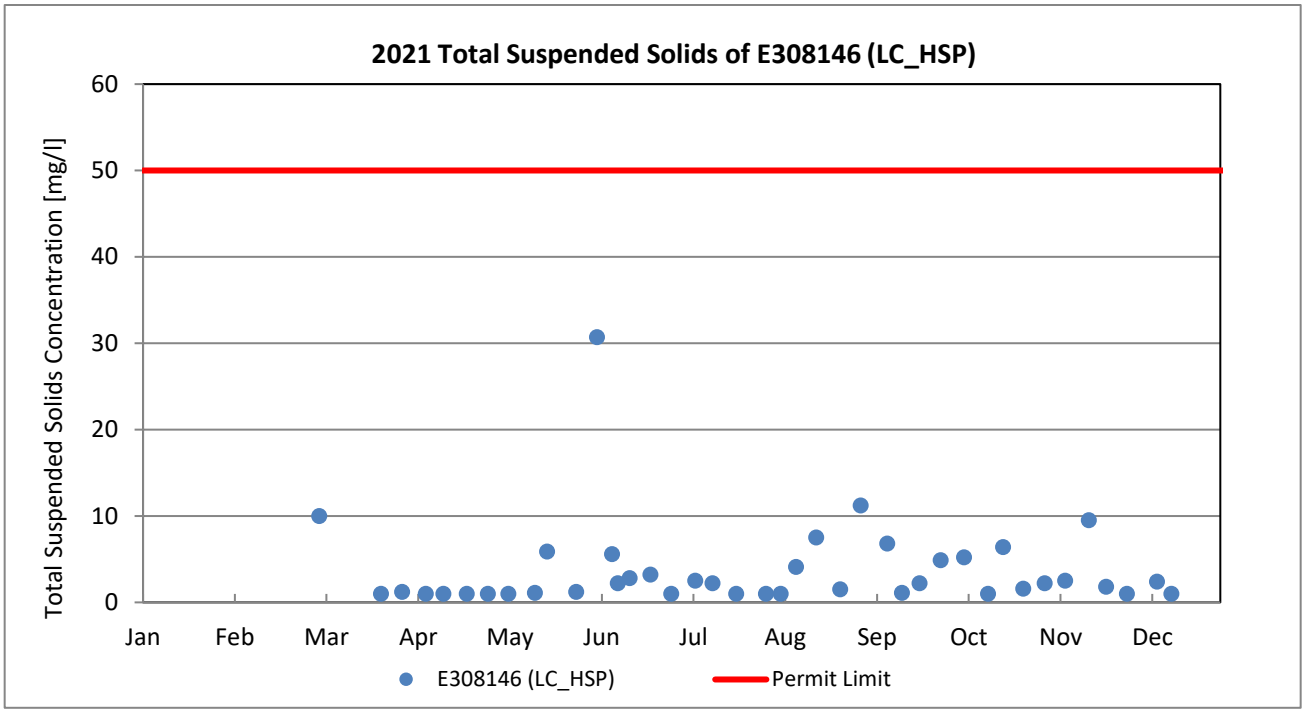

Figure 8. 2021 Total Suspended Solids (Lab) from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

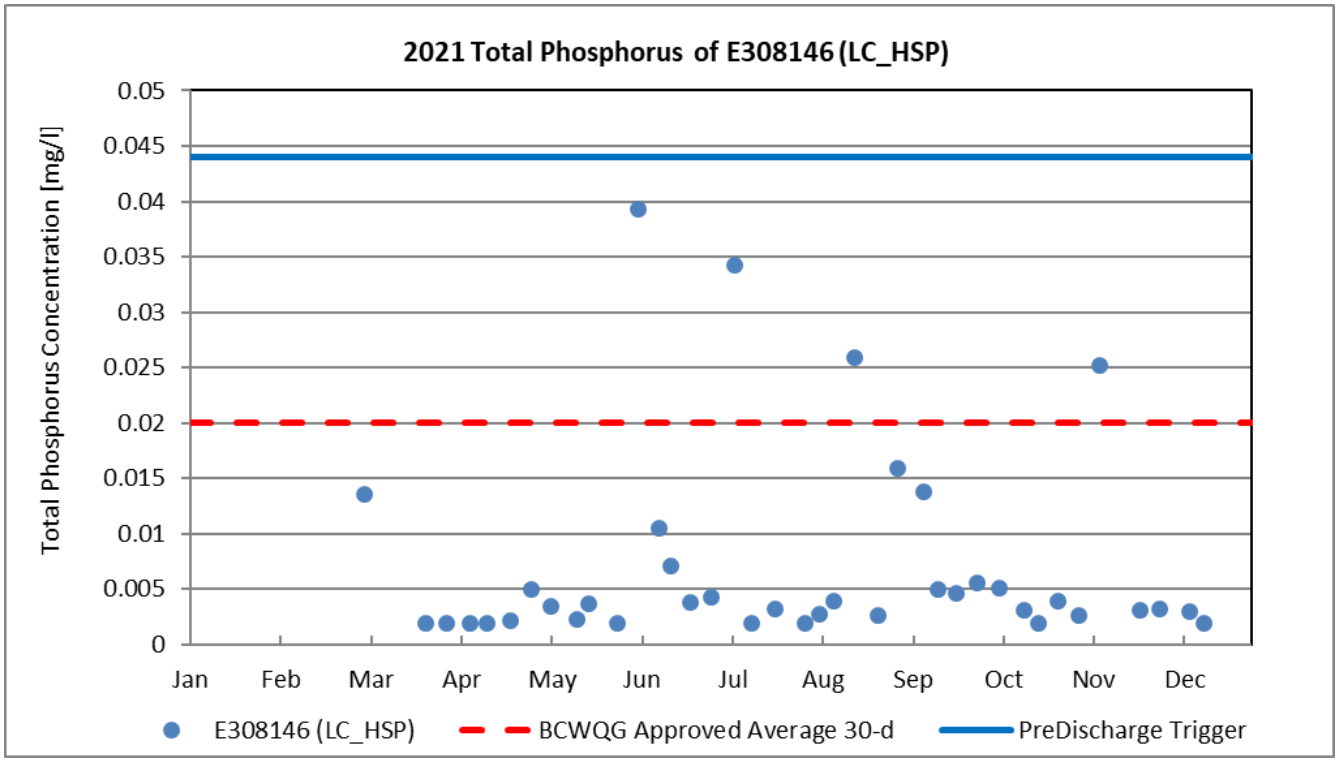

Figure 9. 2021 Total Phosphorus from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

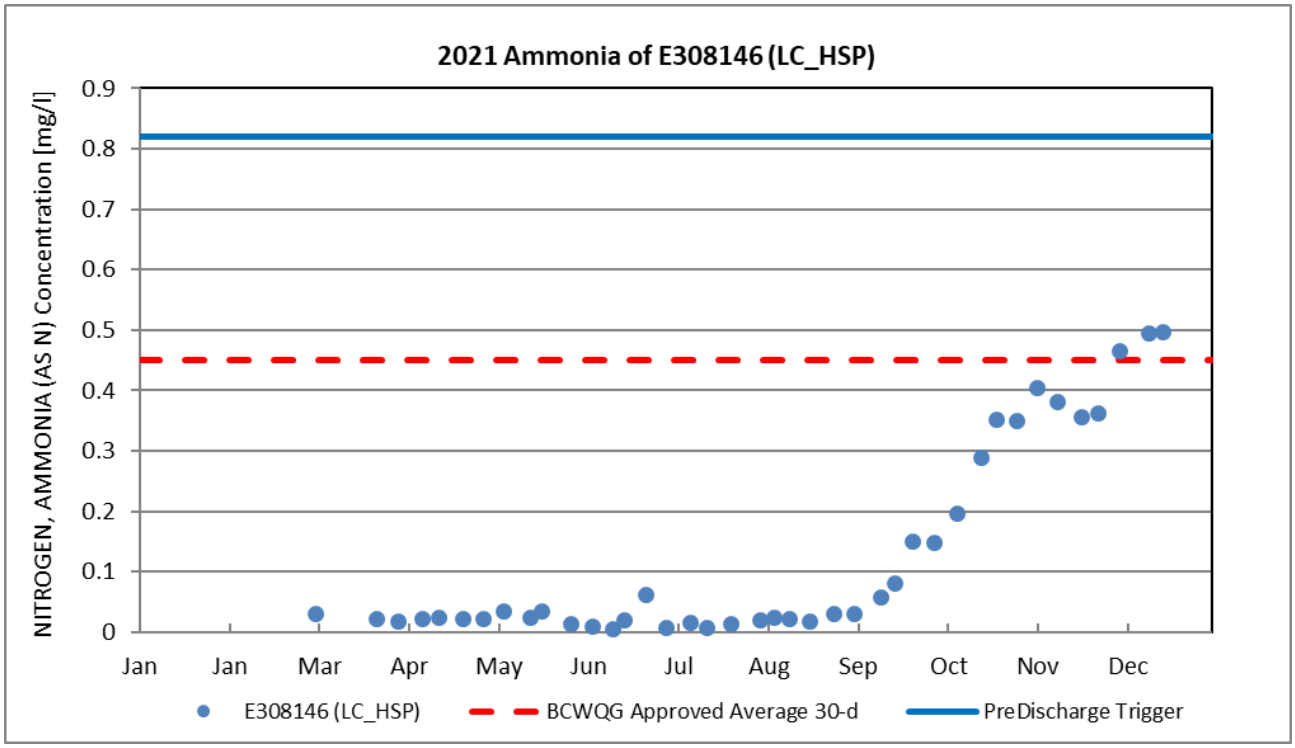

Figure 10. 2021 Ammonia from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

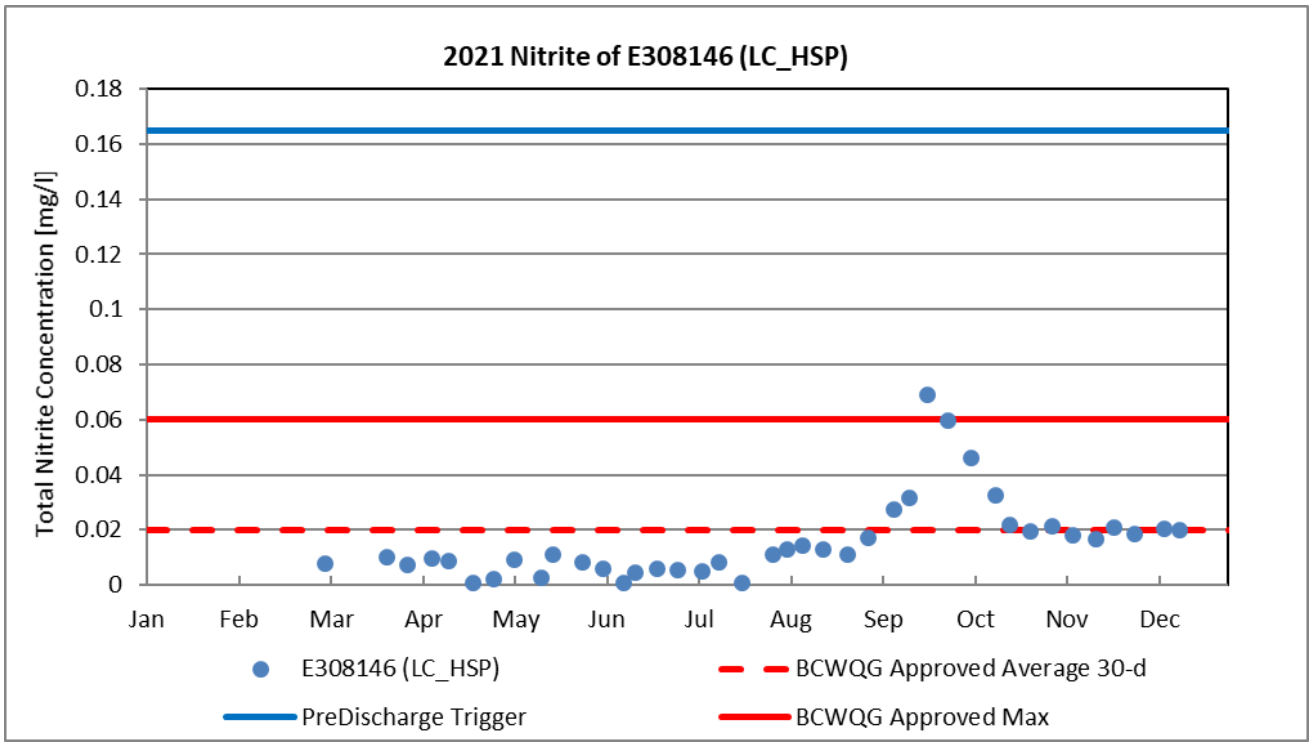

Figure 11. 2021 Nitrite from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

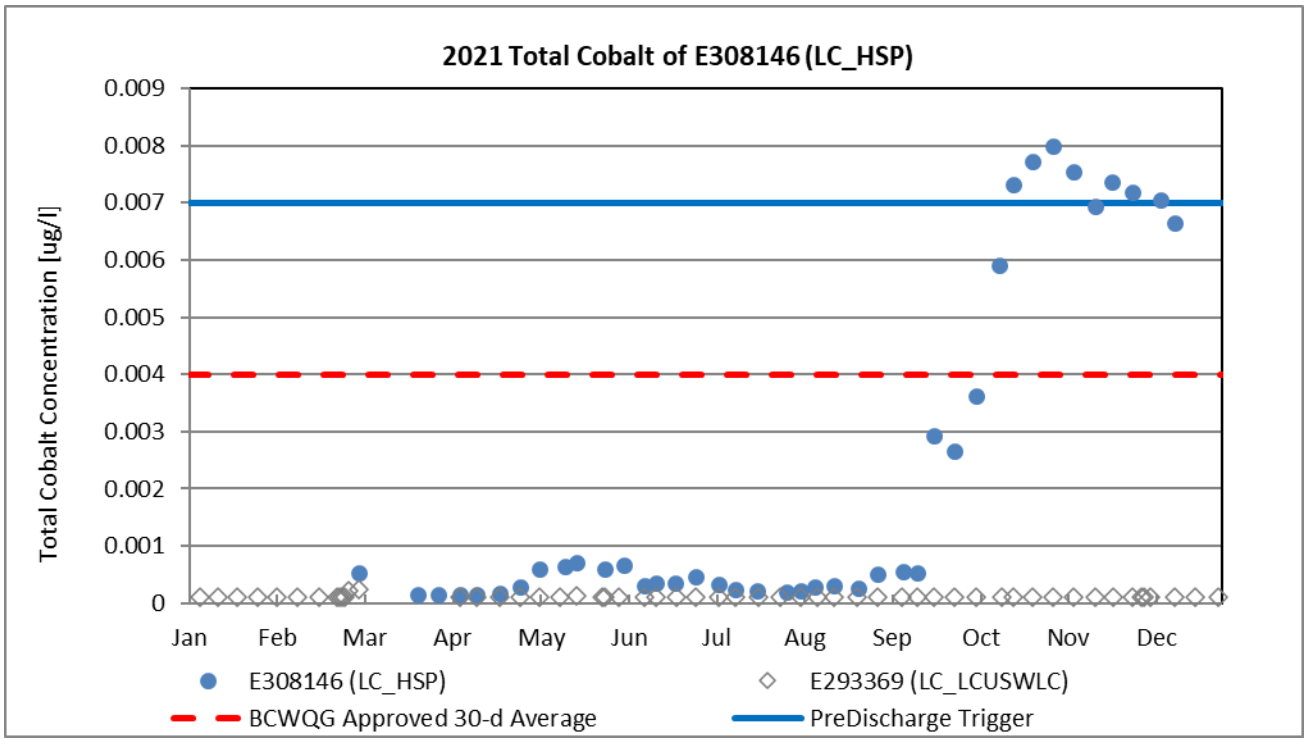

Figure 12. 2021 Total Cobalt from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

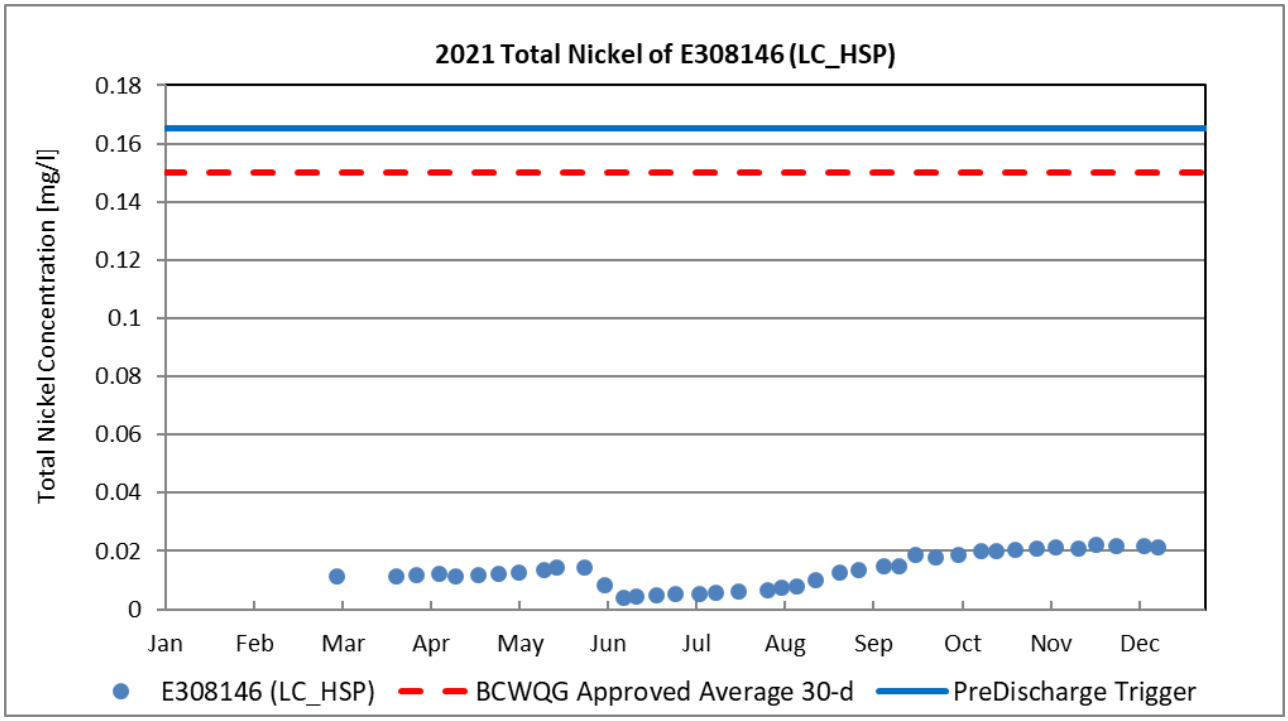

Figure 13. 2021 Total Nickel from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

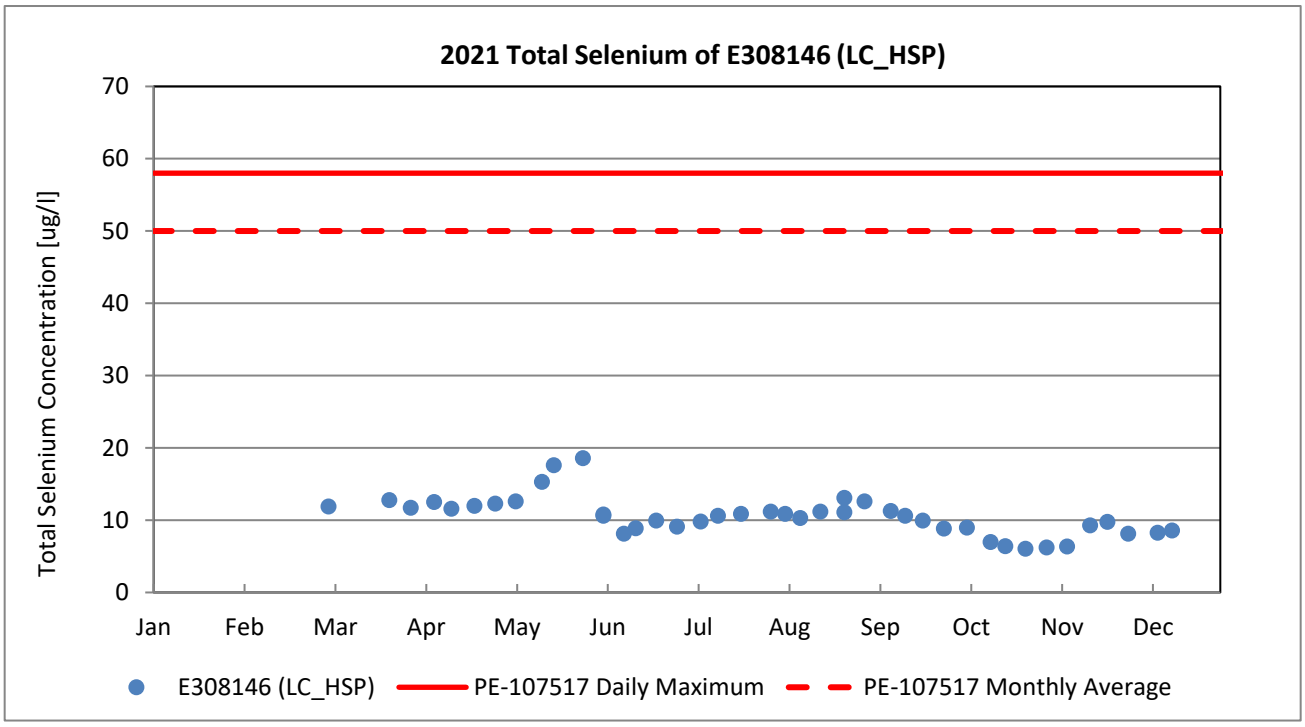

Figure 14. 2021 Total Selenium from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

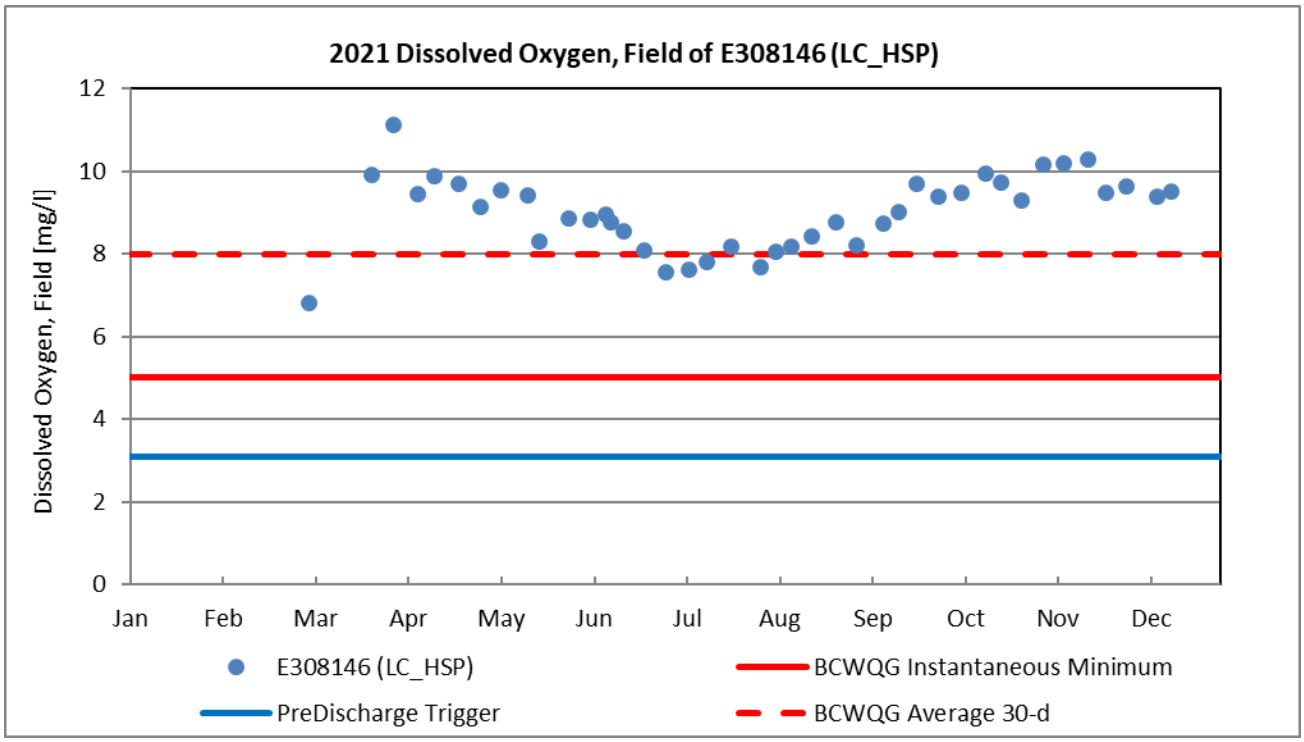

Figure 15. 2021 Dissolved Oxygen (Field) from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

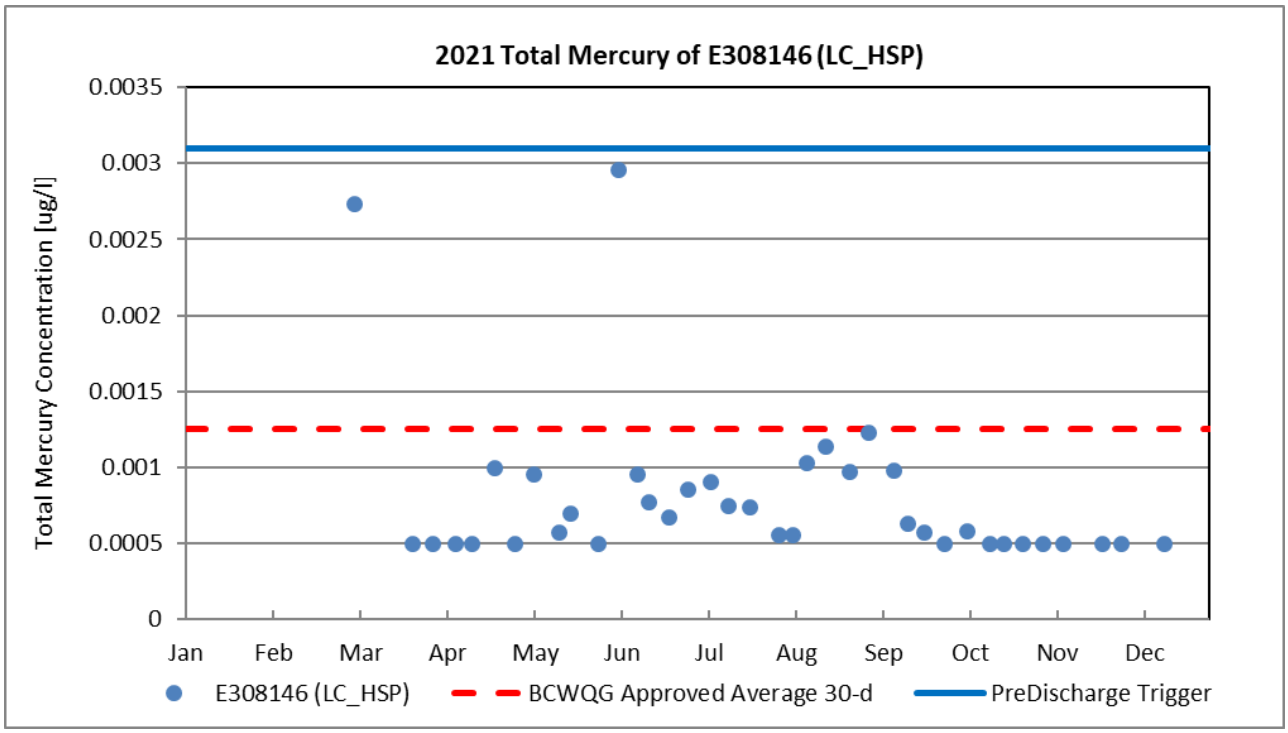

Figure 16. 2021 Mercury (Total) from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

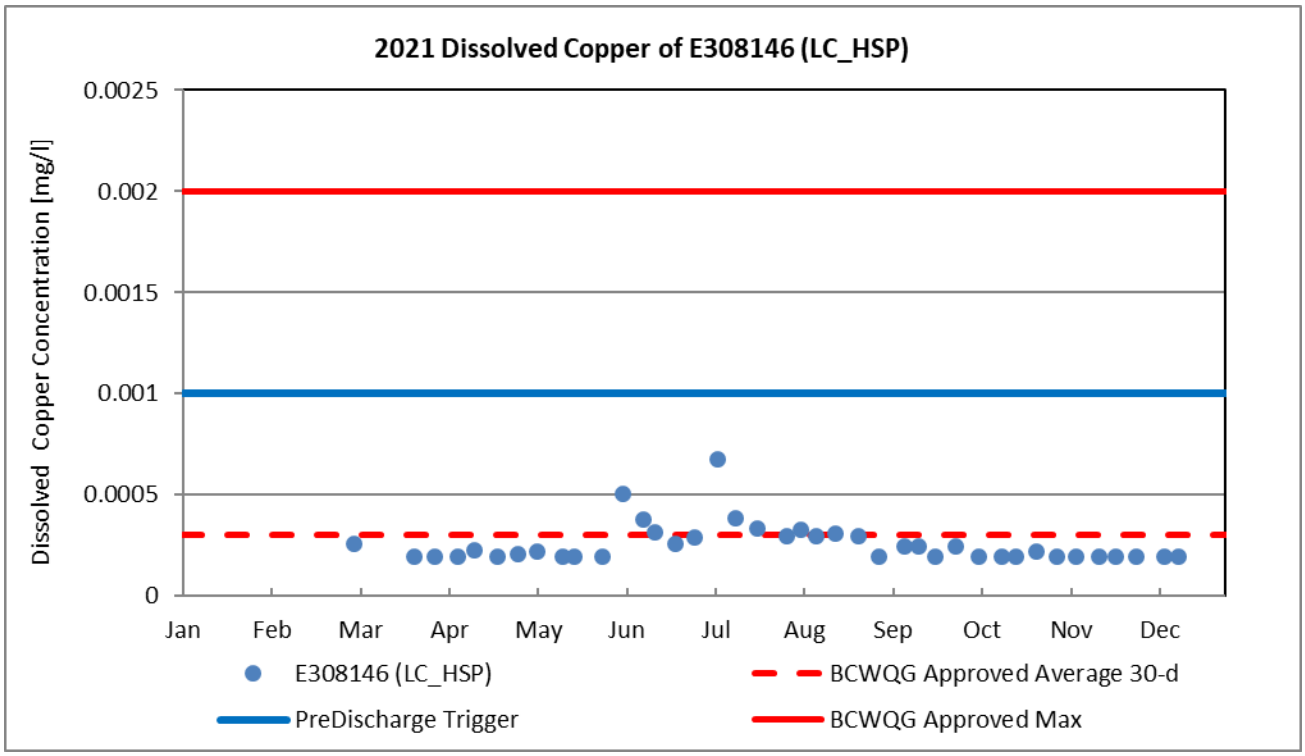

Figure 17. 2021 Dissolved Copper from Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

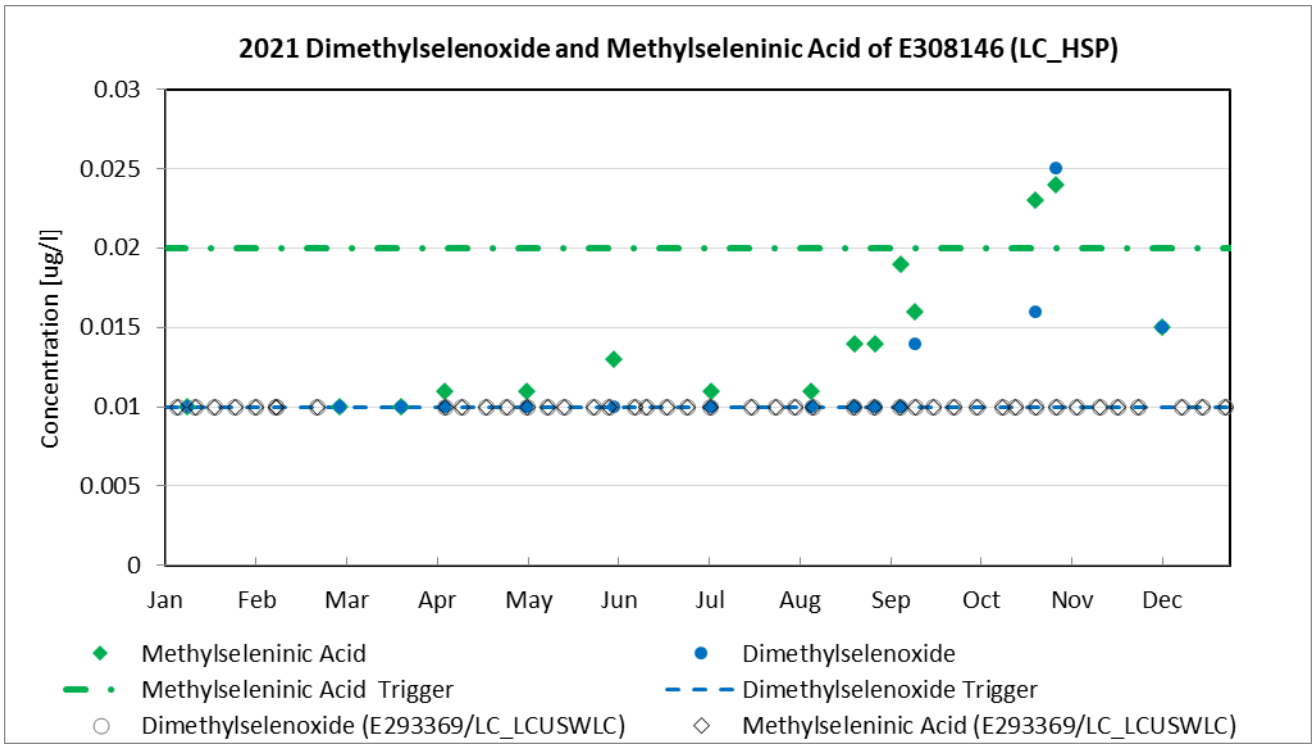

Figure 18. 2021 Dimethylselenoxide and Methylseleninic Acid to Line Creek (E308146/LC_HSP)

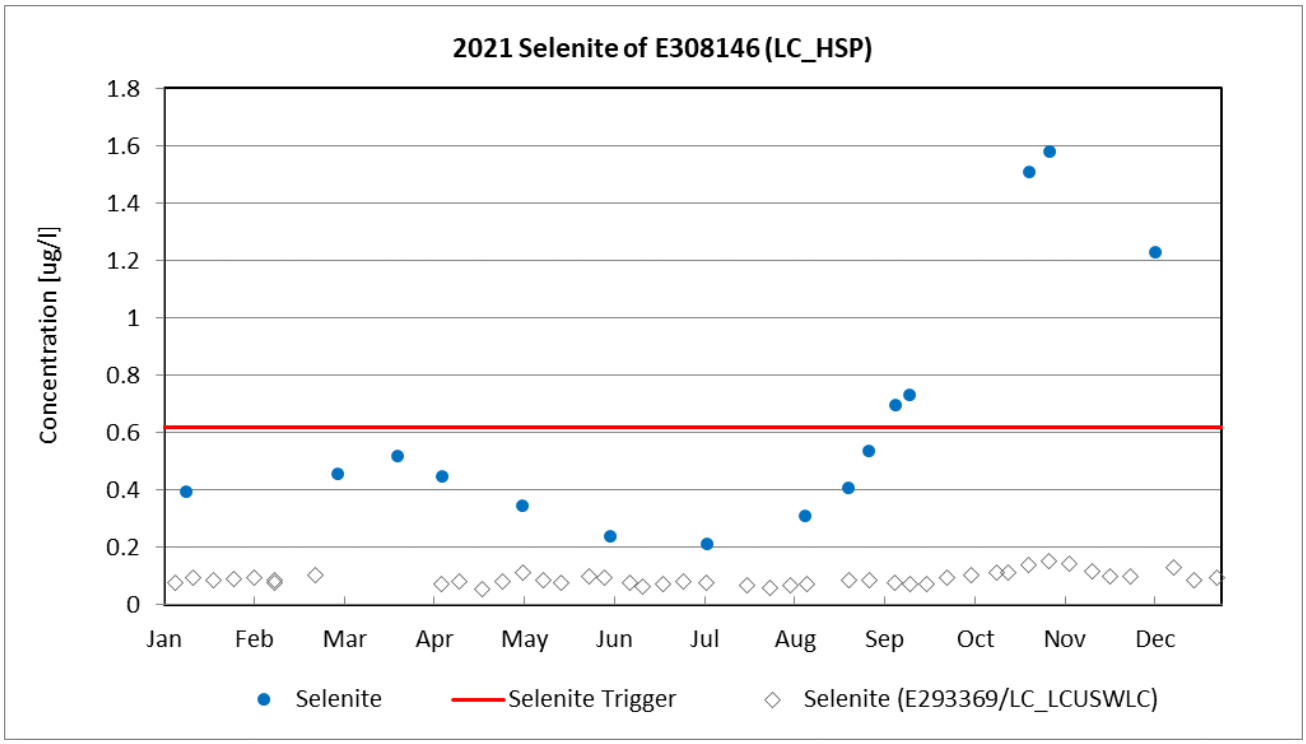

Figure 19. 2021 Selenite to Line Creek (E308146/LC_HSP)

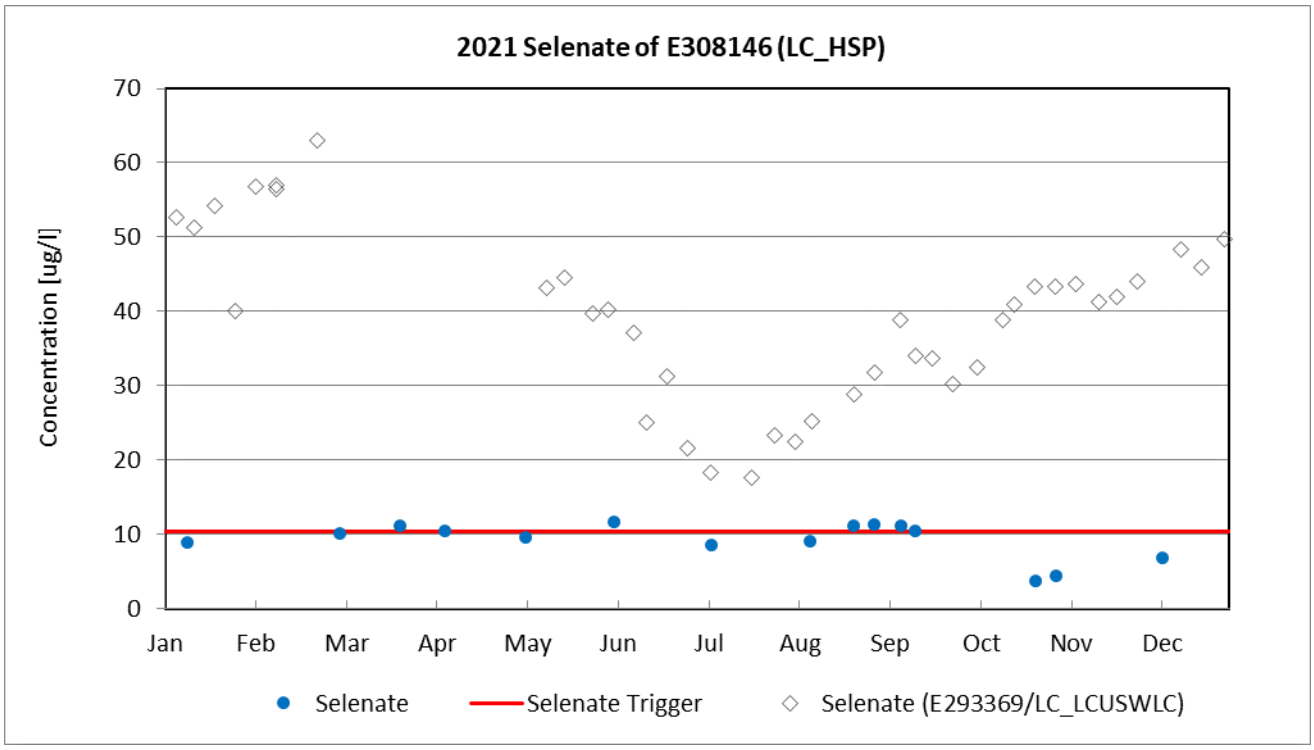

Figure 20. 2021 Selenate to Line Creek (E308146/LC_HSP)

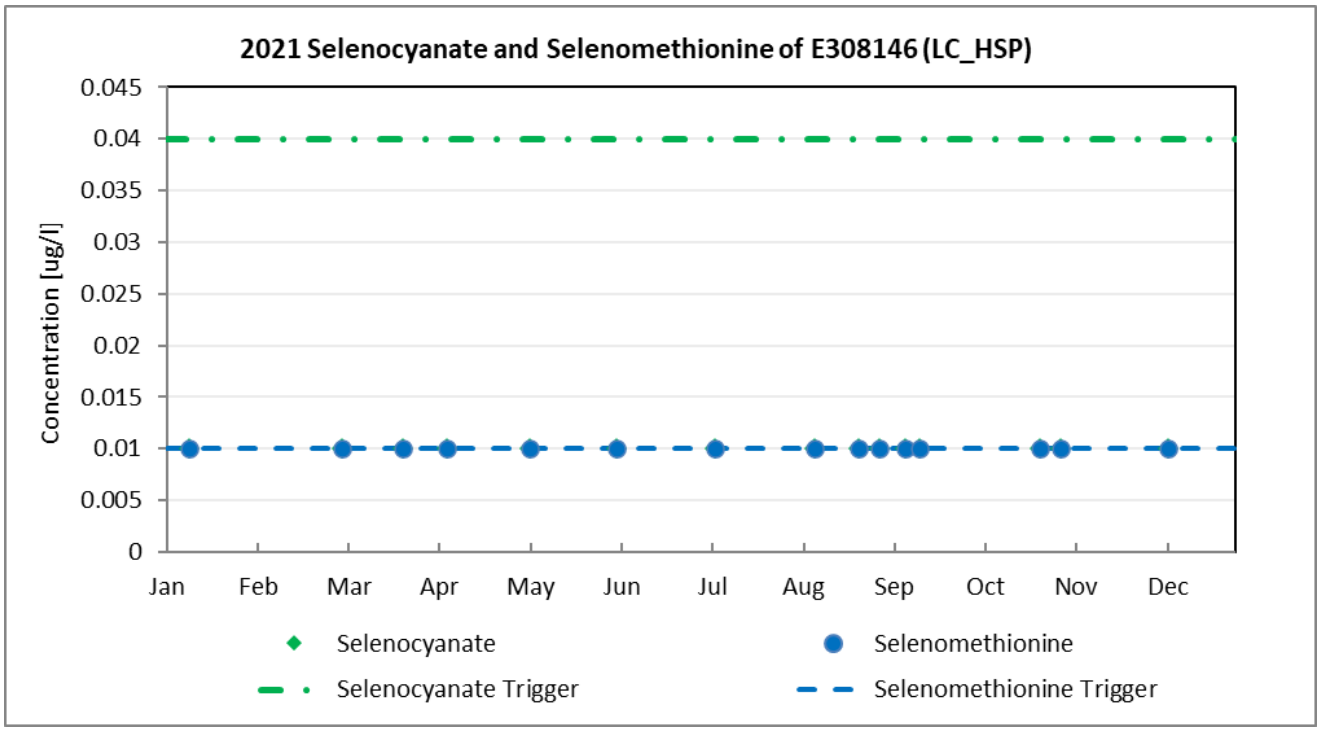

Figure 21. 2021 Selenocyanate and Selenomethionine to Line Creek (E308146/LC_HSP)

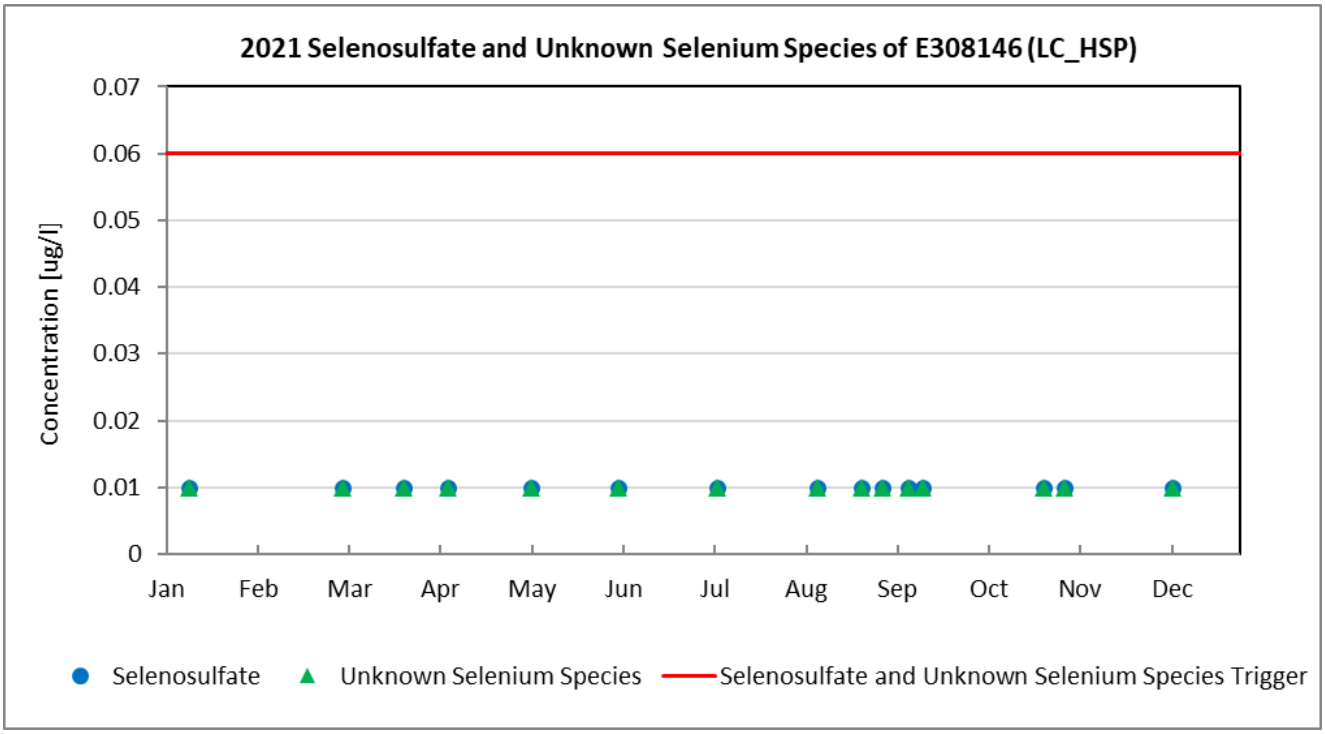

Figure 22. 2021 Selenosulfate and Unknown Selenium Species to Line Creek (E308146/LC_HSP)

5.1.2.2 Receiving Environment

Receiving environment locations are monitored for TSS, turbidity and EPH (Table 8) under Permit 5353. Below is the summary of the 2021 results at each receiving environment location for TSS and turbidity. All 2021 water quality data required under permit 5353 is included for review in Appendix E.

5.1.2.2.1 Line Creek Upstream MSA North Pit (E216142/LC_LC1)

Line Creek upstream of the MSA North Pit (E216142/LC_LC1) shows TSS remained below 4 mg/L and turbidity below 2 NTU for most of 2021 (Figure 23and Figure 24).

5.1.2.2.2 Line Creek Upstream of Rock Drain (0200335/LC_LC2)

Monitoring conducted in 2021 from Line Creek Upstream of the Rock Drain (0200335/LC_LC2) indicates TSS remained below 9 mg/L and turbidity below 6 NTU for 2021 (Figure 23 and Figure 24). All total Extractable Petroleum Hydrocarbons (EPH) results remained below 0.5 mg/L in 2021 (Figure 24).

5.1.2.2.3 North Horseshoe Creek Near Mouth (E223240/LC_LC12)

Total suspended solids (TSS) at North Horseshoe Creek near the Mouth (E223240/LC_LC12) remained below 3 mg/L in 2021, while turbidity did not exceed 2 NTU (Figure 23 and Figure 24). Although this location is mine -affected, there was no active mining in the area in 2021. The sample site was observed to be dry (zero flow) for the majority of the year (Table 5).

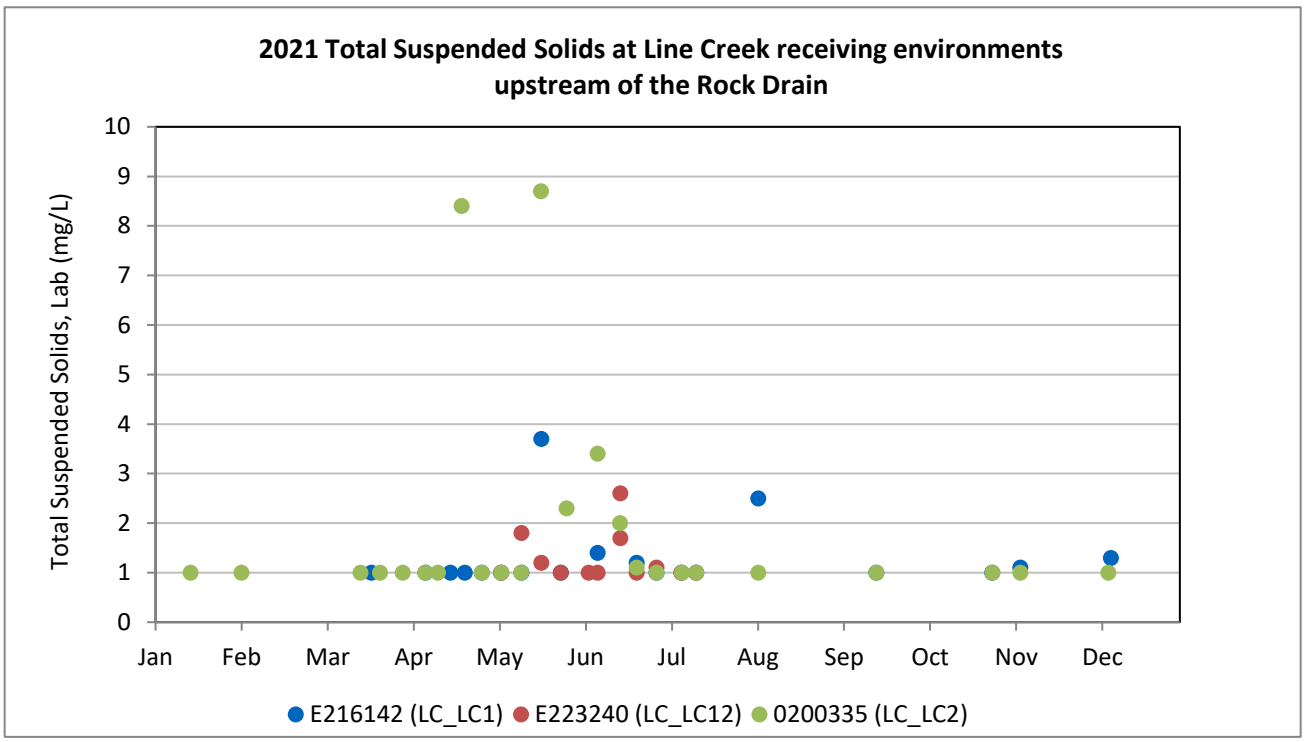

Figure 23. 2021 Total Suspended Solids at Line Creek receiving environments upstream of the Rock Drain

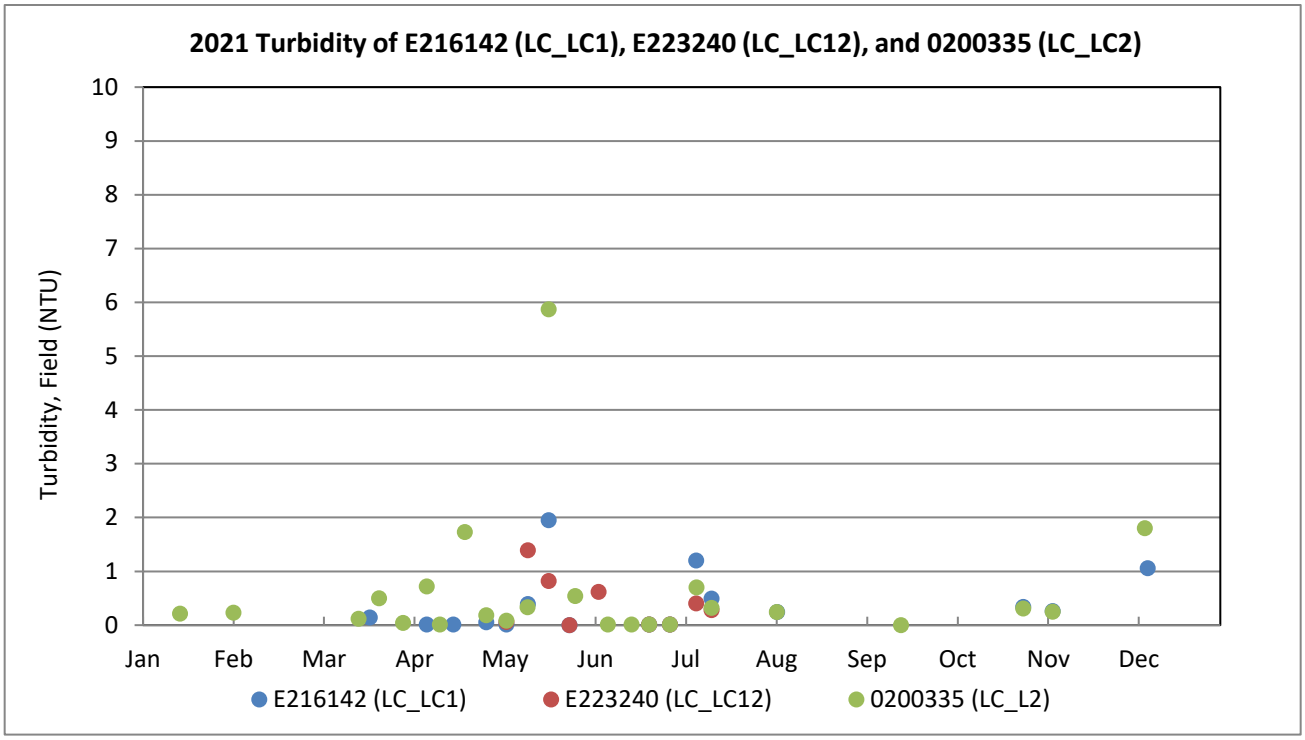

Figure 24. 2021 Turbidity at Line Creek receiving environments upstream of the Rock Drain

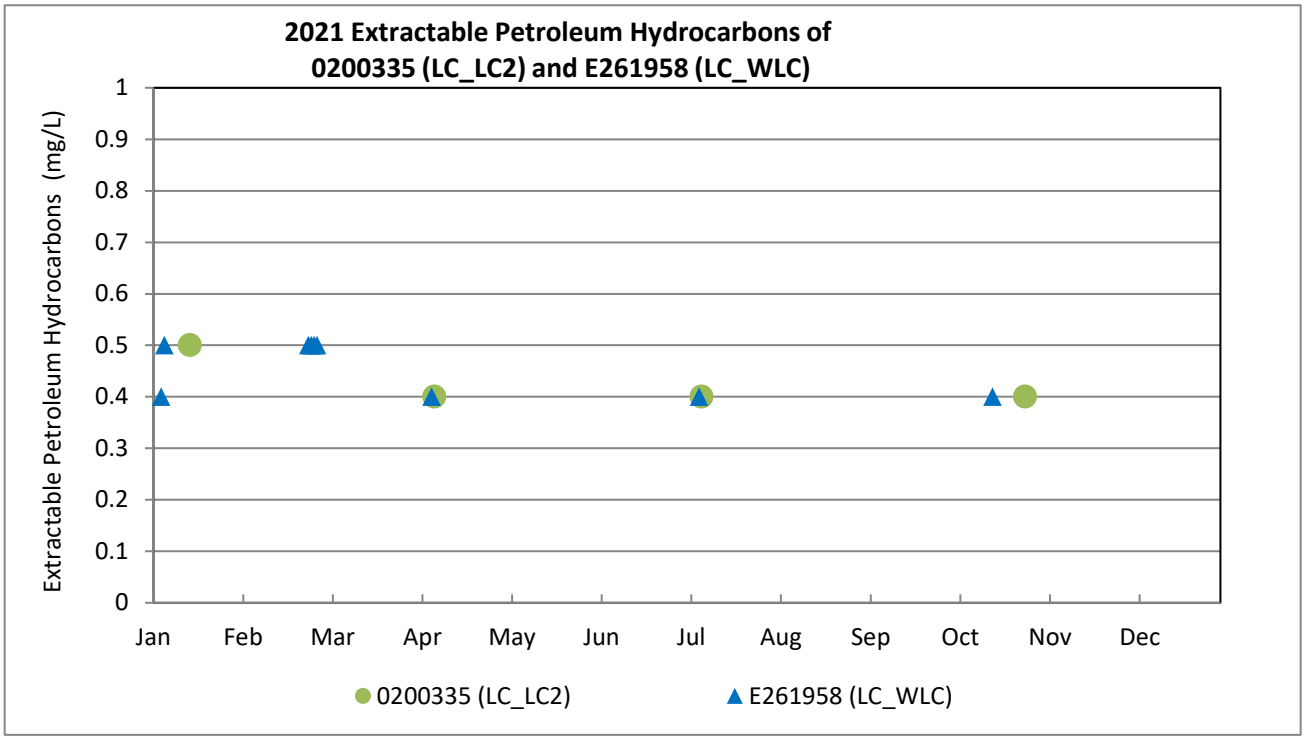

Figure 25. 2021 EPH at Line Creek upstream of Rock Drain and West Line Creek receiving environments

5.1.2.2.4 Line Creek upstream of West Line Creek below Rock Drain (E293369/LC_LCUSWLC)

Line Creek upstream of West Line Creek below the Rock Drain (E293369/LC_LCUSWLC) TSS values remained below 4 mg/L (Figure 25) in 2021. Turbidity remained below 7 NTU for all of 2021 (Figure 26).

5.1.2.2.5 West Line Creek (E261958/LC_WLC)

West Line Creek (E261958/LC_WLC) remained below 4 mg/L for TSS and 3 NTU for turbidity for all of 2021 (Figure 25 and Figure 26). Although West Line Creek is a mine-affected area, the only mining activities that occurred in 2021 in the West Line Creek drainage was reclamation of spoil surfaces. All total EPH results remained below 0.5 mg/L in 2021 (Figure 25).

5.1.2.2.6 Line Creek downstream of West Line Creek (0200337/LC_LC3)

For all of 2021, Line Creek downstream of West Line Creek (0200337/LC_LC3) did not exceed 6 mg/L for TSS (Figure 26) and 3 NTU for turbidity (Figure 27).

5.1.2.2.7 Dry Creek Sedimentation Ponds Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC)

For all of 2021, Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC) did not exceed 35 mg/L for TSS (Figure 28) and 30 NTU for turbidity (Figure 29).

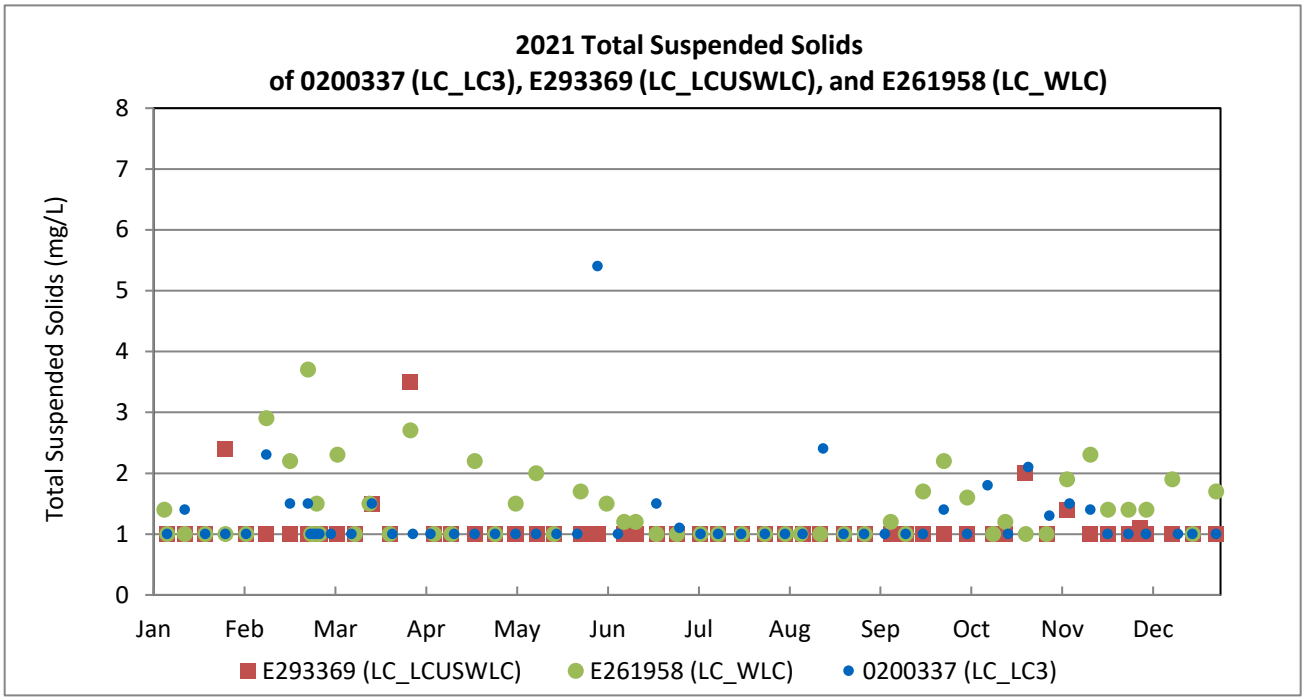

Figure 26. 2021 TSS of Line Creek and West Line Creek receiving environments below the Rock Drains

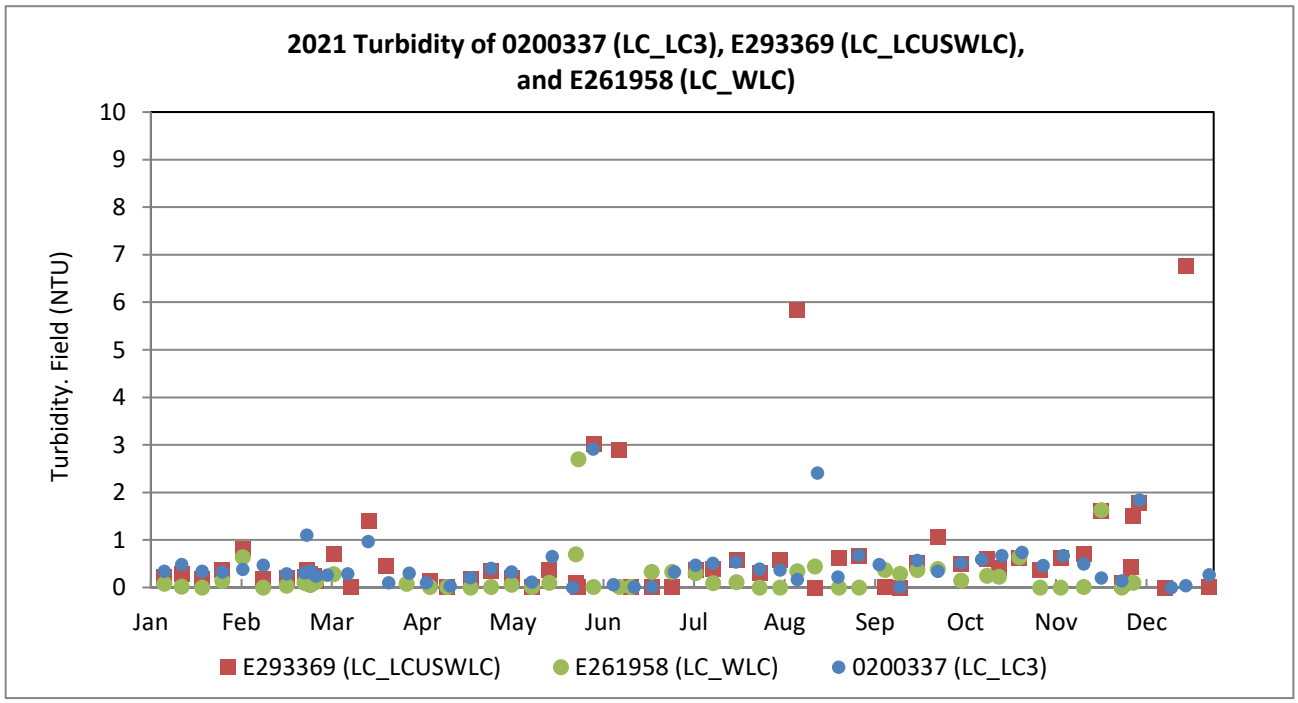

Figure 27. 2021 Turbidity of Line Creek and West Line Creek receiving environments below the Rock Drains

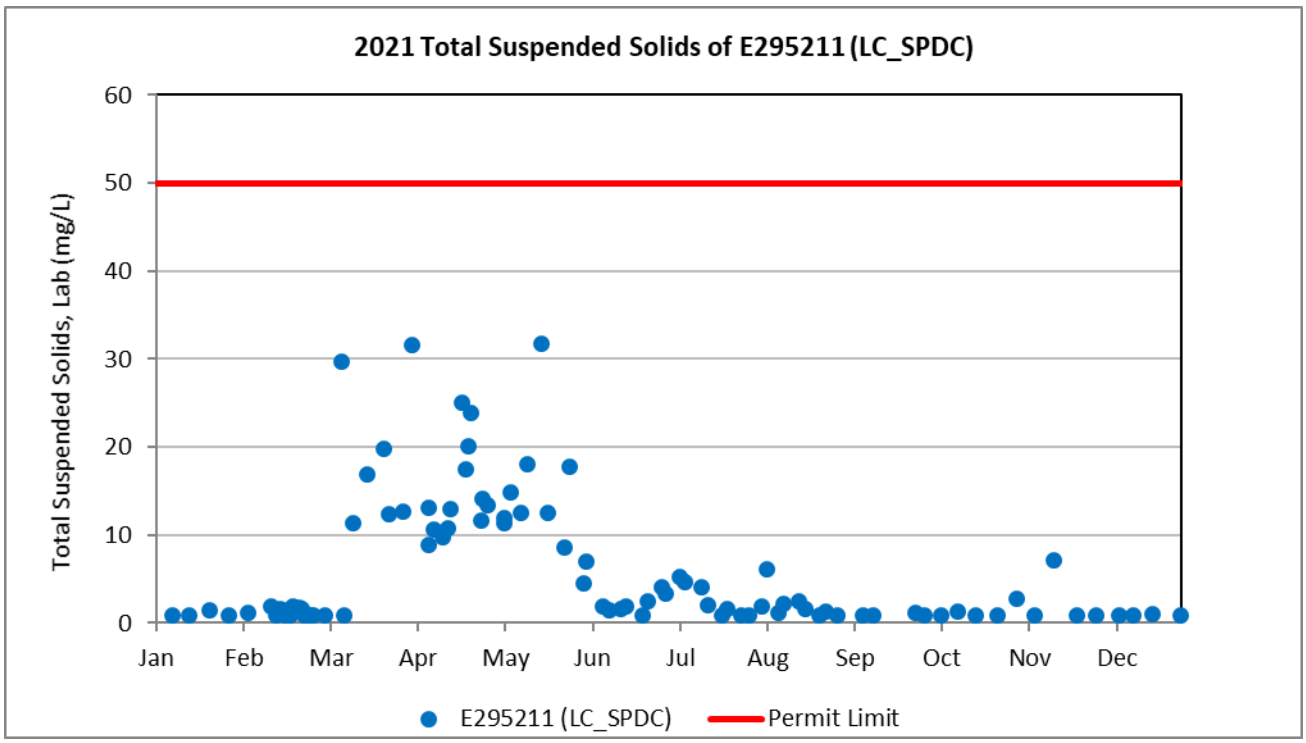

Figure 28. 2021 TSS of Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC)

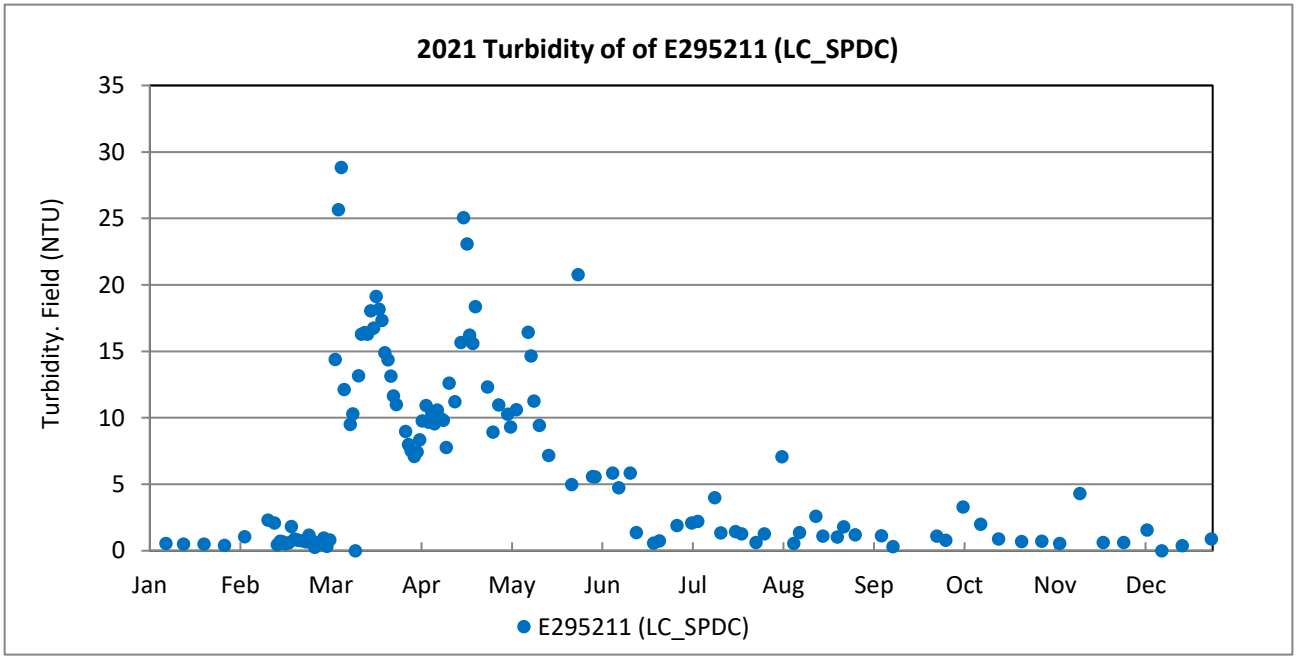

Figure 29. 2021 Turbidity of Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC)

5.1.2.2.8 South Line Creek (E282149/LC_SLC)

South Line Creek (E282149/LC_SLC) data indicated that TSS did not exceed 6 mg/L (Figure 30), and turbidity remained below 6 NTU in 2021 (Figure 31). South Line Creek is non-mine affected and believed to be representative of natural conditions.

5.1.2.2.9 Line Creek Immediately downstream of South Line Creek Confluence (E297110/LC_LCDSSLCC)

In 2021, TSS and turbidity in Line Creek immediately downstream of South Line Creek Confluence (E297110/LC_LCDSSLCC) typically remained below 5 mg/L and 7 NTU, respectively (Figure 30 and Figure 31).

5.1.2.2.10 Line Creek upstream of Process Plant (0200044/LC_LC4)

TSS measured at Line Creek upstream of the Process Plant (0200044/LC_LC4) typically remained below 11 mg/L TSS, save for an outlier of 32.0 mg/L on March 28, 2021 (Figure 30). Turbidity remained below 6 NTU (Figure 31).

5.1.2.2.11 Fording River downstream of Line Creek (0200028/LC_LC5)

Fording River downstream of Line Creek (0200028/LC_LC5) typically remained below 11 mg/L TSS, save for an outlier of 30.7 mg/L on June 1, 2021 (Figure 30). Turbidity remained below 10 NTU, save for an outlier of 28.33 mg/L on May 18, 2021 (Figure 31). This location is influenced by discharges from Fording River and Greenhills Operations, in addition to Line Creek Operations.

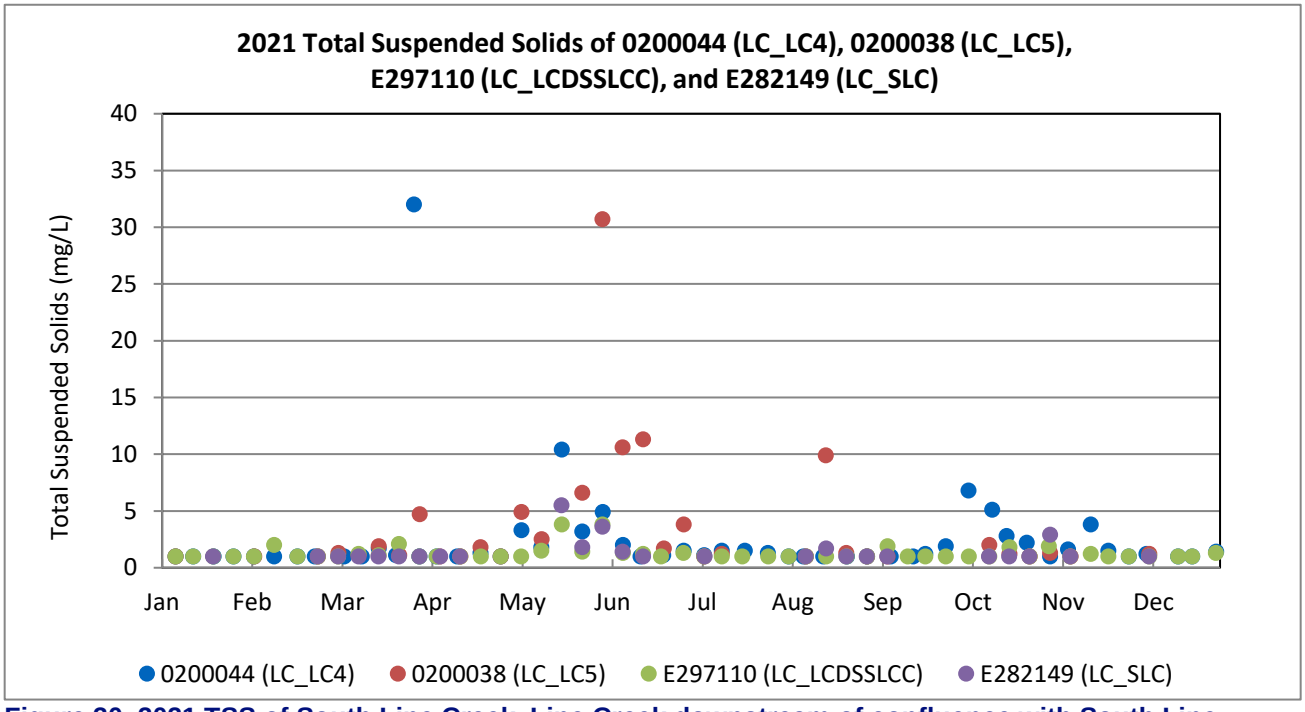

Figure 30. 2021 TSS of South Line Creek, Line Creek downstream of confluence with South Line Creek, Line Creek upstream of Process Plant and Fording River downstream of Line Creek.

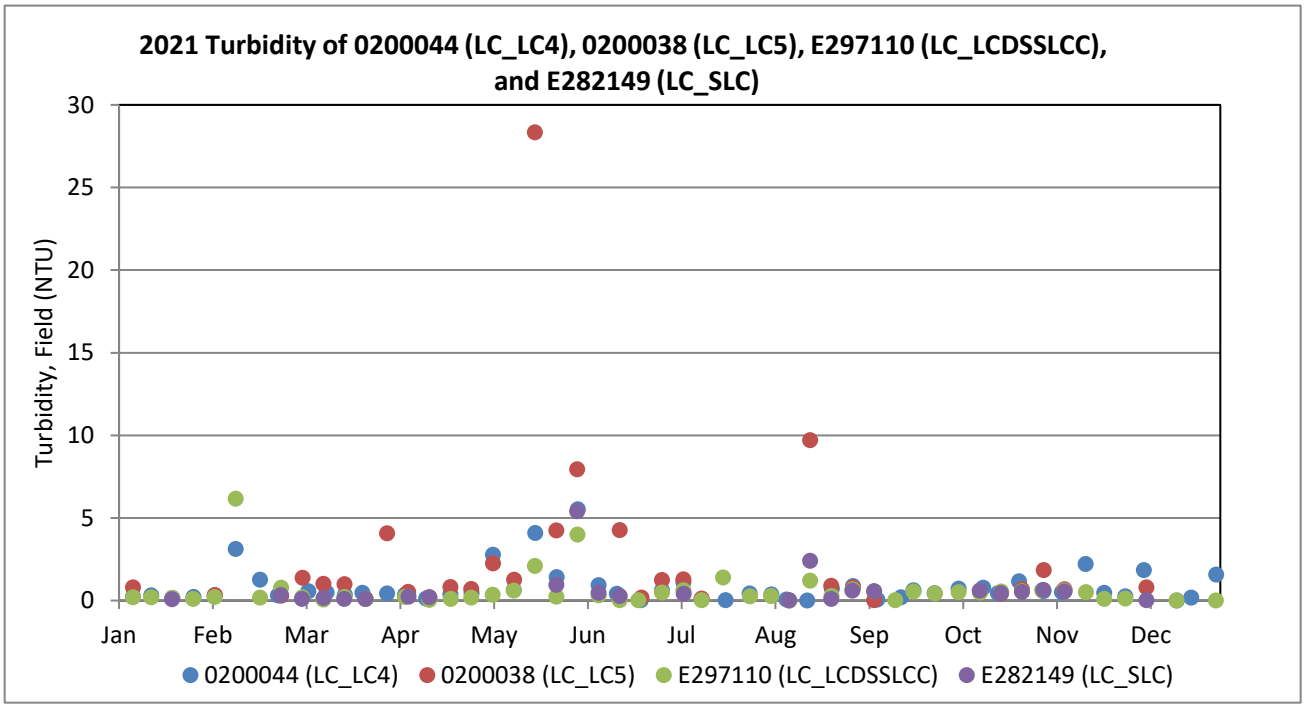

Figure 31. 2021 Turbidity of South Line Creek, Line Creek downstream of confluence with South Line Creek, Line Creek upstream of Process Plant and Fording River downstream of Line Creek.

5.2 Water Quantity Results

5.2.1 INTRODUCTION

Flow measurement monitoring is conducted as per the Permit 5353 requirements as shown in Table 8. Flow is monitored at each authorized discharge and evaluated against applicable permit limits (Table 3). These results are also used to develop Stage-Discharge Relationships (SDR) at specific locations validated by a third-party Qualified Professional (QP). These details can be found in the Kerr Wood Leidal 2021 Hydrometric Monitoring Report (Appendix F). Flow results collected by LCO can be found in Appendix E.

5.2.1.1 Rail Loop Settling Ponds E210372 / LC_EPOUT)

The freeboard in Rail Loop Settling Pond C must be greater than 1 m at all times (Condition 1.1.1). A minimum of 1 m of freeboard was maintained in Pond C throughout 2021 (Figure 32).

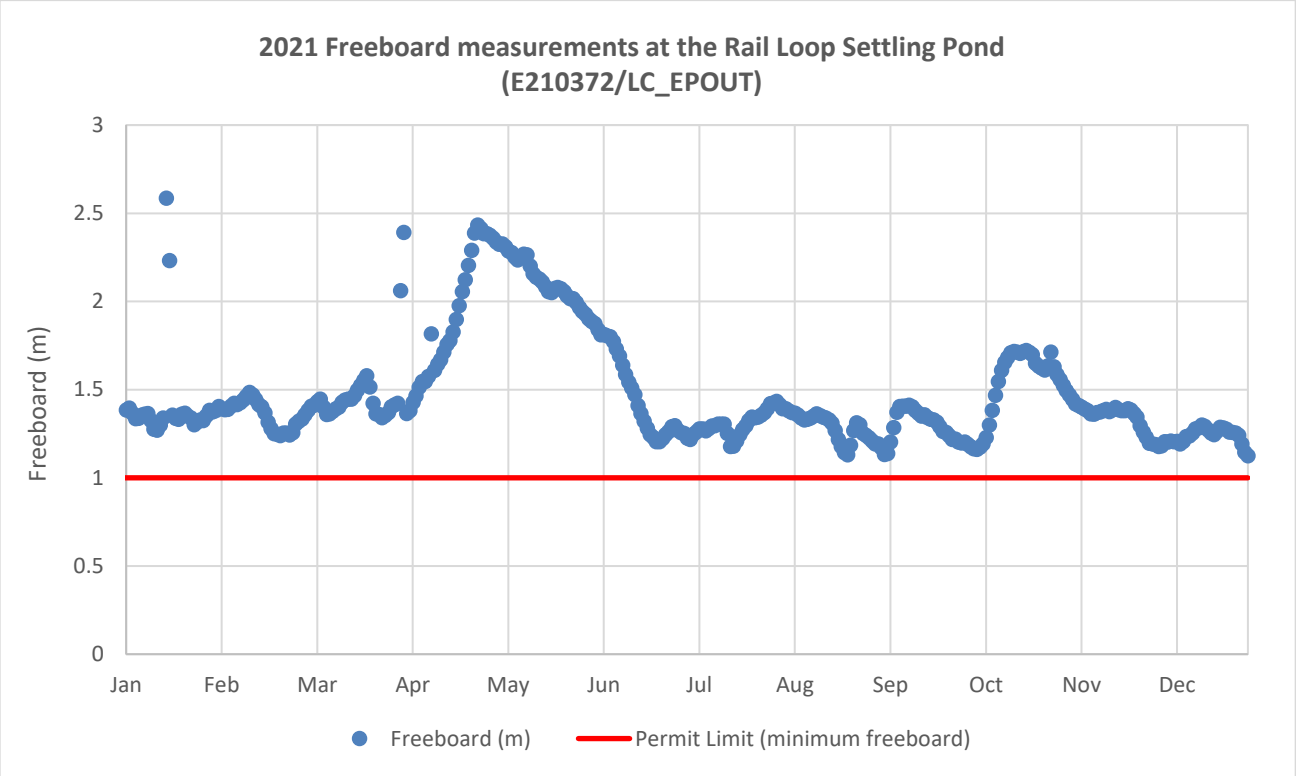

Figure 32. 2021 Freeboard measurements at the Rail Loop Settling Ponds (E210372/LC_EPOUT)

5.2.1.2 Mine Service Area (MSA) Sewage Effluent to Ground (E102494/LC_LC11)

The MSA Sewage Effluent did not exceed the daily maximum flow limit or 45 m^3/day (condition 1.2.1) in 2021 (Figure 33).

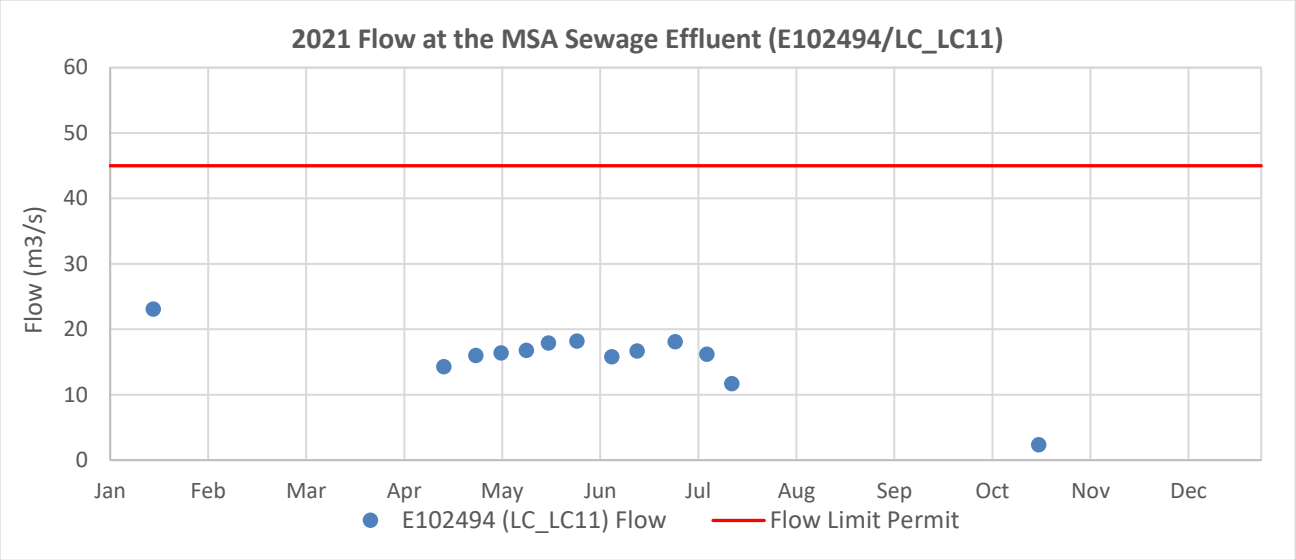

Figure 33. 2021 Flows at the MSA Sewage Effluent (E102494/LC_LC11)

5.2.1.3 Heavy Duty Wash Bay Effluent Discharge to Steam Bay Ponds to Ground (E288269/LC_SBPIN)

The Heavy Duty Wash Bay Effluent was below the daily maximum flow limit of 150 m^3/day for all of 2021 (Figure 34).

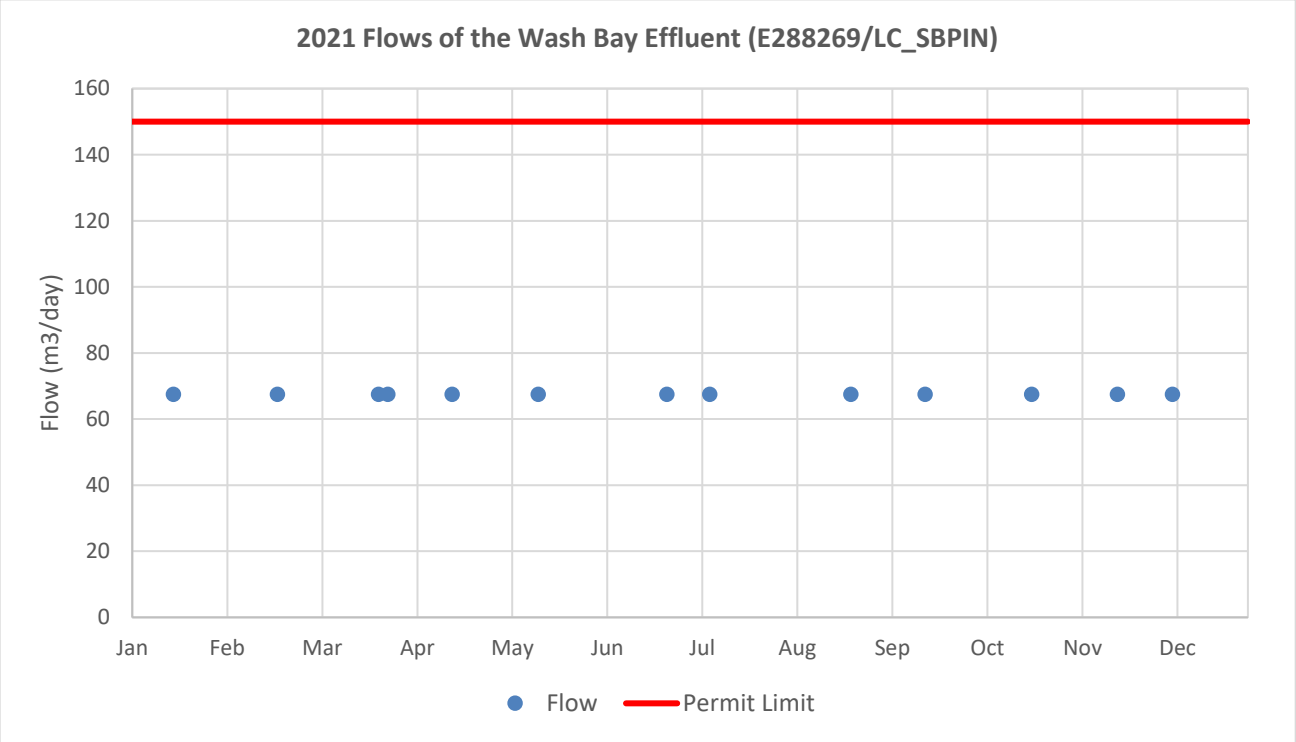

Figure 34. 2021 Flows at the Wash Bay Effluent (E288269/LC_SBPIN)

5.2.1.4 MSA North Ponds Effluent to Line Creek (E216144/LC_LC7)

The MSA North Ponds were below the Q10 flow (0.84 m^3/s) throughout 2021 (Figure 35). Freeboard remained below 0.5m throughout 2021.

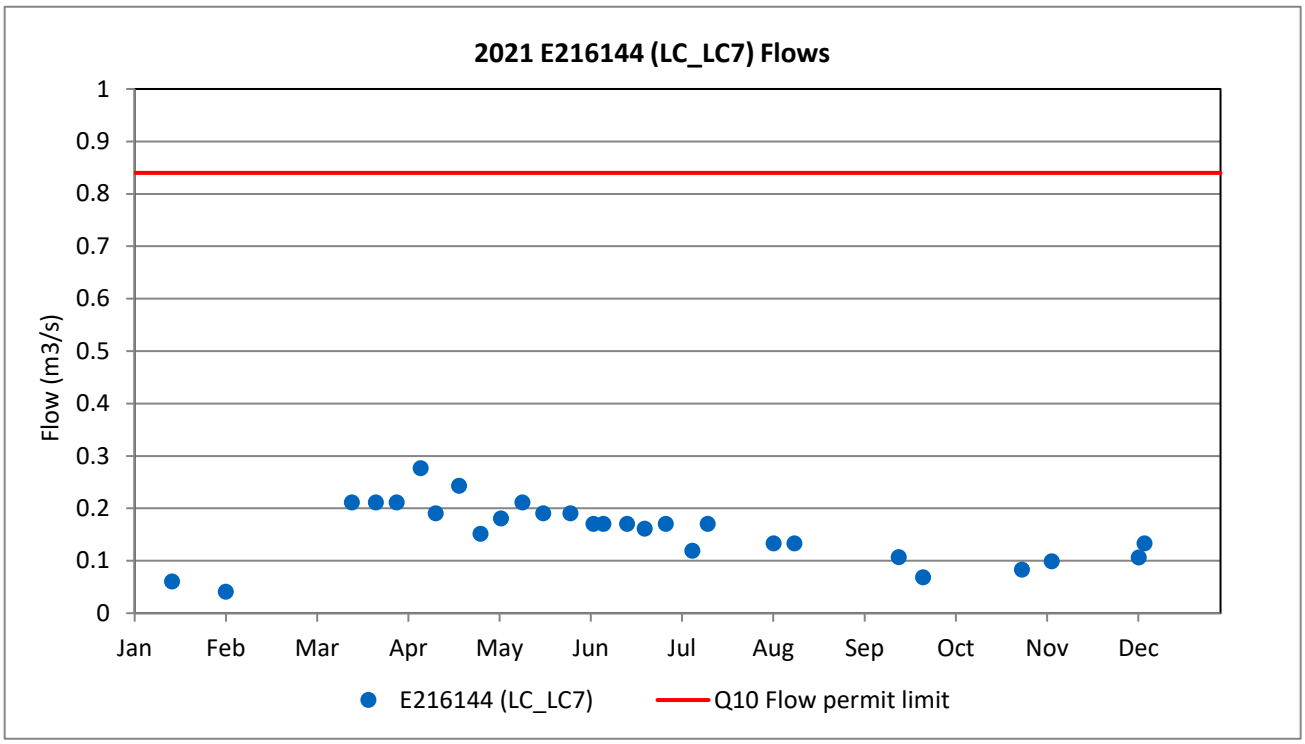

Figure 35. 2021 Flows at the MSA North Ponds Effluent (E216144/LC_LC7)

5.2.1.5 Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC)

Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC) were below the Q10 flow (1.8 m^3/s) throughout 2021 (Figure 36).

5.2.1.5.1 **Dry Creek Sedimentation Ponds Record of Bypass**:

Seasonal bypass of the Dry Creek Sedimentation Ponds was first initiated in July 2020. This practice was continued in 2021. Refilling of Dry Creek Sedimentation Pond 1 commenced on May 5, 2021. Notification of refilling and upcoming discharge of water from the sedimentation ponds was provided via email on April 10, 2021. The refill of Dry Creek Sedimentation Pond 1 was initiated May 5, 201 and was completed May 19, 2021 at which point the bypass of the Dry Creek Sedimentation Ponds ceased.

Starting on July 13, 2021 the bypass of the LCO Dry Creek Sedimentation Ponds began, and has remained ongoing for the rest of the 2021 calendar year. Notification of commencement of the bypass was provided via email July 12, 2021. Dewatering of Dry Creek Sedimentation Pond 1 began in July 2021 and was completed by August 13, 2021.

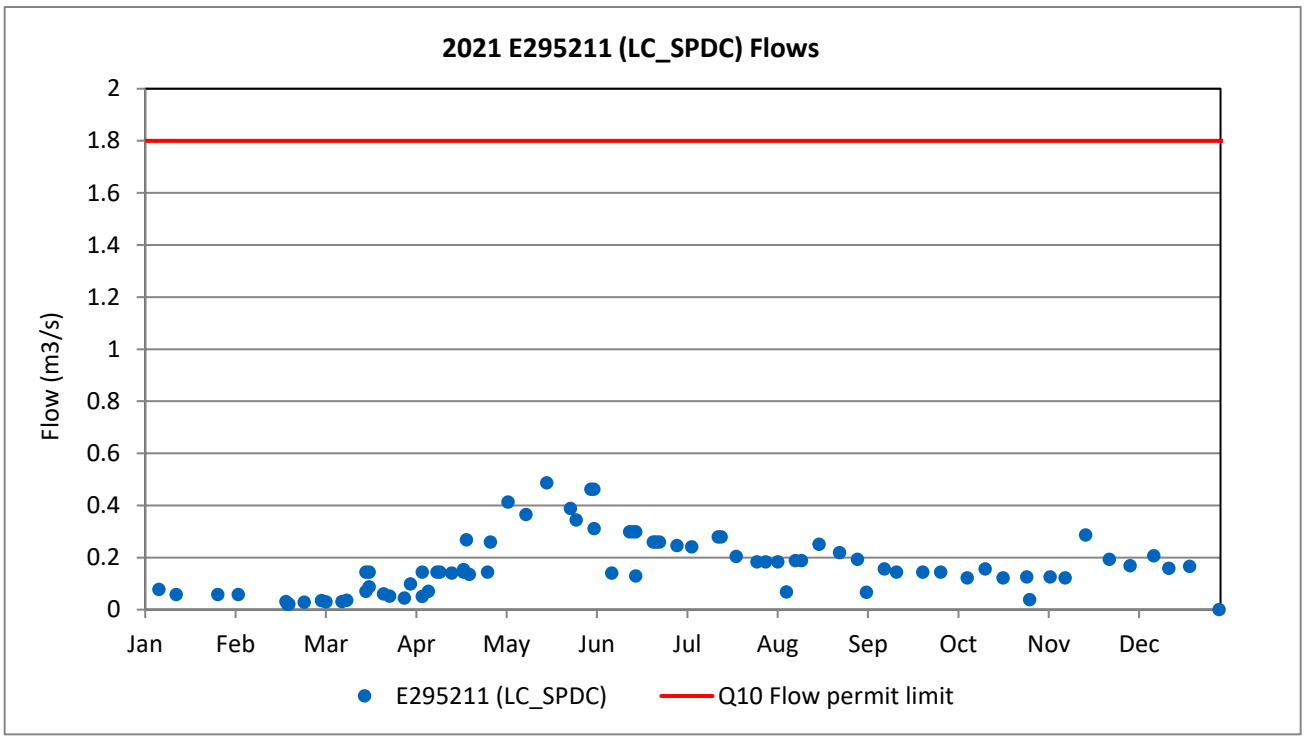

Figure 36. 2021 Flows at the Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC)

5.2.1.6 Contingency Treatment System Effluent to Line Creek (E219411/LC_LC8)

The Contingency Ponds were not utilized in 2021 for treating water quality in Line Creek and therefore no water quantity data is compared to applicable permit limits or trended. As water elevations did not reach the discharge point elevation, it is reasonable to state that the minimum freeboard limits of 0.5 m was maintained throughout 2021.

5.2.1.7 No Name Creek Pond Effluent to Line Creek (E221268/LC_LC9)

The No Name Creek Ponds did not discharge in 2021 and therefore did not exceed the Q10 flow (2.3 m^3/s) in 2021. Additionally, as water elevations did not reach the discharge point elevation, it is reasonable to state that the minimum freeboard limits of 0.5 m was maintained throughout 2021.

5.2.1.8 Horseshoe Pit Discharge to Line Creek (E308146/LC_HSP)

Discharge of stored pit water from Horseshoe Pit (E308146/LC_HSP) occurred between March 16 to December 19, 2021. Discharge flow rates in 2021 from HSP remained below flow limits as specified in LCO's Horseshoe Pit Dewatering Plan (Figure 37).

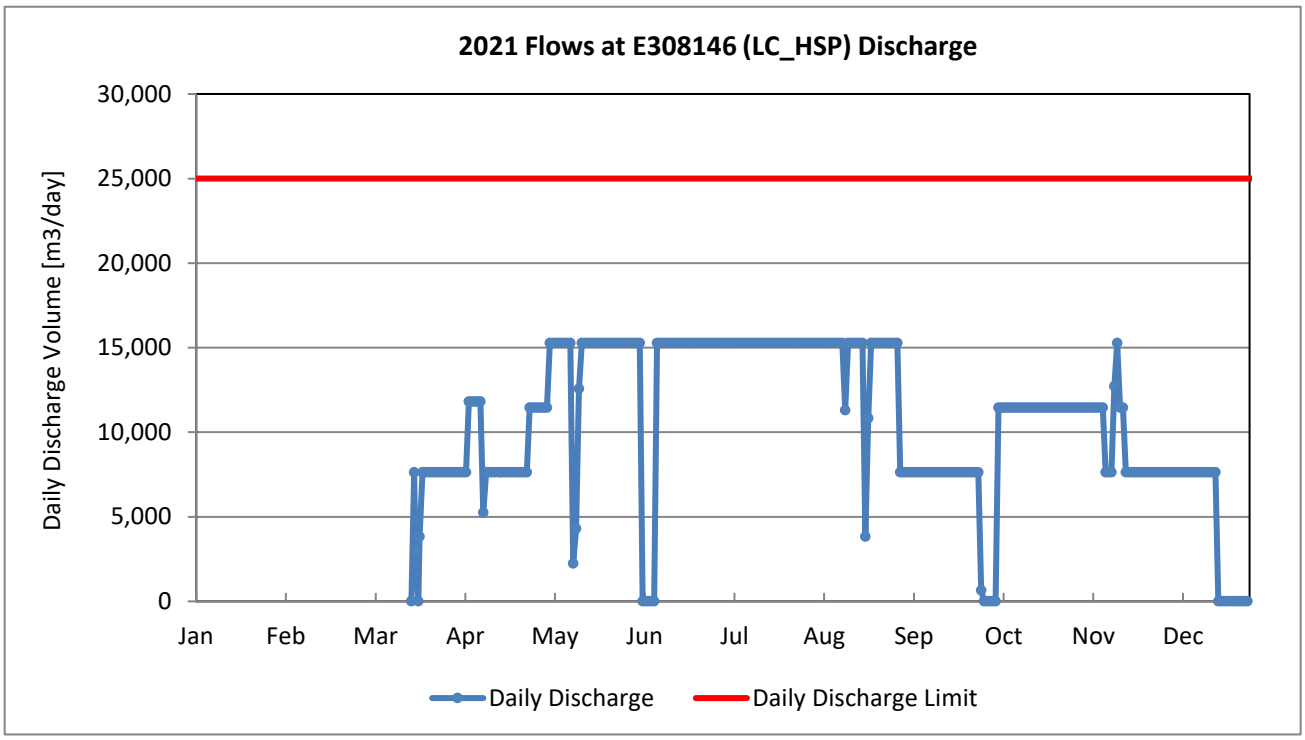

Figure 37. 2021 Flows at the HSP Discharge (E308146/LC_HSP)

5.2.1.9 MSX Pit Discharge to MSAW (E308147/LC_MSAWCULV)

On December 2, 2021, LCO initiated emergency pumping from the MSX Pit in response to a period of heavy precipitation and continued pumping until December 7, 2021. Over this period, approximately 8,175 m³ was pumped from the MSX Pit. Water from the MSX Pit sump (LC_MSXS) discharges to the MSAW. Mining in MSAW Pit was completed in 2010, and the pit has since been backfilled with waste rock. MSAW Pit decants into the Line Creek Rock Drain. The outlet of the Line Creek Rock Drain is located approximately 3 km downstream of MSAW Pit at the receiving environment monitoring location Line Creek upstream of West Line Creek (E293369/LC_LCUSWLC), which is approximately 200 m upstream of the intake/outfall structure for the WLC AWTF.

As presented in Figure 38, pump discharge flow rates from MSX in December 2021 ranged from 908 m^3/day to about 1816 m^3/day. The MSX Pit Pumping Plan provides recommended maximum pump rates that can be used to set pump discharge; for the month of December, this rate is 146 m^3/day. The plan also allows adjusting the pump rate maximum by using the excel mass balance tool updated with relevant water quality results and downstream flow rates. Based on model updates, the maximum pump rate recommended by the model for the month of December was 1,169 m^3/day. As a result, pump discharge rates from MSX were above the modelled recommended maximum rate on three occasions: December 2, December 4, and December 5, 2021.

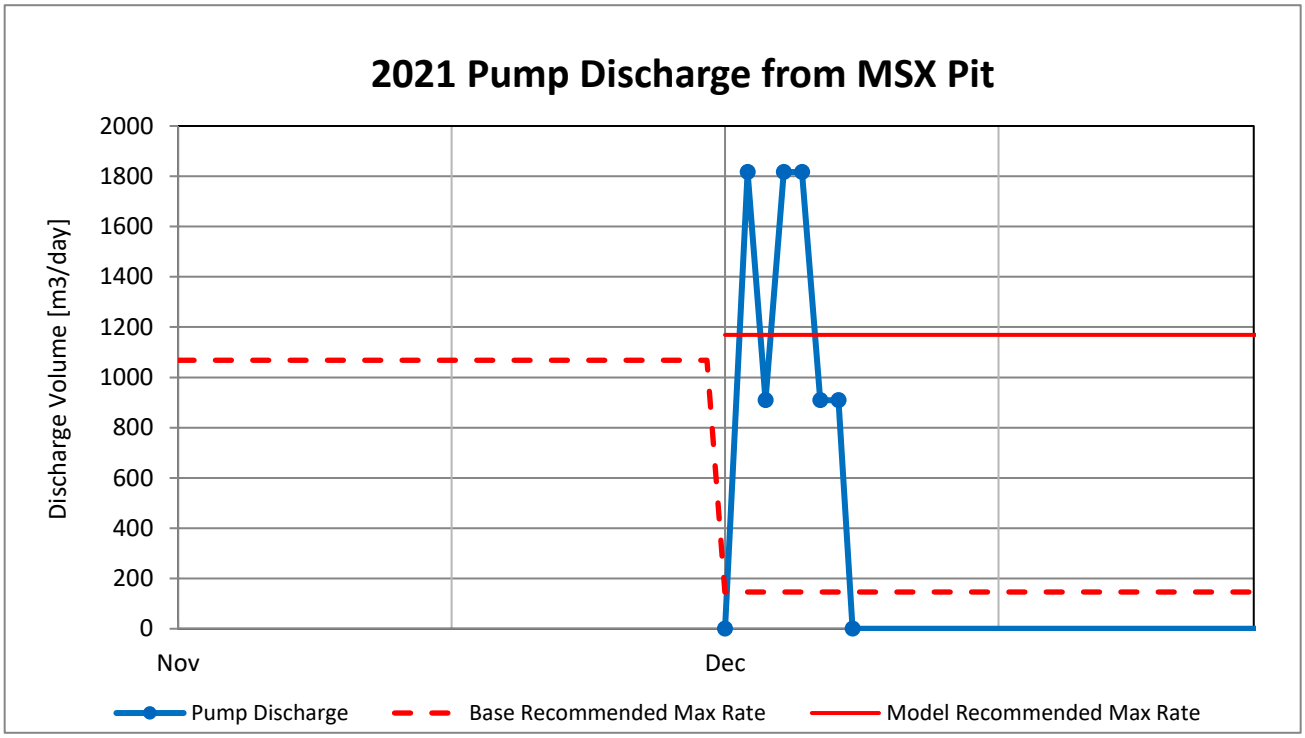

Figure 38. 2021 Flows at the MSX Pit Discharge to MSAW (E308147/LC_MSAWCULV)

5.3 Temporary Paired Sampling at the MSA North Ponds

On December 17, 2015, an amendment to Permit 5353 was issued to temporarily allow use of E304613 (LC_LC7DSTF) as the LC7 alternate location for the collection of water samples when access to E216144 (LC_LC7) was restricted. This restriction is due to safety concerns with the progression of the MSX Short Dump and the position of MSA North (MSAN) Ponds below the potential runout zone of the dump.

As per Section 3.1.2.2 of the current (July 22, 2021) Permit 5353, paired sampling was conducted three times in 2021 for E304613 (LC_LC7DSTF) and E216144 (LC_LC7). The 2021 results have been incorporated into the sample dataset (2013-2021) and compared using the method of statistical evaluation (T-Test) previously provided in the Teck Memorandum on October 27, 2015 (Appendix G). As the LC7 alternate monitoring site is located ~400 m downstream (in a safe sampling zone) of the original sampling location (MSAN Pond, LC_LC7), a comparison of the water quality was required to ensure there is not a significant difference between the two sampling sites. In all cases, the P-values were less than the corresponding critical P-value, which verifies acceptance of the null hypothesis that no significant difference exists between the two datasets. A summary of that evaluation is provided in Appendix H.

5.4 Subsurface Drainage Originating from the ERX/Coarse Coal Rejects

Subsurface drainage originating from the ERX/CCR dump daylights down gradient of the dump where it infiltrates to ground. Monitoring of this water is conducted a minimum of one time per year in accordance with Section 3.1.1.4 in Permit 5353. Results of the water quality analysis conducted from two samples collected in 2021 were compared against the *B.C. Water Quality Guidelines* for the protection of wildlife. All parameters measured in 2021 are below the applicable guidelines, with the exception of total selenium. Total selenium exceeded the wildlife guideline of 2 µg/L on June 30, 2021 (6.36 µg/L) and October 21, 2021 (4.98 µg/L).

These results are presented in Figure 39 along with results from previous years for comparison. All 2021 water quality data from LC_ERX is included in Appendix K. Further interpretation of water quality, including selenium, for this location is provided in the groundwater monitoring report submitted under a separate cover (titled "*2021 Annual Report: Elk Valley Regional and Site Specific Groundwater Monitoring Programs"*).

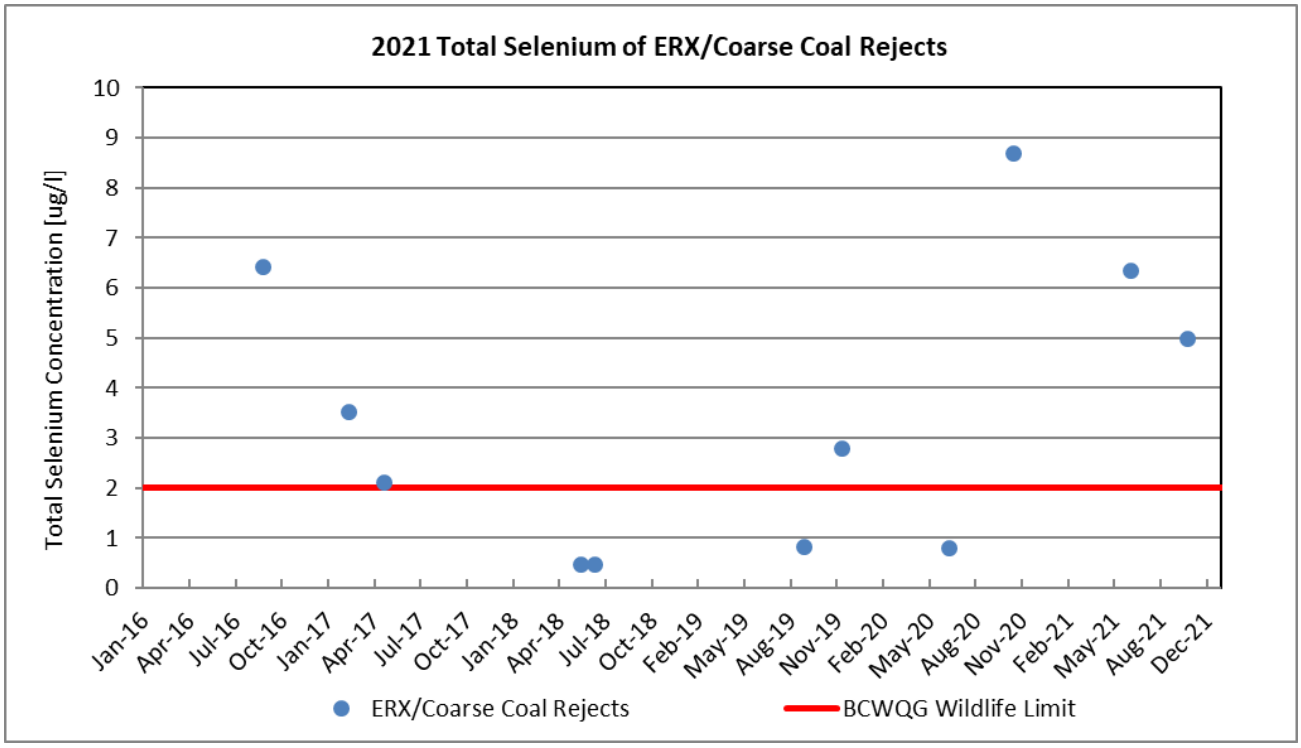

Figure 39. 2021 Total Selenium from Drainage of ERX (LC_ERX)

5.5 Capture of Mine Affected Water in the DCWMS

The DCWMS is designed to reduce seepage loss from the mine-affected water collection system. On February 20, 2015, ENV approved Teck's submission of a Dry Creek Water Management Plan. This approval, previously with EMA effluent permit 106970 has since been amended and incorporated into Section 4.3 of Permit 5353 to include:

> *An estimate of the proportion of mine-affected water (surface and subsurface) that is not captured by the Dry Creek Water Management System.*

To address the above condition, in 2016 Golder updated a three-dimensional FEFLOW model to assess potential seepage pathways from the spoil pile in the upper Dry Creek basin in a report titled, *Groundwater Flow Modeling to Evaluate Potential Seepage Bypass.* The model showed that all groundwater seepage through the waste rock daylights at the toe of the pile due to upward gradients in the underlying bedrock and valley fill sediments. Consequently, all seepage from the spoil pile is predicted to report to the diversion structure head pond. An estimate of the proportion of mine-affected water (surface and subsurface) that was not captured by the system can be assessed by comparing the average flows from the underdrains to the average flows measured upstream of the head pond. Each pond in the DCWMS has a dedicated underdrain system whose purpose is to direct water in a manner which protects the liner system of each pond. In 2021, average flow rates measured from the Head Pond underdrain and upstream of the Head

Pond were 0.000747 m^3/s and 0.093 m^3/s, respectively. This indicates 99.2% of mine-affected water (surface and sub-surface) is captured by the water management system.

6 Management Plan Summary

6.1 Flocculant Management Plan

In accordance with Section 2.7.1 of Permit 5353, flocculants may be used to maintain the level of TSS equal to or less than permit limits in settling pond discharges in line with the Flocculant Management Plan (FMP) approved by the Director on May 28, 2015.

No liquid flocculants were dispensed in 2021 at any of the settling pond discharges authorized under Permit 5353. In accordance with LCO's FMP, Water Lynx Blocks 360 (WL360) were deployed at E288273 (LC_DC3). A table of quantity and locations are provided in below in Table 11.

Table 11. Summary of Flocculant Use

Date	Product Name	Location	Number of blocks placed	Mass placed* (kg)	Dosage* (mg/L)	Frequency / Duration
3/08/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	10	20	0.37	21 days**
3/17/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	11	22	0.15	21 days**
4/19/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	17	34	0.12	21 days**
4/28/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	10	20	0.08	21 days**
5/15/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	46	92	0.24	21 days**
5/18/2021	Water Lynx Blocks 360	Dry Creek (E288273, LC_DC3) – before the head pond	12	24	0.03	21 days**

* Mass of each Water Lynx Block 360 is 2 kg; Dosage varies based on flow rate

** Manufacturer expected dissolution time

6.2 TSS Determination

TSS/turbidity regressions were revised at the end of the 2017 field season and provided to the ENV on April 30, 2018 in an updated report (appended to the Q1 2018 Elk Valley Regional Water Quality Report). Additional data was collected in 2021 and the revised TSS Determination report is provided in Appendix I.

6.3 Pit Pumping and Dewatering Plans

6.3.1 BACKGROUND

LCO has submitted two plans with respect to dewatering and/or operational pit pumping:

- The Horseshoe Ridge Pit Dewatering Plan was submitted on June 9, 2020 and updated on March 11, 2021.
- The MSX Pit Pumping Plan was submitted on February 28, 2020 and updated on July 15, 2021

Both plans include a water quality evaluation to characterize the quality of the water to be discharged, an estimate of dewatering/pumping rates, monitoring plan, and discharge management triggers.

In 2021, Discharge of stored pit water from Horseshoe Pit (E308146/LC_HSP) occurred from March 16 to December 19, 2021. Notification of this pumping was provided on December 15, 2021 and notification within 24 hours for cessation of discharge was provided on December 20, 2021.

On December 2, 2021, LCO initiated emergency pumping from the MSX Pit in response to a period of heavy precipitation and continued pumping until December 7, 2021. Notification of this pumping was submitted on December 1, 2021; pumping remains on standby under this notification in-order to respond to spring melt and precipitation events.

6.3.2 HORSESHOE PIT WATER QUALITY MONITORING RESULTS

In addition to the permit limit for TSS specified in Section 1.8 of Permit 5353 (July 22, 2021), the 2021 Horseshoe Pit Dewatering Plan identified the following parameters as constituents of potential concern: phosphorus, ammonia, nitrite, cobalt (total), nickel (total), mercury (total), copper (dissolved), dissolved oxygen, and selenium species. Results from samples collected of water discharged from Horseshoe Pit during the 2021 dewatering program are provided in Section 6.1.2.1.7.

Phosphorus was above the BCWQG approved 30-day average (0.02 mg/l) on four occasions throughout 2021 but remained below the trigger limit (0.044 mg/L) specified in the dewatering plan. Ammonia was below the BCWQG approved maximum (2.35 mg/l) in 2021 and above the approved 30-day average (0.45 mg/l) on three occasions in late Q4, 2021; all results remained below the trigger concentration (0.819 mg/L). Nitrite was above the BCWQG approved maximum (0.02 mg/l) on November 1, 2021 and above the BCWQG approved 30-day average (0.06 mg/l) in Q3 and Q4, 2021; all results remained below the trigger concentration (0.165 mg/L). Total cobalt was below the BCWQG approved maximum throughout 2021 but above the BCWQG approved 30-day average (0.004 mg/l) in Q4 2021. Results for total cobalt also increased above the trigger concentration of 0.007 ug/L in Q4 2021; however, concentrations at the nearest downstream monitoring location in Line Creek (E293369/LC_LCUSWLC) remained at or below detection limit. Dissolved oxygen (field) was above the BCWQG instantaneous minimum (5 mg/l) and approved 30-day average (8 mg/l) in 2021, and remained above the trigger value (3.1 mg/L) for the total duration of pumping. Total mercury was above the BCWQG approved 30-day average (0.00125 ug/l) on two occasions in 2021 but remained below the trigger value of 0.0031 ug/L.

Selenium species were also measured and compared against trigger values specified in the Horseshoe Pit Dewatering Plan. Selenate was above the trigger value (10.4 ug/L) on seven occasions during the pumping program: three times in Q3 and four times in Q3. However, concentrations of selenate remained well below concentrations observed downstream in Line Creek (E293369/LC_LCUSWLC), which range from 18 ug/L to upwards of 63 ug/L. Selenite was also above the trigger value of 0.62 ug/L on five occasions from September to December. Selenite concentrations in Line Creek remained below 0.2 ug/L throughout the dewatering program. Dimethylselenoxide and methylseleninic acid also increased above their trigger value (0.01 ug/L and 0.02 ug/L, respectively) in late September and throughout Q4 2021; both species remained at or below detection value in Line Creek throughout the duration of the dewatering program. All other species remained below their related trigger values.

All other parameters of potential concern remained below applicable BCWQG.

6.3.3 MSX PIT WATER QUALITY MONITORING RESULTS

On December 2, 2021, LCO initiated emergency pumping from the MSX Pit in response to a period of heavy precipitation and continued pumping until December 7, 2021. This discharge was sampled in accordance with LCO's MSX Pit Pumping Plan (July 2021), which identified the following parameters as constituents of potential concern or parameters to be monitored for management: beryllium (dissolved), chromium (dissolved), cobalt (dissolved), iron (dissolved), nickel (dissolved), selenium (total), uranium (total), sulphate, and TDS.

As per the pit pumping plan, results from samples collected from the discharge of MSX (to MSAW backfilled pit) are compared against trigger concentrations, as provided in Table 12 below. For the period of pumping in December 2021, the following parameters had concentrations greater than the listed triggers: beryllium (dissolved), chromium (dissolved), cobalt (dissolved), iron (dissolved), nickel (dissolved), selenium (total), uranium (total), sulphate, and total dissolved solids (TDS). The other noted constituents were below listed trigger concentrations, and all other relevant parameters were below applicable BCWQG

For parameters that exceeded the trigger concentration, a review of associated water quality downstream at Line Creek upstream of West Line Creek, below the rock drain (E293369/LC_LCUSWLC), or at LCO's Compliance Point (E297110/LC_LCDSSLCC) in the case of total selenium, is required to determine if pumping rates need to be reduced or ceased. This comparison is provided in Table 13 and shows that maximum concentrations observed at the downstream monitoring locations remained below trigger concentrations.

Table 12. MSX Pit Water Quality Results

Parameter	Unit	MSX Pit Water Trigger Concentration	LC_MSXS Results			Review downstream water quality results at LCUSWLC?
			2-Dec-21	3-Dec-21	6-Dec-21	
D. Aluminum	mg/L	0.057	0.004	0.0025	0.0021	No
D. Antimony	mg/L	0.017	0.00967	0.0037	0.00593	No
D. Arsenic	mg/L	0.0024	0.00206	0.00095	0.00206	No
D. Barium	mg/L	1.40	0.19	0.181	0.0454	No
D. Beryllium	mg/L	0.00002	0.00002	**0.00003**	0.00002	**Yes**
D. Chromium	mg/L	0.0001	0.0001	**0.00074**	0.0001	**Yes**
D. Cobalt	mg/L	0.0144	0.00925	**0.024**	**0.0167**	**Yes**
D. Iron	mg/L	0.01	0.01	**0.281**	0.01	**Yes**
D. Nickel	mg/L	0.058	0.0386	**0.104**	**0.0685**	**Yes**
Nitrate	mg/L	16.90	15.2	7.6	5.79	No
Nitrite	mg/L	0.84	0.302	0.162	0.141	No
Ammonia	mg/L	7.38	4.25	0.129	6.74	No
Phosphorus	mg/L	82.50	44.5	0.0771	12.6	No
T. Selenium	ug/L	0.0692	**0.0711**	0.00739	0.0171	**Yes**
Organoselenium	mg/L	0.025	0.02	0.02	0.02	No
Sulphate	mg/L	97.5	58.8	**297**	**313**	**Yes**
TDS	mg/L	585	**938**	**927**	**990**	**Yes**
T. Uranium	mg/L	0.100	**53.7**	**5.81**	**17.8**	**Yes**

Bolded *text indicates concentrations the were above the trigger concentration*

Table 13. MSX Pit Discharge Adjustments based on Downstream COPC Water Quality Triggers

Parameter	Unit	Line Creek (LC_LCUSWLC) Trigger Concentrations		LC_LCUSWLC Max Concentration	LC_LCDSSLCC Max Concentration	Continue discharge/no rate change?
		Reduce Discharge	Cease Discharge			
T. Beryllium	mg/L	≥0.000117	≥0.00013	0.000020	n/a	Yes
T. Chromium	mg/L	≥0.0009	≥0.001	0.0004	n/a	Yes
T. Cobalt	mg/L	≥0.0036	≥0.004	0.0001	n/a	Yes
T. Iron	mg/L	≥0.9	≥1.0	0.01	n/a	Yes
T. Nickel	mg/L	≥0.013	≥0.015	0.0113	n/a	Yes
T. Selenium	ug/L	≥0.045	≥0.05	n/a	0.044	Yes
Sulphate	mg/L	≥386	≥429	313	n/a	Yes
TDS	mg/L	≥900	≥1000	795	n/a	Yes
T. Uranium	mg/L	≥0.09	≥0.100	0.00469	n/a	Yes

Bolded *text indicates concentrations the were above the trigger concentration*

6.3.4 WATER QUALITY PREDICTIONS

A comparison of predicted water quality against actual monitoring results is provided in Appendix L for Horseshoe Pit Dewatering, and in Appendix M for MSX Pit Pumping. These evaluations also include potential opportunities for improvements to the dewatering tools.

7 Summary and Conclusions

This annual report reflects the requirements of effluent Permit 5353 issued to LCO under the provisions of the *Environmental Management Act*, most recently amended on July 22, 2021. This amendment has brought LCO Phase II development (previously regulated under Order In Council Permit 106970) into Permit 5353.

All monitoring events occurred in accordance with the schedule shown in Appendix 2A of Permit 5353 for all parameters listed. Results of the Rail Loop Ponds effluent to ground (E302410/LC_PIZP1101 and E302411/LC_PIZP1105) is discussed in the *2021 Annual Report: Elk Valley Regional and Site Specific Groundwater Monitoring Programs*. In 2021, dewatering occurred in Horseshoe Pit and monitoring of the water discharged was done in accordance with LCO's Horseshoe Pit Dewatering Plan. LCO also initiated emergency pumping from the MSX Pit to MSAW backfilled pit in December 2021 in response to a period of heavy precipitation. Monitoring of this discharge was conducted in accordance with LCO's MSX Pit Pumping Plan.

Line Creek Operations had 12 non-compliances in 2021. Ten of these non-compliances were for the discharge of effluent from the Septic Treatment System (E102494/LC_LC11), due to exceedances of the permitted biochemical oxygen demand limit (130 mg/L). One non-compliance was due to a failure to notify within the required timeframe during an emergency pumping event, and one was due to unauthorized bypass of the No Name Creek Sedimentation Pond and Bypass structure. There were two reportable spills or incidents related to water quality at LCO in 2021. There were no missed samples under Permit 5353 in 2021. All other locations met permit limit requirements (Table i). All unattainable data was due to frozen or dry streams. The Contingency Treatment System on Line Creek (E219411/LC_LC8) was not used for water treatment in 2021.

Trends for 2021 were analyzed for receiving environment locations for monitored parameters. Upstream of the Line Creek Rock Drain (E216142/LC_LC1, 0200335/LC_LC2 and E223240/LC_LC12) were typically below 9 mg/L for TSS and 6 NTU for turbidity. West Line Creek (E261958/LC_WLC), Line Creek below the Rock Drain (E293369/LC_LCUSWLC) and Line Creek downstream of West Line Creek (0200337/LC_LC3) did not exceed 6 mg/L for TSS and 7 NTU for turbidity. South Line Creek (E282149/LC_SLC) and Line Creek immediately downstream of South Line Creek Confluence (E297110/LC_LCDSSLCC) typically did not exhibit results above 6 mg/L for TSS and 7 NTU for turbidity. Line Creek upstream of the Process Plant (0200044/LC_LC4) remained below 11 mg/L for TSS with an outlier of 32.0 mg/L in March, 2021 and turbidity remained below 6 NTU. Fording River downstream of Line Creek (0200028/LC_LC5) typically remained below 11 mg/L for TSS and 10 NTU for turbidity for the majority of 2021, but did show elevated levels in June and May 2021. Dry Creek Sedimentation Pond Effluent to Dry Creek via the Return Channel (E295211/LC_SPDC) were typically below 35 mg/L for TSS and 30 NTU for turbidity.

In 2022, LCO will continue all efforts to collect samples in accordance with the Permit 5353 monitoring schedule, and where requirements cannot be met, the alternative locations will be used in accordance with conditions identified in the aforementioned ENV approval.

8 References

British Columbia Field Sampling Manual, 2020
British Columbia Environmental Laboratory Manual, 2020
British Columbia Water Quality Guidelines,
Teck. 2015. LCO Sediment Management Plan
Teck. 2021. Horseshoe Pit Dewatering Plan
Teck. 2021. MSX Pit Pumping Plan
Teck. 2022. Annual Report: Permit 107517 Surface Water Quality Monitoring 2021 Report
Teck. 2022. Annual Report: Elk Valley Regional and Site Specific Groundwater Monitoring Programs.

9 Appendices

Appendix A – Annual Status Form

Annual Status Form

AUTHORIZATION NUMBER: 5353

AUTHORIZATION TYPE: Effluent, Permit

LEGAL AUTHORIZATION HOLDER NAME: Teck Coal Limited

AUTHORIZED PERSON NAME: Chris Blurton

AUTHORIZED PERSON SIGNATURE: 

SIGNATURE DATE: March 31, 2022

I understand that it is an offense to mislead a government official, and I declare that all of the information presented is accurate and true.
I have been given the authority by the authorization holder to sign this form.

CONDITION NUMBER	CONDITION DESCRIPTION	COMPLIANT? (Yes/No/ND)	ACTION TAKEN
1.1.1	The freeboard in Rail Loop Settling Pond C must be greater than 1 m at all times, unless a reduced freeboard is authorized in writing by the director.	Yes	Refer to Section 5.2.1.1 and Figure 32.
1.2.1	The discharge of effluent from the Sewage Treatment System serving the Mine Service Building to the ground, must not exceed the maximum authorized rate of 45m3/day.	Yes	Refer to Section 5.2.1.2 and Figure 33.
1.2.2	The characteristics of the effluent from Sewage Treatment System serving the Mine Service Building to the ground, must not exceed Total Suspended Solids (TSS) of 130mg/l or Biological Oxygen Demand of 130mg/l.	No	Refer to Sections 2.3, 5.1.2.1.1, Figure 2, and Table 4. Non-compliance: In 2021, LCO had 10 non-complainces for 130 mg/L at the Sewage Treatment System (E102494/LC_LC11). The first non compliance occurred April 15, 2021. TWork is underway to incorporate a membrane bioreactor (MBR) wastewater treatment system to supplement the existing system.
1.3.1	The characteristics of the effluent from No Name Creek Diversion and Sediment Pond to the Line Creek Rock Drain, must not exceed TSS of 50 mg/l for discharge rates up to the Q10 flow of 2.3m3/second.	Yes	Refer to Section 5.2.1.7.
1.4.1	The characteristics of the effluent from MSA North Ponds to Line Creek, must not exceed TSS of 50 mg/l for discharge rates up to the Q10 flow of 0.84m3/second	Yes	Refer to Section 5.2.1.4 and Figure 35.
1.5.1	The characteristics of the effluent from Contingency Treatment System to the Line Creek, must not exceed TSS of 50 mg/l for discharge rates up to 3m3/second.	Yes	Refer to Section 5.2.1.6.
1.6.1	The effluent from the Heavy Duty Wash Bays to the Steam Bay Ponds must not exceed the average authorized rate of discharge of 150m3/day.	Yes	Refer to Section 5.1.2.1.2 and Figure 3.
1.6.2	The characteristics of the discharge from the Heavy Duty Wash Bays to the Steam Bay Ponds must not exceed Extractable Petroleum Hydrocarbons (EPH) of 15mg/l.	Yes	Refer to Section 5.1.2.1.2 and Figure 3.
1.7.1	The characteristics of discharge of contaminants from Miscellaneous Oil/Water Separators (OWS) at LCO to ground must not exceed EPH of 15mg/l prior to discharge to ground.	ND	Samples are not collected from the Petroleum facility OWS as discharge is disposed of off-site by contractor. Samples are collected from the light vehicle wash bay OWS and can be found in Section 5.1.2.1.3.
1.8.1	The discharge of stored pit water from Horseshoe Pit and MSAW Pit to Line Creek must not exceed the authorized daily rate specified in the applicable pumping plan.	Yes	Refer to Section 5.2.1.8 and Figure 37
1.8.2	The characteristics of the effluent from Horseshoe Pit and MSAW Pit to Line Creek, must not exceed TSS of 50 mg/l and water quality prescribed in the applicable pumping plan.	Yes	Refer to Section 6.3 and Figure 8.

CONDITION NUMBER	CONDITION DESCRIPTION	COMPLIANT? (Yes/No/ND)	ACTION TAKEN
1.10.1	The maximum authorized rate of discharge of effluent from a return channel from the Dry Creek Sedimentation Ponds to Dry Creek is the QIO flow of 1.8 cubic meters per second.	Yes	Refer to Section 5.2.1.5 and Figure 36.
1.10.2	Characteristics of discharge must not exceed Total Suspended Solids (TSS) of 50 mg/L	Yes	Refer to Section 5.1.2.2.7 and Figure 28.
1.11.1	The maximum authorized rate of discharge of effluent from a diffuser and conveyance pipeline from the Dry Creek Sedimentation Ponds to the Fording River is the Q10 flow of 1.8 cubic meters per second.	ND	Diffuser and conveyence pipeline from Dry Creek Sedimentation Ponds to the Fording River are not yet constructed.
1.11.2	Characteristics of discharge must not exceed Total Suspended Solids (TSS) of 50 mg/L	ND	Diffuser and conveyence pipeline from Dry Creek Sedimentation Ponds to the Fording River are not yet constructed.
2.1	The permittee must inspect the authorized works regularly and maintain them in good working order. In the event of a condition or emergency comply with all applicable statuatory requirements including Spill Reporting Regulation, immediately contact the Director or designated officer by email or telephone and take appropriate remedial action for the prevention or mitigation of pollution.	Yes	Refer to Section 2.3.
2.2.1	Bypass of the authorized works (with the exception of Contingency Treatment System and MSA North Ponds and Dry Creek Sedimentation Ponds seasonally during non-freshet flows) is prohibited unless the prior approval of the Director is obtained and confirmed in writing.	Yes	Acknowledged.
2.2.2	Pursuant to 2.2.1, characteristics of the effluent bypassing No Name Creek Diversion and Sedimentation Pond and MSA North Ponds are <50mg/l TSS and measured once per day during the bypass.	No	Refer to Sections 2.3. Non compliance: During a routine inspection on November 18, 2021, it was discovered that water on the south side of the diversion culvert inlet pond, near the concrete weir bypass structure, was infiltrating to ground. This water was flowing below the bypass structure and into the Line Creek Rock Drain. Notification of this N/C was provided November 18. This issue was corrected on December 23, 2021.
2.2.3	Pursuant to subsection 2.2.1, bypass of the authorized works in section 1.10, the Dry Creek Sedimentation Ponds, via the bypass works is authorized on a seasonal basis, during non-freshet flows to reduce or avoid the generation of bioavailable selenium, in accordance with the updated DCWMS operations manual required by section 2.9.4. The permittee must notify the director within 48 hours of commencement of the bypass and of commencement of refilling the sedimentation ponds. The permittee must notify the director 48 hours prior to discharge of water accumulated in the sedimentation ponds during operation of the bypass. A record of bypass of the Dry Creek Sedimentation Ponds must be maintained for inspection and presented in the quarterly and annual reports.	Yes	Refer to Section 5.2.1.5.1.
2.3	The permittee must develop and validate, at minimum on an annual basis a tool for field analysis of TSS value and procedures for additional TSS sampling for discharges referenced in Section 1 of this permit and any effluent discharge to surface water from the mine property. The TSS determination method must be approved by the Director.	Yes	Refer to Section 6.2.
2.4	The permittee must notify the director in writing, prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge. Notwithstanding notification under this section, permitted levels must not be exceeded.	Yes	A process modification for including the Membrane Bioreactor (MBR) for the Mine Service Area sewage treatement system was sent May 28, 2021. Refer to Section 1.2.2 of Permit 5353. A process modification was submitted Dec 6, 2021 related to the discharge of mine impacted water from MSX to MSAW. All process modificiations were sent to ENV

CONDITION NUMBER	CONDITION DESCRIPTION	COMPLIANT? (Yes/No/ND)	ACTION TAKEN
2.5	A minimum 0.5m of freeboard must be maintained in the sedimentation ponds. Settled solids which have accumulated in all settling ponds must be removed as required to maintain their design performance. The Director must be notified prior to removing solids.	Yes	Refer to Sections 5.2.1.4, 5.2.1.6 and 5.2.1.7. Notification was provided to ENV for maintenance of works identified in Section 2.3, Table 2.
2.6	Sediment characterization, removal and disposal must be managed in accordance with the mine Sediment Management Plan covering the authorized works in sections 1.1 (Rail Loop Ponds), 1.3 (No Name Ponds), 1.4 (MSAN Ponds), and 1.6 (Steam Bay Ponds). The plan may be modified as required by the Director. The Sediment Management Plan must be prepared and signed off by a qualified professional. Updates to the Sediment Management Plan must be submitted to the director within 30 days of adoption.	Yes	Refer to Section 1.3, Table 2 & Appendix J. In 2021 sediment removal was completed in accordance with LCO's Sediment Management Plan, as approved by the Ministry of Environment and Climate Change Strategy on January 25, 2016.
2.7.1	The permittee may use flocculants to maintain the level of total suspended solids equal to or less than the permit limits in the discharges from settling ponds and other structures identified in the plan. These flocculants must be used in accordance with the "Flocculant Management Plan" provided by Teck Line Creek Operations, approved by the Director on May 28, 2015, as updated from time to time. Any updates to the plan must be developed by a qualified professional, and submitted to the director within 30 days of adoption. The Director may impose additional requirements for the use of flocculants for the protection of the environment.	Yes	Refer to Section 6.1
2.7.2	The permittee shall maintain a record of the use of all flocculant(s) for sediment control on site. The permittee shall record daily, when flocculants are used, the type(s) of flocculant used, the weight applied and application rate (mg/L/day) and type of application system used. The permittee shall maintain records on site for inspection for a period of five years.	Yes	Refer to Section 6.1
2.8.1	Surface water runoff from process areas and roads must be managed through a Mine Water Management Plan. The plan must be modified as required by the director.	Yes	Line Creek operated under the Mine Water Management Plan versions from 2020 and the latest updated in July 2021.
2.9.1	The Permittee shall develop and implement a Water Management and Erosion Control Plan. This plan must be submitted to the Director, Environmental Protection prior to the initiation of construction of works.	Yes	Acknowledged.
2.9.2	Additional Sedimentation Pond	Yes	The contingency option of a third sedimentation pond within the DCWMS has not yet been pursued. There remains existing land to develop this contingency if required to increase effectiveness of the DCWMS.
2.9.3	The Permittee must ensure the operating plan for the DCWMS addresses the design and operation of the sedimentation ponds such that normal operation level of the pond(s) will leave buffering capacity in the pond to dissipate instantaneous peak flow and maintain permit requirements.	Yes	In May 2021, LCO submitted the ENV Submission, to ENV, which included an update to the Dry Creek Water Management Plan. Details regarding this submission and external review can be found in Section 8.2.2 of the 107517 Annual Water Quality Report 2021.
2.9.4	An operational manual for the authorized works must be submitted to the director four months prior to waste rock placement in the Dry Creek watershed. The operations manual shall include but not necessarily be limited to: i Procedures for operation, monitoring, inspection and maintenance for the authorized works in section l of this permit; ii Measures to ensure that the authorized works are operated at all times within specifications and in a manner to ensure compliance with this permit and applicable legislation; iii Records management procedures; iv Communications and reporting procedures pursuant to requirements in section 4 of this permit; v Emergency Response and Contingency Plan; and vi Procedures for operation and monitoring during seasonal bypass of the sedimentation ponds, water quality objectives and targets used to make operational decisions, management of accumulating water, sediment removal, timing of initiation of bypass, refilling of the ponds, and contingency measures. The plan must also include procedures to ensure that natural downstream flow is maintained, and ramping criteria are met downstream of the DCWMS during initiation of bypass, draining of the ponds and filling of the ponds	Yes	The 2018 Dry Creek Water Management System (DCWMS) Operation, Maintenance and Surveillance (OMS) Manual that was developped for comissioning of the DCWMS continually revised to improve water management in Dry Creek. In 2020 an Addendum to this OMS was developped to aid with operation and monitoring of the seasonal bypass of the sedimentation ponds. This document was further updated in April 2021 and shared with the Dry Creek Structured Decision Making (SDM) group for input prior to refilling the sedimentation ponds in 2021. Details of pond refilling can be found in Section 5.2.1.5.1.

CONDITION NUMBER	CONDITION DESCRIPTION	COMPLIANT? (Yes/No/ND)	ACTION TAKEN
2.9.5	The final design for the Dry Creek Water Management System must include calcite controls to prevent calcification in the works. Characterization of the final effluent quality, with an assessment of risks to the receiving environment from the calcite treatment process, must be submitted to the Director, Environmental Protection by June 30, 2014.	Yes	In April 2021 the LCO Dry Creek Calcite Antiscalant Addition commissioning began, and lasted approximately 6 weeks for full operation by summer 2021.
2.10.1	Authorized works must be complete and in operation while discharging or as required seasonally to maintain water quality and/or water management needs (flocculant addition, pumping equipment).	Yes	Acknowledged.
2.11	The ten-year return flood flow or Q10 referenced in section 1 is defined as the average calculated flood flow in cubic meters per second (m3/s) over a 24-hour period that can be expected to occur once in a ten-year return period for a specified drainage basin.	Yes	All discharges were below the Q10 flow in 2021. Refer to section 5.2
2.12	All documents submitted to the Director by a Qualified Professional must be signed by the author(s).	Yes	Acknowledged.
2.13.1	The permittee must notify the director, in writing, 14 days prior to discharge of effluent commencing from the pits listed in section 1.8. The notification must include a pumping plan that outlines the quality of the pit water, the total volume to be pumped to Line Creek, general time frame and conditions under which the prescribed pumping plan is valid, sampling and monitoring schedule, discharge location, any prescribed water treatment, the pumping duration and rates, and the predicted water quality at downstream permitted monitoring locations and the nearest PE107517 compliance point.	Yes	No pit pumping occurred from the MSAW pit in 2021. The MSX pit pumping to MSAW pit occurred under emergency conditions following the MSX Pit Pumping Plan (submitted July 2021); see condition 2.13.5 of Permit 5353 and Refer to Section 6.3 in the Annual Report for further detail. Discharge of Horseshoe Pit water occurred from March 16 to December 19, 2021, in accordance with the updated plan that was submitted March 11, 2021 (initial submission was February 18, 2021). Refer to Section 6.3 for detail on written notifications provided.
2.13.2	Water quality predictions must be made using a water quality model specific to the Line Creek mine site. The director may require additional assessments, monitoring, and/or treatment following notification of pit pumping.	Yes	Refer to Section 6.3.4
2.13.3	Notification under section 1.13.1 is required 30 days prior to commencing when the pit pumping plan prescribes pre-discharge water treatment works other than the works specified in section 1.8.3 and/or flocculants identified in the approved Flocculant Management Plan	Yes	No pit pumping occurred from the MSAW pit in 2021. The MSX pit pumping to MSAW pit occurred under emergency conditions; see condition 2.13.5 of Permit 5353 and Refer to Section 6.3 in the Annual Report for further detail. For Horseshoe Pit and MSX, no predischarge water treatment was required. Refer to section 6.3.
2.13.4	The permittee must submit an updated mine water management plan by April 30, 2020. The director may require modifications to the plan to accommodate pit pumping and the protection of the receiving environment.	Yes	Following correspondance with ENV that confirmed the June 2020 submission was acceptable, an updated version of the Mine Water Management Plan was submited June 30, 2021
2.13.5	The permittee must notify the director, in writing, at least 24 hours in advance of the starting of pit pumping and again within 24 hours of the completion of pit pumping	No	Non compliance: On December 1, 2021, LCO submitted a notification to ENV indicating that emergency pit pumping from the Mine Services Area Extension (MSX) Pit was required as a result of a heavy precipitation (atmospheric river) event. However, continued heavy precipitation resulted in the ditches in MSX Pit reaching maximum capacity, and pumping had to be initiated before the end of the 24-hour notification period. Refer to Section 2.3, Table 4. Notification for Horseshoe Pit Dewatering was compliant: 24 hour notification for Horseshoe Pit dewatering was submitted March 15, 2021. Notification of cessation was submitted December 20, 2021. Refer to Section 6.3
2.13.6	If monitoring results indicate a limit in permit 107517 is reasonably expected to be exceeded at Compliance Point E297110 or Order Station 0200028 and that pumping may need to be suspended, the director must be notified immediately via email: ENVSECOAL@gov.bc.ca.	Yes	No pit pumping occurred from the MSAW pit in 2021. The MSX pit pumping to MSAW pit occurred under emergency conditions; see condition 2.13.5 of Permit 5353 and Refer to Section 6.3 in the Annual Report for further detail. For Horseshoe Pit refer to section 6.3.
3.1.2	The permittee is required to conduct the monitoring program identified in Appendix 2A, Tables 2 and 3. Details of sampling schedule are included in Appendix 2A.	Yes	Acknowledged.

CONDITION NUMBER	CONDITION DESCRIPTION	COMPLIANT? (Yes/No/ND)	ACTION TAKEN
3.1.2.1	At least twice per year during the duration of the MSX Short Dump Project, paired samples shall be taken from site E304613 and E216144 when safe access is available to E216144. The results shall be compared in the Annual Report.	Yes	Refer to Section 6.2, and Appendix I
3.1.3.1	Sampling is to be carried out in accordance with the procedures described in the most recent edition of the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," or by suitable alternative procedures as authorized by the Director.	Yes	Refer to Section 4 and 4.2
3.1.3.1	Analyses are to be carried out in accordance with procedures described in the most recent edition of the "British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air," or by suitable alternative procedures as authorized by the director.	Yes	Refer to Section 3.1.4
3.1.3.3	The permittee must implement a Quality Assurance and Quality Control plan in accordance with the Environmental Data Quality Assurance Regulation and guidance provided in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air- Emissions, Water, Wastewater, Soil, Sediment, and biological Samples", and "British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air."	Yes	Refer to Section 3.
3.1.3.4	Flow calculation methods for receiving streams or creeks must be based on a regional hydrological evaluation, and recommendations made and implemented by a qualified professional. Appropriate current and historical stream gauging data should be utilized. Methods must be updated at a frequency and in a manner recommended by a qualified professional. Flow gauging stations required by permit for discharge stations must be evaluated and documented to illustrate gauging method, consistency and relative accuracy and must be operated according to recommendations from a qualified professional. Reports on methods, evaluations and recommendations must be made available to the director on request.	Yes	Refer to Appendix F, 2021 Line Creek Operations Hydrometric Program Final Report
4.3	The permittee must prepare on an annual basis a report or series of reports summarizing activities, incidents, and discharge/receiving environment monitoring results. The report(s) must include but is not limited to: i. A map of monitoring locations with EMS and Teck descriptors; ii. A summary of non-compliances with the permit conditions for the previous calendar year. This shall include interpretation of significance, and the status of corrective actions and/or ongoing investigations; iii. A summary of environmental incidents reported during the previous calendar year, including corrective status; iv. A summary of measured parameters, including appropriate graphs and comparison of results to permit limits, Approved and Working Water Quality Guidelines, Site Performance Objectives, or other criteria and benchmarks as specified by the director; v. A summary of flocculants used at each pond location, in accordance with the approved Flocculent Management Plan, including types and trade names, concentrations and volumes of each type dosed, and frequency and duration of dosing; vi. A summary of any QA/QC problems during the year; and, vii. A summary of annual pit pumping results including comparisons of predicted water quality and actual monitoring results as well as any changes needed to improve water quality predictions for pit pumping in the upcoming year. viii. An estimate of the proportion of mine-affected water (surface and subsurface) that is not captured by the Dry Creek Water Management System. The Annual Report must be submitted to the director on March 31st of each year following the data collection calendar year.	Yes	Acknowledged. Refer to Line Creek Operations 2021 Annual Water Report for Permit 5353, submitted March 31, 2021

Appendix B – 2021 Summary of Spills and Incidents Reported to Emergency Management B.C

Number	Date	Type	Substance	Spill Volume (L)	Location Name	Description of Incident	Corrective Status	DGIR#
1	12-Jan-21	Spill	Hydraulic Oil	117.1	Mount Michael (MTM)	Pinched hose leak on the ripper assembly supply line.	Complete	203744
2	13-Jan-21	Spill	Transmission Oil	285.2	Mount Michael (MTM)	Pinched O-ring.	Complete	203760
3	15-Jan-21	Spill	Diesel	250	Mine Services Bldg	Overfilled generator container ruptured.	Complete	203809
4	19-Jan-21	Spill	Coolant	300	Mount Michael (MTM)	Failed a rubber fitting on a coolant line.	Complete	203848
5	20-Jan-21	Spill	Hydraulic Oil	116	Mount Michael (MTM)	Loose fitting on hydraulic line.	Complete	203861
6	23-Jan-21	Spill, Damage	Hydraulic Oil	591	Mount Michael (MTM)	Main line to the hydraulic oil tank ruptured.	Complete	203946
7	23-Jan-21	Spill	Hydraulic Oil	500	Burnt Ridge Extension (BRX)	Failed hydraulic hose.	Complete	203895
8	26-Jan-21	Spill	Coolant	310	Mount Michael (MTM)	Failed an upper coolant hose.	Complete	203940
9	29-Jan-21	Spill	Hydraulic Oil	200	Spoils	Failed hydraulic line.	Complete	203974
10	7-Feb-21	Spill	Hydraulic Oil	247.8	Mount Michael (MTM)	Failed propel directional control valve O-ring on the rh propel.	Complete	204109
11	7-Feb-21	Spill	Hydraulic Oil	110.4	Burnt Ridge Extension (BRX)	Failed hydraulic ripper line.	Complete	204110
12	9-Feb-21	Spill	Hydraulic Oil	200	Mount Michael (MTM)	Hoist screen hydraulic hose had a failed O-ring.	Complete	204141
13	11-Feb-21	Spill, Geotechnical	Waste Rock	1.99Mm^3	Burnt Ridge North (BRN)	Spoil Failure.	Complete	204168
14	24-Feb-21	Spill	Clarifier Feed	500	Sample Bldg	Failed sump pump.	Complete	204332
15	4-Mar-21	Spill	Hydraulic Oil	150	Mount Michael (MTM)	Small hole in a line.	Complete	204423
16	15-Mar-21	Spill	Hydraulic Oil	204	Mount Michael (MTM)	Failed O-rings between screens and hoses.	Complete	204549
17	18-Mar-21	Spill	Hydraulic Oil	276	Mount Michael (MTM)	Failed hydraulic line.	Complete	204603
18	25-Mar-21	Spill	Hydraulic Oil	180	Mount Michael (MTM)	Failed steering line.	Complete	204692
19	2-Apr-21	Spill	Hydraulic Oil	215	Mount Michael (MTM)	Worn hole on bulkhead connection line.	Complete	210020
20	6-Apr-21	Spill	Hydraulic Oil	600	Mount Michael (MTM)	Brake cooling tube ruptured.	Complete	210044
21	6-Apr-21	Spill	Reclaim and Process Water	10000	Wash Plant	Power loss to the plant causing sumps to lose power.	Complete	210053
22	10-Apr-21	Spill	Hydraulic Oil	234	Mount Michael (MTM)	Failed O-ring on the main hydraulic pump.	Complete	210110
23	11-Apr-21	Spill	Hydraulic Oil	350	Mount Michael (MTM)	Failed hydraulic hose.	Complete	210119
24	12-Apr-21	Spill	Hydraulic Oil	332	Mount Michael (MTM)	Poorly routed hose had rubbed through.	Complete	210123
25	13-Apr-21	Spill	Hydraulic Oil	791	Mount Michael (MTM)	Drain plug fell out or had been sheared off.	Complete	210169
26	16-Apr-21	Spill	Hydraulic Oil	150	Mount Michael (MTM)	Drain plug for the tandem case broke off.	Complete	210195
27	20-Apr-21	Spill	Hydraulic Oil	121.6	Mount Michael (MTM)	Pin hole in a secondary brake pump hose.	Complete	210251
28	21-Apr-21	Spill	Coolant	507	Mount Michael (MTM)	Failed coolant line.	Complete	210261
29	25-Apr-21	Spill	Hydraulic Oil	117	Burnt Ridge Extension (BRX)	Loose fitting off the fan pump.	Complete	210308
30	27-Apr-21	Spill	Coolant	216	Mount Michael (MTM)	Overheated equipment causing rap cap failure.	Complete	210342
31	30-Apr-21	Spill	Coolant	207.8	Spoils	Brake cooler hose came off of pipe.	Complete	210385
32	9-May-21	Spill	Coolant	492	Mount Michael (MTM)	Failed coolant hose.	Complete	210483
33	15-May-21	Spill	Fugitive Dust (Other)	17 kg	Grave Lake	External conditions from coal processing activities.	Complete	210603
34	19-May-21	Spill	Hydraulic Oil	376.7	Burnt Ridge Extension (BRX)	Loose fitting on a hose coming from the hydraulic pump.	Complete	210617
35	25-May-21	Spill	Coolant	457.1	North Line Creek (NLC)	Blown O-ring on a brake cooler.	Complete	210667
36	26-May-21	Spill	Hydraulic Oil	129.3	Mount Michael (MTM)	Leaking O-ring on the tee fitting under the brake accumulator.	Complete	210695
37	26-May-21	Spill	Engine Oil	206.8	Mount Michael (MTM)	Leak from the right rear service break line.	Complete	210694
38	26-May-21	Spill	Hydraulic Oil	174.8	Mount Michael (MTM)	Wrong O-ring was installed on fan motor hose.	Complete	210698
39	28-May-21	Spill	Hydraulic Oil	382	MSA Extension (MSAX)	Blew a implement control hydraulic line.	Complete	210709
40	2-Jun-21	Spill	Coolant	327	Mount Michael (MTM)	Failed heater hose line.	Complete	210769
41	2-Jun-21	Spill	Coolant	208	Mount Michael (MTM)	Failed a coolant line.	Complete	210764
42	7-Jun-21	Spill, Injury	Hydraulic Oil	203	MSA Extension (MSAX)	Right hoist cylinder had broken off due to the top pin falling out.	Complete	210851
43	19-Jun-21	Spill	Coolant	450	Mount Michael (MTM)	Blew a large coolant line.	Complete	211003
44	20-Jun-21	Spill	Hydraulic Oil	186	Mount Michael (MTM)	Large hose for the brake cooling pump blew apart.	Complete	211007
45	21-Jun-21	Spill	Hydraulic Oil	200	Burnt Ridge Extension (BRX)	Split hydraulic line.	Complete	211025
46	21-Jun-21	Spill	Hydraulic Oil	151	Coarse Coal Reject	Failed hydraulic line.	Complete	211035
47	26-Jun-21	Spill	Hydraulic Oil	402	Mount Michael (MTM)	Failed two hydraulic pilot lines for	Complete	211114
48	26-Jun-21	Spill	Transmission Oil	200	Coarse Coal Reject	Damage to truck frame.	Complete	211138

Number	Date	Type	Substance	Spill Volume (L)	Location Name	Description of Incident	Corrective Status	DGIR#
49	28-Jun-21	Spill	Hydraulic Oil	150	Mount Michael (MTM)	DR 634 is drilling on the 87 pattern in MTM and Had a hydraulic hose let go in behind a smell cover on the right hand side of the drill.	Complete	211129
50	29-Jun-21	Spill	Hydraulic Oil	172	Mount Michael (MTM)	Failed a hydraulic hose on levelling jack.	Complete	211152
51	29-Jun-21	Spill, Injury	Coolant	400	Mount Michael (MTM)	Failed coolant line causing coolant to spray onto the engine.	Complete	211169
52	1-Jul-21	Spill	Engine Oil	76.2	Load-Out	Engine oil fill cap had come off.	Complete	
53	5-Jul-21	Spill	Hydraulic Oil	120	West Line Creek (WLC)	Failed hydraulic line.	Complete	211239
54	15-Jul-21	Spill	Coolant	150	Spoils	Failed coolant line going into water pump.	Complete	211363
55	18-Jul-21	Spill	Coolant	465	Mount Michael (MTM)	Failed coolant line.	Complete	211397
56	18-Jul-21	Spill	Coolant	414	Mount Michael (MTM)	Failed a coolant line.	Complete	211401
57	31-Jul-21	Spill	Hydraulic Oil	250	Mine Services Maintenance Shop/Warehouse	Tire was pushed too far with the tire manipulator contacting the brake cooling line crushing the pipe.	Complete	211599
58	6-Aug-21	Spill	Coolant	260.2	Mount Michael (MTM)	Failed coolant line.	Complete	211681
59	7-Aug-21	Spill	Diesel	200	Mount Michael (MTM)	Fuel spill from breather while refueling.	Complete	211697
60	8-Aug-21	Spill	Coolant	316	Mount Michael (MTM)	Lower rad hose failed.	Complete	211711
61	9-Aug-21	Spill	Coolant	375	Burnt Ridge North (BRN)	Bottom radiator hose ruptured.	Complete	211746
62	9-Aug-21	Spill	Coolant	404	North Line Creek Extension (NLX)	Failed a coolant hose.	Complete	211744
63	15-Aug-21	Spill	Coolant	300	Burnt Ridge North (BRN)	Blew a coolant line.	Complete	211820
64	21-Aug-21	Spill	Hydraulic Oil	834	Mount Michael (MTM)	Pressurized hub assembly causing a blow out the duo-cone seals.	Complete	211909
65	28-Aug-21	Spill	Transmission Oil	127	Mine Truck Dump	Blown O-ring in the filter housing for the power train oil.	Complete	212001
66	4-Sep-21	Spill	Coolant	300	Mine Truck Dump	Coolant leak from a lower rad hose.	Complete	212087
67	5-Sep-21	Spill	Hydraulic Oil	200	Mount Michael (MTM)	Draining fluids.	Complete	212107
68	12-Sep-21	Spill	Hydraulic Oil	543	MSA Extension (MSAX)	Failed O-ring on the steering oil pump.	Complete	212181
69	13-Sep-21	Spill	Hydraulic Oil	100	Mount Michael (MTM)	Failed hydraulic line.	Complete	212190
70	23-Sep-21	Spill	Hydraulic Oil	415	Mount Michael (MTM)	Failed O-ring.	Complete	212355
71	29-Sep-21	Spill, Geotechnical	Waste Rock	202000	Mount Michael (MTM)	Spoil Failure.	Complete	212467
72	29-Sep-21	Spill	Hydraulic Oil	256	Mount Michael (MTM)	A big hydraulic line that failed	Complete	212458
73	3-Oct-21	Spill	Coolant	1000	Spoils	Engine cooling fan broken free of fan motor/ drive hub.	Complete	212503
74	11-Oct-21	Spill	Fugitive Dust (Other)	1.35kg	Grave Lake	External conditions from coal	Complete	212737
75	13-Oct-21	Spill	Hydraulic Oil	102	Mount Michael (MTM)	The pilot hose on the steering oil pump failed.	Complete	212638
76	13-Oct-21	Spill	Hydraulic Oil	250	Spoils	The right hand gear case drain plug was hit by a rock when the grader was spreading out a load.	Complete	212648
77	14-Oct-21	Spill	Clarifier Feed	20000	Wash Plant	A side Heavy media tank probe stopped working causing the tank to over flow, at the same time floor sump failed.	Complete	212656
78	14-Oct-21	Spill	Black Water	4	Maxam Bulk Explosive Storage	Repair of a buried pipe caused pipe to separate from distribution box.	Complete	212665
79	24-Oct-21	Spill	Hydraulic Oil	170	Mount Michael (MTM)	Failed hydraulic line.	Complete	212829
80	27-Oct-21	Spill	Coolant	285	Mount Michael (MTM)	Damaged fitting that was leaking on a powertrain cooler crossover tube.	Complete	212880
81	27-Oct-21	Spill	Hydraulic Oil	600	Burnt Ridge Extension (BRX)	Missing plug in the main suction line.	Complete	212892
82	31-Oct-21	Spill	Fruit based glycerin	32000	Load-Out	Hose fitting failure.	Complete	213080

Number	Date	Type	Substance	Spill Volume (L)	Location Name	Description of Incident	Corrective Status	DGIR#
83	5-Nov-21	Spill	Hydraulic Oil	110	Mount Michael (MTM)	Steering accumulator lines blow apart at the crimp causing a large steering oil leak.	Complete	213039
84	5-Nov-21	Spill	Hydraulic Oil	110	Burnt Ridge Extension (BRX)	Steering cylinder line had a loose fitting.	Complete	213056
85	5-Nov-21	Spill	Hydraulic Oil	400	Mount Michael (MTM)	Split hydraulic line.	Complete	213059
86	6-Nov-21	Spill	Coolant	400	Coarse Coal Reject	Failed coolant line.	Complete	213073
87	10-Nov-21	Spill	Coolant	404.7	Mount Michael (MTM)	Failed coolant line.	Complete	213124
88	11-Nov-21	Spill	Coolant	500	MSA Extension (MSAX)	Failed a large coolant line.	Complete	213126
89	20-Nov-21	Spill	Diesel	500	Jurassic Park	Tank dislodged onto the ground and ruptured when dismantling.	Complete	213370
90	23-Nov-21	Spill	Hydraulic Oil	175	Mount Michael (MTM)	Rock ejected from the tire and knocked off a filter and a hose off the steering tank.	Complete	213408
91	1-Dec-21	Spill	Coolant	230	Mount Michael (MTM)	Tire blowing knocked the transfer coolant out of between the two coolant lines.	Complete	213613
92	2-Dec-21	Spill	Hydraulic Oil	266	Burnt Ridge North (BRN)	Failed O-ring.	Complete	213622
93	2-Dec-21	Spill	Hydraulic Oil	160	Mount Michael (MTM)	Failed O-ring in the steering system.	Complete	213627
94	4-Dec-21	Spill	Hydraulic Oil	143	Burnt Ridge North (BRN)	Failed hydraulic hose.	Complete	213657
95	7-Dec-21	Spill	Hydraulic Oil	767.4	MSA Extension (MSAX)	Steering line had a pin hole in it	Complete	213692
96	17-Dec-21	Spill, Damage	Diesel and Hydraulic oil	250	Mount Michael (MTM)	Chain case plug broke off.	Complete	213833
97	19-Dec-21	Spill, Damage	Diesel	3000	Mount Michael (MTM)	Damage to the fuel tank of the truck.	Complete	213853
98	23-Dec-21	Spill	Hydraulic Oil	105.2	Mount Michael (MTM)	Failed main compressor line.	Complete	213911
99	30-Dec-21	Spill	Hydraulic Oil	600	Mount Michael (MTM)	Found a brake cooling hose blown.	Complete	214002
100	6-Dec-21	Spill	Effluent that failed rain	8367390	Line Creek	MSX Pit pumping causing acute toxicity tests to fail.	In Progress	214353

Appendix C – 2021 Field Duplicates

			Location:	LC_SPDC	LC_SPDC		
			Sample ID:	LC_SPDC_WS_2021-07-12_N	LC_CC2_WS_2021-07-12_N		
			Date Sampled:	7/13/2021	7/13/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	4.1	4.6	11.49%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	1.62	1.85	13.26%	Pass

			Location:	LC_SPDC	LC_SPDC		
			Sample ID:	LC_SPDC_WS_2021-07-26_N	LC_CC2_WS_2021-07-26_N		
			Date Sampled:	7/27/2021	7/27/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.56	0.64	13.33%	Pass

			Location:	LC_LC7	LC_LC7		
			Sample ID:	LC_LC7_MNT_2021-06-01_N	LC_CC1_MNT_2021-06-01_N		
			Date Sampled:	6/4/2021	6/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.2	<1	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.39	0.33	16.67%	Pass

			Location:	LC_DCEF	LC_DCEF		
			Sample ID:	LC_DCEF_MNT_2021-03-15_N	LC_CC3_MNT_2021-03-15_N		
			Date Sampled:	3/16/2021	3/16/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.3	1.3	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.31	0.18	53.06%	Pass-1

			Location:	LC_DCEF	LC_DCEF		
			Sample ID:	LC_DCEF_WS_Q3-2021_N	LC_CC3_WS_Q3-2021_N		
			Date Sampled:	7/5/2021	7/5/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.24	<0.1	82.35%	Pass-1

			Location:	LC_DCDS	LC_DCDS		
			Sample ID:	LC_DCDS_MNT_2021-02-02_N	LC_CC3_MNT_2021-02-02_N		
			Date Sampled:	2/2/2021	2/2/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.17	0.28	48.89%	Pass-1

			Location:	LC_DCDS	LC_DCDS		
			Sample ID:	LC_DCDS_MNT_2021-05-04_N	LC_CC3_MNT_2021-05-04_N		
			Date Sampled:	5/4/2021	5/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	12.2	10.9	11.26%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	6.22	7.96	24.54%	Pass-2

			Location:	LC_DCDS	LC_DCDS		
			Sample ID:	LC_DCDS_WS_2021-01-18_N	LC_CC2_WS_2021-01-18_N		
			Date Sampled:	1/19/2021	1/19/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.2	1	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.21	0.24	13.33%	Pass

			Location:	LC_DCDS	LC_DCDS		
			Sample ID:	LC_DCDS_WS_2021-10-18_N	LC_CC2_WS_2021-10-18_N		
			Date Sampled:	10/19/2021	10/19/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.2	1.1	8.70%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.34	0.34	0.00%	Pass

			Location:	LC_DCDS	LC_DCDS		
			Sample ID:	LC_DCDS_WS_2021-11-08_N	LC_CC2_WS_2021-11-08_N		
			Date Sampled:	11/9/2021	11/9/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	2.5	1.3	63.16%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.19	14.63%	Pass

			Location:	LC_LC5	LC_LC5		
			Sample ID:	LC_LC5_WS_2021-07-12_N	LC_CC1_WS_2021-07-12_N		
			Date Sampled:	7/12/2021	7/12/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.2	1.1	8.70%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.42	0.39	7.41%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_MNT_2021-09-07_N	LC_CC3_MNT_2021-09-07_N		
			Date Sampled:	9/8/2021	9/8/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.83	0.29	**96.43%**	Fail

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WEK_2021-10-05_N	LC_CC3_WEK_2021-10-05_N		
			Date Sampled:	10/6/2021	10/6/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.1	2.2	66.67%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.75	103.03%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-01-11_N	LC_CC2_WS_2021-01-11_N		
			Date Sampled:	1/12/2021	1/12/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.36	0.26	32.26%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-01-25_N	LC_CC2_WS_2021-01-25_N		
			Date Sampled:	1/26/2021	1/26/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.5	1.9	23.53%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.33	31.58%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-03-01_N	LC_CC2_WS_2021-03-01_N		
			Date Sampled:	3/3/2021	3/3/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.13	0.2	42.42%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-03-08_N	LC_CC2_WS_2021-03-08_N		
			Date Sampled:	3/9/2021	3/9/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.4	1.6	13.33%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.19	0.13	37.50%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-03-22_N	LC_CC2_WS_2021-03-22_N		
			Date Sampled:	3/22/2021	3/22/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	2.0	2.2	9.52%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.94	0.73	25.15%	Pass-2

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-04-12_N	LC_CC2_WS_2021-04-12_N		
			Date Sampled:	4/15/2021	4/15/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	2.4	3.6	40.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	2.09	1.96	6.42%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-04-19_N	LC_CC2_WS_2021-04-19_N		
			Date Sampled:	4/20/2021	4/20/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	3.5	3.3	5.88%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	1.93	2.13	9.85%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-05-24_N	LC_CC2_WS_2021-05-24_N		
			Date Sampled:	5/26/2021	5/26/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	7.2	7	2.82%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	4.86	4.14	16.00%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-06-21_N	LC_CC2_WS_2021-06-21_N		
			Date Sampled:	6/22/2021	6/22/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	3.7	5	29.89%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	1.43	1.68	16.08%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-07-19_N	LC_CC2_WS_2021-07-19_N		
			Date Sampled:	7/20/2021	7/20/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.48	0.6	22.22%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-08-16_N	LC_CC2_WS_2021-08-30_N		
			Date Sampled:	8/17/2021	8/17/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	6.0	6.8	12.50%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	2.29	1.94	16.55%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-08-23_N	LC_CC2_WS_2021-08-23_N		
			Date Sampled:	8/24/2021	8/24/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.38	0.4	5.13%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-08-30_N	C_CC2_WS_2021-09-MISS_N		
			Date Sampled:	8/30/2021	8/30/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.0	1.1	9.52%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.29	0.34	15.87%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-11-22_N	LC_CC2_WS_2021-11-22_N		
			Date Sampled:	11/23/2021	11/23/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.4	2.4	52.63%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.48	0.44	8.70%	Pass

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_2021-12-27_N	LC_CC2_WS_2021-12-27_N		
			Date Sampled:	12/30/2021	12/30/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.4	1.7	19.35%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.28	0.22	24.00%	Pass-1

			Location:	LC_DC1	LC_DC1		
			Sample ID:	LC_DC1_WS_Q1-2021_N	LC_CC3_WS_Q1-2021_N		
			Date Sampled:	1/6/2021	1/6/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.27	0.21	25.00%	Pass-1

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_MNT_2021-03-15_N	LC_CC2_MNT_2021-03-15_N		
			Date Sampled:	3/16/2021	3/16/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.7	2	16.22%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.21	0.19	10.00%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-02-08_N	LC_CC1_WS_2021-02-08_N		
			Date Sampled:	2/8/2021	2/8/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1.9	62.07%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	0.15	40.00%	Pass-1

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-03-01_N	LC_CC1_WS_2021-03-01_N		
			Date Sampled:	3/4/2021	3/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.31	0.3	3.28%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-04-12_N	LC_CC1_WS_2021-04-12_N		
			Date Sampled:	4/12/2021	4/12/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.21	0.21	0.00%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-07-19_N	LC_CC1_WS_2021-07-19_N		
			Date Sampled:	7/20/2021	7/20/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.5	1.8	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.39	0.46	16.47%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-08-16_N	LC_CC1_WS_2021-08-16_N		
			Date Sampled:	8/16/2021	8/16/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.20	0.19	5.13%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_2021-10-25_N	LC_CC1_WS_2021-10-25_N		
			Date Sampled:	10/25/2021	10/25/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	2.2	<1	75.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.95	0.54	**55.03%**	Fail

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_Q1-2021_N	LC_CC2_WS_Q1-2021_N		
			Date Sampled:	1/5/2021	1/5/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.15	0.17	12.50%	Pass

			Location:	LC_LC4	LC_LC4		
			Sample ID:	LC_LC4_WS_Q3-2021_N	LC_CC1_WS_Q3-2021_N		
			Date Sampled:	7/6/2021	7/6/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.1	<1	9.52%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.58	82.93%	Pass-1

			Location:	LC_GRCK	LC_GRCK		
			Sample ID:	LC_GRCK_MNT_2021-09-07_N	LC_CC3_MNT_2021-09-13_N		
			Date Sampled:	9/13/2021	9/13/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.7	5.6	106.85%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	1.24	2.43	**64.85%**	Fail

			Location:	LC_GRCK	LC_GRCK		
			Sample ID:	LC_GRCK_MNT_2021-12-07_N	LC_CC3_MNT_2021-12-07_N		
			Date Sampled:	12/9/2021	12/9/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1.8	57.14%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.20	0.25	22.22%	Pass-1

			Location:	LC_GRCK	LC_GRCK		
			Sample ID:	LC_GRCK_WS_Q4-2021_N	LC_CC3_WS_Q4-2021_N		
			Date Sampled:	10/13/2021	10/13/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.0	2.2	75.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.26	0.36	32.26%	Pass-1

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-01-11_N	LC_CC1_WS_2021-01-11_N		
			Date Sampled:	1/11/2021	1/11/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.4	2.4	52.63%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.39	0.46	16.47%	Pass

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-01-18_N	LC_CC1_WS_2021-01-18_N		
			Date Sampled:	1/18/2021	1/18/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.31	0.24	25.45%	Pass-1

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-01-25_N	LC_CC1_WS_2021-01-25_N		
			Date Sampled:	1/25/2021	1/25/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.78	0.29	**91.59%**	Fail

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-02-15_N	LC_CC1_WS_2021-02-15_N		
			Date Sampled:	2/16/2021	2/16/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.5	<1	40.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.25	0.24	4.08%	Pass

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-03-29_N	LC_CC1_WS_2021-03-29_N		
			Date Sampled:	3/30/2021	3/30/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.20	0.23	13.95%	Pass

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-04-19_N	LC_CC1_WS_2021-04-19_N		
			Date Sampled:	4/20/2021	4/20/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.18	28.57%	Pass-1

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-09-13_N	LC_CC1_WS_2021-09-13_N		
			Date Sampled:	9/20/2021	9/20/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1.5	40.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.29	27.45%	Pass-1

			Location:	LC_LC3	LC_LC3		
			Sample ID:	LC_LC3_WS_2021-11-22_N	LC_CC1_WS_2021-11-22_N		
			Date Sampled:	11/22/2021	11/22/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.17	25.64%	Pass-1

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_2021-12-13_N	LC_CC1_WS_2021-12-13_N	
Date Sampled:	12/16/2021	12/16/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.23	0.18	24.39%	Pass-1

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_2021-12-20_N	LC_CC1_WS_2021-12-20_N	
Date Sampled:	12/21/2021	12/21/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.23	4.44%	Pass

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_2021-MISS_N	LC_CC1_WS_2021-MISS_N	
Date Sampled:	8/24/2021	8/24/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.30	0.43	35.62%	Pass-1

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_Q1-2021_N	LC_CC1_WS_Q1-2021_N	
Date Sampled:	1/5/2021	1/5/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.34	0.34	0.00%	Pass

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_Q2-2021_N	LC_CC1_WS_Q2-2021_N	
Date Sampled:	4/5/2021	4/5/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.17	0.14	19.35%	Pass

Location:	LC_LC3	LC_LC3	
Sample ID:	LC_LC3_WS_Q3-2021_N	LC_CC2_WS_Q3-2021_N	
Date Sampled:	7/6/2021	7/6/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.3	22.22%	Pass-1

Location:	LC_LC2	LC_LC2	
Sample ID:	LC_LC2_MNT_2021-02-02_N	LC_CC1_MNT_2021-02-02_N	
Date Sampled:	2/1/2021	2/1/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	<0.1	0.00%	Pass

			Location:	LC_LC2	LC_LC2		
			Sample ID:	LC_LC2_MNT_2021-03-15_N	LC_CC1_MNT_2021-03-15_N		
			Date Sampled:	3/15/2021	3/15/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.16	0.17	6.06%	Pass

			Location:	LC_LC2	LC_LC2		
			Sample ID:	LC_LC2_MNT_2021-09-07_N	C_CC1_MNT_2021-09-07_N2		
			Date Sampled:	9/14/2021	9/14/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	0.2	66.67%	Pass-1

			Location:	LC_LC2	LC_LC2		
			Sample ID:	LC_LC2_WS_Q2-2021_N	LC_CC2_WS_Q2-2021_N		
			Date Sampled:	4/7/2021	4/7/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	0.11	9.52%	Pass

			Location:	LC_LC2	LC_LC2		
			Sample ID:	LC_LC2_WS_Q4-2021_N	LC_CC1_WS_2021-10-18_N		
			Date Sampled:	10/25/2021	10/25/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	<0.1	0.00%	Pass

			Location:	LC_FRDSDC	LC_FRDSDC		
			Sample ID:	LC_FRDSDC_WS_2021-04-26_N	LC_CC2_WS_2021-04-26_N		
			Date Sampled:	4/28/2021	4/28/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	3.9	2.4	47.62%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	1.25	0.6	**70.27%**	Fail

			Location:	LC_FRDSDC	LC_FRDSDC		
			Sample ID:	LC_FRDSDC_WS_2021-06-07_N	LC_CC2_WS_2021-06-07_N		
			Date Sampled:	6/8/2021	6/8/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	10.4	10.7	2.84%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	3.12	3.02	3.26%	Pass

			Location:	LC_FRDSDC	LC_FRDSDC		
			Sample ID:	LC_FRDSDC_WS_2021-06-14_N	LC_CC2_WS_2021-06-14_N		
			Date Sampled:	6/15/2021	6/15/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	9.7	5.2	**60.40%**	Fail
TURBIDITY, LAB	0.1	0.1	ntu	2.82	1.27	**75.79%**	Fail

			Location:	LC_LC1	LC_LC1		
			Sample ID:	LC_LC1_MNT_2021-05-04_N	LC_CC1_MNT_2021-05-04_N		
			Date Sampled:	5/4/2021	5/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	0.12	18.18%	Pass

			Location:	LC_LC1	LC_LC1		
			Sample ID:	LC_LC1_MNT_2021-11-02_N	LC_CC1_MNT_2021-11-02_N		
			Date Sampled:	11/4/2021	11/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.1	<1	9.52%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	<0.1	0.00%	Pass

			Location:	LC_LC1	LC_LC1		
			Sample ID:	LC_LC1_MNT_2021-12-07_N	LC_CC2_MNT_2021-12-07_N		
			Date Sampled:	12/6/2021	12/6/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	1.3	<1	26.09%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	0.13	26.09%	Pass-1

			Location:	LC_SLC	LC_SLC		
			Sample ID:	LC_SLC_WS_2021-11-08_N	LC_CC1_WS_2021-11-08_N		
			Date Sampled:	11/9/2021	11/9/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	<0.1	0.00%	Pass

			Location:	LC_SLC	LC_SLC		
			Sample ID:	LC_SLC_WS_Q4-2021_N	LC_CC1_WS_Q4-2021_N		
			Date Sampled:	10/12/2021	10/12/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	<0.10	<0.1	0.00%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_MNT_2021-05-04	LC_CC2_MNT_2021-05-04_N		
			Date Sampled:	5/4/2021	5/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.36	0.31	14.93%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_MNT_2021-08-04	LC_CC2_MNT_2021-08-04_N		
			Date Sampled:	8/4/2021	8/4/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.22	0.00%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_MNT_2021-09-07_	LC_CC1_MNT_2021-09-07_N		
			Date Sampled:	9/9/2021	9/9/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.42	0.26	47.06%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_MNT_2021-11-02_	LC_CC2_MNT_2021-11-02_N		
			Date Sampled:	11/1/2021	11/1/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.18	20.00%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_MNT_2021-12-07_	LC_CC1_MNT_2021-12-07_N		
			Date Sampled:	12/5/2021	12/5/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.12	0.1	18.18%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-03-22_	LC_CC1_WS_2021-03-22_N		
			Date Sampled:	3/22/2021	3/22/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.29	0.48	49.35%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-05-10_	LC_CC1_WS_2021-05-10_N		
			Date Sampled:	5/11/2021	5/11/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.13	0.12	8.00%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-05-24_	LC_CC1_WS_2021-05-24_N		
			Date Sampled:	5/26/2021	5/26/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.43	0.25	52.94%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-06-07_	LC_CC1_WS_2021-06-07_N		
			Date Sampled:	6/10/2021	6/10/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.17	0.2	16.22%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-06-14_	LC_CC1_WS_2021-06-14_N		
			Date Sampled:	6/14/2021	6/14/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.11	0.12	8.70%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-06-28_	LC_CC1_WS_2021-06-28_N		
			Date Sampled:	6/28/2021	6/28/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.45	0.15	100.00%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-08-09_	LC_CC1_WS_2021-08-10_N		
			Date Sampled:	8/10/2021	8/10/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.23	0.22	4.44%	Pass

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-11-29_	LC_CC1_WS_2021-11-29_N		
			Date Sampled:	11/29/2021	11/29/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	27.3	185.87%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.12	1.96	176.92%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	C_LCUSWLC_WS_2021-12-27_	LC_CC1_WS_2021-12-27_N		
			Date Sampled:	12/29/2021	12/29/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1.2	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.28	0.15	60.47%	Pass-1

			Location:	LC_LCUSWLC	LC_LCUSWLC		
			Sample ID:	LC_LCUSWLC_WS_Q4-2021_N	LC_CC2_WS_Q4-2021_N		
			Date Sampled:	10/14/2021	10/14/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.22	0.16	31.58%	Pass-1

			Location:	LC_DC3	LC_DC3		
			Sample ID:	LC_DC3_MNT_2021-06-01_NP	LC_CC3_MNT_2021-06-01_N		
			Date Sampled:	6/1/2021	6/1/2021		
			Sample Type:	**Primary**	**Secondary**		
Analyte	**Detection Limit Pri.**	**Detection Limit Dup.**	**Units**			**Primary vs. Duplicat**	**Category1**
TOTAL SUSPENDED SOLID	1	1	mg/l	14.6	14.9	2.03%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	5.45	6.95	24.19%	Pass-2

Location:	LC_DC3	LC_DC3
Sample ID:	LC_DC3_WS_2021-02-15_NP	LC_CC2_WS_2021-02-15_N
Date Sampled:	2/16/2021	2/16/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	2.7	6.3	80.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.42	0.55	26.80%	Pass-1

Location:	LC_DC3	LC_DC3
Sample ID:	LC_DC3_WS_2021-02-22_N	LC_CC2_WS_2021-02-22_N
Date Sampled:	2/22/2021	2/22/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.5	<1	40.00%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.33	0.47	35.00%	Pass-1

Location:	LC_DC3	LC_DC3
Sample ID:	LC_DC3_WS_2021-08-09_NP	LC_CC2_WS_2021-08-09_N
Date Sampled:	8/9/2021	8/9/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.1	1.5	30.77%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.46	0.48	4.26%	Pass

Location:	LC_DC3	LC_DC3
Sample ID:	LC_DC3_WS_2021-09-13_NP	LC_CC2_WS_2021-09-13_N
Date Sampled:	9/21/2021	9/21/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	1.2	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.44	0.45	2.25%	Pass

Location:	LC_DC3	LC_DC3
Sample ID:	LC_DC3_WS_2021-12-20_NP	LC_CC2_WS_2021-12-20_N
Date Sampled:	12/20/2021	12/20/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.6	2.3	35.90%	Pass-1
TURBIDITY, LAB	0.1	0.1	ntu	0.46	0.44	4.44%	Pass

Location:	LC_WLC	LC_WLC
Sample ID:	LC_WLC_WS_2021-06-21_N	LC_CC1_WS_2021-06-21_N
Date Sampled:	6/21/2021	6/21/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.19	0.13	37.50%	Pass-1

Location:	LC_WLC	LC_WLC
Sample ID:	LC_WLC_WS_2021-07-26_N	LC_CC1_WS_2021-07-26_N
Date Sampled:	7/28/2021	7/28/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.24	0.69	96.77%	Pass-1

Location:	LC_LCDSSLCC	LC_LCDSSLCC	
Sample ID:	C_LCDSSLCC_WS_2021-03-08	LC_CC1_WS_2021-03-08_N	
Date Sampled:	3/9/2021	3/9/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.2	<1	18.18%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.17	0.24	34.15%	Pass-1

Location:	LC_LCDSSLCC	LC_LCDSSLCC	
Sample ID:	C_LCDSSLCC_WS_2021-04-26	LC_CC1_WS_2021-04-26_N	
Date Sampled:	4/27/2021	4/27/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.14	0.23	48.65%	Pass-1

Location:	LC_LCDSSLCC	LC_LCDSSLCC	
Sample ID:	C_LCDSSLCC_WS_2021-08-30	LC_CC1_WS_2021-08-30_N	
Date Sampled:	8/31/2021	8/31/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.17	0.19	11.11%	Pass

Location:	LC_HSP	LC_HSP	
Sample ID:	LC_HSP_MNT_2021-08-04_N	LC_CC1_MNT_2021-08-04_N	
Date Sampled:	8/4/2021	8/4/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	<1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	1.65	1.58	4.33%	Pass

Location:	LC_HSP	LC_HSP	
Sample ID:	LC_HSP_WS_2021-05-17_N	LC_CC1_WS_2021-05-17_N	
Date Sampled:	5/17/2021	5/17/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	5.9	5.9	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	2.97	2.33	24.15%	Pass-2

Location:	RG_CH1	RG_CH1	
Sample ID:	RG_CH1_QTR-2021-07-05_NP	R_FLD_QTR_2021-07-05_NP	
Date Sampled:	7/8/2021	7/8/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.0	<1	0.00%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	0.47	<0.1	129.82%	Pass-1

Location:	LC_HSP	LC_HSP	
Sample ID:	LC_HSP_WS_2021-09-MISS_N	LC_CC2_MNT_2021-09-07_N	
Date Sampled:	9/14/2021	9/14/2021	
Sample Type:	**Primary**	**Secondary**	

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	1.1	<1	9.52%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	2.46	2.4	2.47%	Pass

Location:	LC_PIZP1101	LC_PIZP1101
Sample ID:	LC_PIZP1101_WG_Q2-2021_N	WG_Q2-2021_005
Date Sampled:	6/10/2021	6/10/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	69.9	77.9	10.83%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	102	113	10.23%	Pass

Location:	LC_PIZP1101	LC_PIZP1101
Sample ID:	LC_PIZP1101_WG_Q3-2021_N	LC_CC2_PIZP1101_N
Date Sampled:	9/21/2021	9/21/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	7.5	7.5	mg/l	2010	2080	3.42%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	4000	4000	0.00%	Pass

Location:	LC_PIZP1101	LC_PIZP1101
Sample ID:	LC_PIZP1101_WG_Q4-2021_N	WG_Q4-2021_010_CC3
Date Sampled:	11/23/2021	11/23/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	7.5	7.5	mg/l	2160	2180	0.92%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	3110	83.2	**189.58%**	Fail

Location:	LC_PIZP1105	LC_PIZP1105
Sample ID:	LC_PIZP1105_WG_Q1-2021_N	WG_Q1-2021_013
Date Sampled:	3/24/2021	3/24/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1.4	3	mg/l	2590	4770	**59.24%**	Fail
TURBIDITY, LAB	0.1	0.1	ntu	2450	3730	**41.42%**	Fail

Location:	LC_PIZP1105	LC_PIZP1105
Sample ID:	LC_PIZP1105_WG_Q2-2021_N	WG_Q2-2021_005B
Date Sampled:	6/11/2021	6/11/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	242	390	46.84%	Pass-2
TURBIDITY, LAB	0.1	0.1	ntu	143	246	**52.96%**	Fail

Location:	LC_PIZP1105	LC_PIZP1105
Sample ID:	LC_PIZP1105_WG_Q3-2021_NP	WG_Q3-2021_007_CC3
Date Sampled:	9/16/2021	9/16/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	3	3	mg/l	1740	1050	49.46%	Pass-2
TURBIDITY, LAB	0.1	0.1	ntu	1240	808	**42.19%**	Fail

Location:	LC_PIZP1105	LC_PIZP1105
Sample ID:	LC_PIZP1105_WG_Q4-2021_N	WG_Q4-2021_010_CC2
Date Sampled:	11/22/2021	11/22/2021
Sample Type:	**Primary**	**Secondary**

Analyte	Detection Limit Pri.	Detection Limit Dup.	Units			Primary vs. Duplicat	Category1
TOTAL SUSPENDED SOLID	1	1	mg/l	424	476	11.56%	Pass
TURBIDITY, LAB	0.1	0.1	ntu	290	290	0.00%	Pass

RPD Control Limits
Pass - RPD <= 20%
Pass-1 - RPD > 20%, Analysis results < 5 times Detection Limit
Pass-2 - RPD > 20% and RPD <= 50%, Analysis result > 5 times Detection Limit and < 999 times Detection Limit
Exceeds RPD Control Limits

Appendix D – 2021 Field Blanks and Trip Blanks

Results for Field Blanks - 2021

			TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
			N	N
			mg/l	ntu
SYS_LOC_CODE	EMS ID	SAMPLE_DATE	Result	Result
LC_DC1	E288270	1/6/2021	< 1.0	< 0.10
LC_LC4	0200044	1/11/2021	< 1.0	< 0.10
LC_DCDS	E295210	1/12/2021	< 1.0	< 0.10
LC_LC2	0200335	1/14/2021	< 1.0	< 0.10
LC_LC7	E216144	1/14/2021	< 1.0	< 0.10
LC_WLC	E261958	1/18/2021	< 1.0	0.1
LC_SPDC	E295211	1/19/2021	< 1.0	< 0.10
LC_LC4	0200044	1/25/2021	< 1.0	< 0.10
LC_SPDC	E295211	1/26/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	2/1/2021	< 1.0	< 0.10
LC_WLC	E261958	2/1/2021	< 1.0	< 0.10
LC_DCDS	E295210	2/2/2021	< 1.0	< 0.10
LC_LC4	0200044	2/8/2021	< 1.0	< 0.10
LC_DC3	E288273	2/16/2021	< 1.0	< 0.10
LC_LC3	0200337	2/16/2021	< 1.0	< 0.10
LC_LC3	0200337	2/22/2021	< 1.0	< 0.10
LC_SPDC	E295211	2/23/2021	< 1.0	< 0.10
LC_DC1	E288270	3/3/2021	< 1.0	< 0.10
LC_LC4	0200044	3/4/2021	< 1.0	< 0.10
LC_LC3	0200337	3/9/2021	< 1.0	< 0.10
LC_WLC	E261958	3/15/2021	< 1.0	< 0.10
LC_DCEF	E288274	3/16/2021	< 1.0	< 0.10
LC_LC4	0200044	3/16/2021	< 1.0	< 0.10
LC_WLC	E261958	3/22/2021	< 1.0	< 0.10
LC_DC1	E288270	3/22/2021	< 1.0	< 0.10
LC_PIZP1105	E302411	3/24/2021	< 1.0	< 0.10
LC_SPDC	E295211	3/29/2021	< 1.0	< 0.10
LC_WLC	E261958	3/29/2021	< 1.0	< 0.10
LC_LC3	0200337	4/5/2021	< 1.0	< 0.10
LC_WLC	E261958	4/6/2021	< 1.0	< 0.10
LC_LC4	0200044	4/12/2021	< 1.0	< 0.10

Results for Field Blanks - 2021

			TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
			N	N
			mg/l	ntu
SYS_LOC_CODE	EMS ID	SAMPLE_DATE	Result	Result
LC_DCDS	E295210	4/13/2021	< 1.0	< 0.10
LC_DC3	E288273	4/20/2021	< 1.0	< 0.10
LC_LC3	0200337	4/20/2021	< 1.0	< 0.10
LC_LC5	0200028	4/27/2021	< 1.0	< 0.10
LC_FRDSDC	E288272	4/28/2021	< 1.0	< 0.10
LC_LC1	E216142	5/4/2021	< 1.0	< 0.10
LC_DC1	E288270	5/4/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	5/11/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	5/17/2021	< 1.0	< 0.10
LC_DC1	E288270	5/17/2021	< 1.0	< 0.10
LC_DC1	E288270	5/26/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	5/26/2021	< 1.0	< 0.10
LC_DCEF	E288274	6/1/2021	< 1.0	< 0.10
LC_WLC	E261958	6/4/2021	< 1.0	< 0.10
LC_WLC	E261958	6/4/2021	< 1.0	< 0.10
LC_SLC	E282149	6/8/2021	< 1.0	< 0.10
LC_FRDSDC	E288272	6/8/2021	< 1.0	< 0.10
LC_LC4	0200044	6/14/2021	< 1.0	< 0.10
LC_FRDSDC	E288272	6/15/2021	< 1.0	< 0.10
RG_CH1	E295214	6/16/2021	< 1.0	< 0.10
LC_LC3	0200337	6/21/2021	< 1.0	< 0.10
LC_DCDS	E295210	6/22/2021	< 1.0	< 0.10
LC_WLC	E261958	6/28/2021	< 1.0	< 0.10
LC_DC3	E288273	7/5/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	7/6/2021	< 1.0	< 0.10
LC_LC1	E216142	7/7/2021	< 1.0	< 0.10
RG_CH1	E295214	7/8/2021	< 1.0	< 0.10
LC_WLC	E261958	7/12/2021	< 1.0	< 0.10
LC_FRDSDC	E288272	7/14/2021	< 1.0	< 0.10
LC_LC3	0200337	7/20/2021	< 1.0	< 0.10
LC_SPDC	E295211	7/20/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	7/28/2021	< 1.0	< 0.10

Results for Field Blanks - 2021

			TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
			N	N
			mg/l	ntu
SYS_LOC_CODE	EMS ID	SAMPLE_DATE	Result	Result
LC_DCEF	E288274	8/3/2021	< 1.0	< 0.10
LC_LC2	0200335	8/3/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	8/4/2021	< 1.0	< 0.10
LC_DC3	E288273	8/9/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	8/16/2021	< 1.0	< 0.10
LC_DCDS	E295210	8/17/2021	< 1.0	< 0.10
LC_LC3	0200337	8/24/2021	< 1.0	< 0.10
LC_DCDS	E295210	8/24/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	8/31/2021	< 1.0	< 0.10
LC_SPDC	E295211	9/8/2021	< 1.0	< 0.10
LC_SPDC	E295211	9/12/2021	< 1.0	< 0.10
LC_LCDSSLCC	E297110	9/14/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	9/14/2021	< 1.0	< 0.10
LC_PIZP1105	E302411	9/16/2021	< 1.0	< 0.10
LC_LC3	0200337	9/20/2021	< 1.0	< 0.10
LC_DC1	E288270	9/21/2021	< 1.0	< 0.10
LC_DC1	E288270	9/27/2021	< 1.0	< 0.10
LC_LC4	0200044	9/27/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	10/5/2021	< 1.0	< 0.10
LC_DC3	E288273	10/6/2021	< 1.0	< 0.10
LC_DCEF	E288274	10/12/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	10/14/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	10/18/2021	< 1.0	< 0.10
LC_DC3	E288273	10/18/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	10/25/2021	< 1.0	< 0.10
LC_LC1	E216142	10/25/2021	< 1.0	< 0.10
LC_DC1	E288270	10/26/2021	< 1.0	< 0.10
LC_HSP	E308146	11/1/2021	< 1.0	< 0.10
LC_LCDSSLCC	E297110	11/2/2021	1.2	< 0.10
LC_DC1	E288270	11/3/2021	< 1.0	< 0.10
LC_SPDC	E295211	11/8/2021	< 1.0	< 0.10
LC_LC4	0200044	11/8/2021	< 1.0	< 0.10

Results for Field Blanks - 2021

			TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
			N	N
			mg/l	ntu
SYS_LOC_CODE	EMS ID	SAMPLE_DATE	Result	Result
LC_LC3	0200337	11/22/2021	< 1.0	< 0.10
LC_PIZP1105	E302411	11/22/2021	< 1.0	< 0.10
LC_PIZP1105	E302411	11/22/2021	< 1.0	< 0.10
LC_DC1	E288270	11/23/2021	< 1.0	< 0.10
LC_PIZP1101	E302410	11/23/2021	< 1.0	< 0.10
LC_LCUSWLC	E293369	11/29/2021	< 1.0	< 0.10
LC_DC3	E288273	11/30/2021	< 1.0	< 0.10
LC_LC3	0200337	12/5/2021	< 1.0	< 0.10
LC_DC3	E288273	12/8/2021	< 1.0	< 0.10
LC_SPDC	E295211	12/13/2021	< 1.0	< 0.10
LC_LCDSSLCC	E297110	12/14/2021	< 1.0	< 0.10
LC_DC3	E288273	12/20/2021	< 1.0	< 0.10
LC_LC4	0200044	12/21/2021	< 1.0	< 0.10

Results for Trip Blanks - 2021

		TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
		N	N
		mg/l	ntu
SYS_SAMPLE_CODE	SAMPLE_DATE	Result	Result
LC_RD1_WS_Q1-2021_N	1/6/2021	< 1.0	0.12
LC_RD2_WS_Q1-2021_N	1/14/2021	< 1.0	< 0.10
LC_RD1_MNT_2021-02-02_N	2/1/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-02-02_N	2/2/2021	< 1.0	< 0.10
LC_RD1_MNT_2021-03-15_N	3/16/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-03-15_N	3/16/2021	< 1.0	< 0.10
LC_RD1_WS_2021-03-22_N	3/22/2021	< 1.0	< 0.10
WG_Q1-2021_012	3/24/2021	< 1.0	< 0.10
LC_RD1_WS_2021-03-29_N	3/29/2021	< 1.0	< 0.10
LC_RD2_WS_2021-03-29_N	3/30/2021	< 1.0	< 0.10
LC_RD1_WS_Q2-2021_N	4/6/2021	< 1.0	< 0.10
LC_RD2_WS_Q2-2021_N	4/6/2021	< 1.0	< 0.10
LC_RD2_WS_2021-04-12_N	4/13/2021	< 1.0	< 0.10
LC_RD2_WS_2021-04-19_N	4/20/2021	< 1.0	< 0.10
LC_RD1_WS_2021-04-19_N	4/20/2021	< 1.0	< 0.10
LC_RD1_MNT_2021-05-04_N	5/4/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-05-04_N	5/4/2021	< 1.0	< 0.10
LC_RD1_WS_2021-05-10_N	5/11/2021	< 1.0	< 0.10
LC_RD1_WS_2021-05-17_N	5/17/2021	< 1.0	< 0.10
LC_RD2_WS_2021-05-17_N	5/18/2021	< 1.0	< 0.10
LC_RD2_WS_2021-05-24_N	5/26/2021	< 1.0	< 0.10
LC_RD1_WS_2021-05-24_N	5/26/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-06-01_N	6/1/2021		< 0.10
LC_RD1_MNT_2021-06-01_N	6/4/2021	< 1.0	< 0.10
LC_RD1_WS_2021-06-07_N	6/8/2021	< 1.0	< 0.10
LC_RD2_WS_2021-06-07_N	6/8/2021	< 1.0	< 0.10
LC_RD2_WS_2021-06-14_N	6/8/2021	< 1.0	< 0.10
WG_Q2-2021_006	6/10/2021	< 1.0	< 0.10
LC_RD1_WS_2021-06-14_N	6/14/2021	< 1.0	< 0.10
LC_RDI_WS_2021-06-21_N	6/21/2021	< 1.0	< 0.10
LC_RD2_WS_2021-06-21_N	6/22/2021	< 1.0	< 0.10

Results for Trip Blanks - 2021

		TOTAL SUSPENDED SOLIDS, LAB	TURBIDITY, LAB
		N	N
		mg/l	ntu
SYS_SAMPLE_CODE	SAMPLE_DATE	Result	Result
LC_RD1_WS_2021-06-28_N	6/28/2021	< 1.0	< 0.10
LC_RD2_WS_2021-06-28_N	6/29/2021	4.5	< 0.10
LC_RD1_WS_Q3-2021_N	7/5/2021	< 1.0	< 0.10
LC_RD2_WS_Q3-2021_N	7/7/2021	< 1.0	< 0.10
LC_RD1_WS_2021-07-12_N	7/12/2021	< 1.0	< 0.10
LC_RD2_WS_2021-07-12_N	7/14/2021	< 1.0	< 0.10
LC_RD2_WS_2021-07-19_N	7/20/2021	< 1.0	< 0.10
LC_RD2_WS_2021-07-26_N	7/30/2021	< 1.0	< 0.10
LC_RD1_MNT_2021-08-03_N	8/3/2021	< 1.0	< 0.10
LC_RD2_WS_2021-08-09_N	8/9/2021	< 1.0	< 0.10
LC_RD2_WS_2021-08-30_N	8/17/2021	< 1.0	< 0.10
LC_RD2_WS_2021-08-23_N	8/24/2021	< 1.0	< 0.10
LC_RD2_WS_2021-09-MISS_N	8/30/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-09-12_N	9/12/2021	< 1.0	< 0.10
LC_RD1_MNT_2021-09-07_N	9/14/2021	< 1.0	< 0.10
LC_RD2_WS_2021-09_MISS_N	9/20/2021	< 1.0	< 0.10
LC_RD2_WS_2021-09-13_N	9/21/2021	< 1.0	< 0.10
LC_RD2_WS_2021-09-20_N	9/27/2021	< 1.0	< 0.10
LC_RD2_WEK_2021-10-05_N	10/6/2021	< 1.0	< 0.10
LC_RD2_WS_2021-FALL_NP	10/8/2021	< 1.0	< 0.10
LC_RD2_WS_2021-10-18_N	10/18/2021	< 1.0	< 0.10
LC_RD2_WS_2021-10-25_N	10/26/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-11-02_N	11/3/2021	< 1.0	< 0.10
LC_RDI_MNT_2021-11-02_N	11/4/2021	< 1.0	< 0.10
LC_RD2_WS_2021-11-08_N	11/8/2021	< 1.0	< 0.10
LC_RD3_WG_2021-Q4_NP	11/22/2021	< 1.0	< 0.10
LC_RD2_WS_2021-11-22_N	11/23/2021	< 1.0	< 0.10
LC_RD2_WS_2021-11-29_N	11/30/2021	< 1.0	< 0.10
LC_RD2_MNT_2021-12-07_N	12/8/2021	< 1.0	< 0.10
LC_RD2_WS_2021-12-13_N	12/13/2021	< 1.0	< 0.10

Appendix E – 2021 Monitoring Data

Teck Location Code	Sample Date	2-Bromobenzotrifluoride	ACIDITY TO pH 8.3 (As CaCO3)	ALKALINITY, BICARBONATE (As CaCO3), lab measured.	ALKALINITY, CARBONATE (As CaCO3), lab measured.	ALKALINITY, HYDROXIDE (As CaCO3), lab measured.	ALKALINITY, TOTAL (As CaCO3), lab measured.	ALUMINUM	ALUMINUM	ANTIMONY	ANTIMONY	ARSENIC	ARSENIC	BARIUM	BARIUM	BERYLLIUM	BERYLLIUM	BERYLLIUM	BERYLLIUM
		N	N	N	N	N	N	D	T	D	T	D	T	D	T	D	D	T	T
		%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	ug/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021	84.8	< 1.0	197	< 1.0	< 1.0	197	< 0.0030	8.65	< 0.00010	0.00030	0.00107	0.00428	0.540	0.721	< 0.000020		0.000563	
LC_PIZP1101	6/10/2021	87.0	< 2.0	187	< 1.0	< 1.0	187	0.0227	5.22	< 0.00010	0.00018	0.00104	0.00239	0.474	0.602		< 0.020		0.250
LC_PIZP1101	9/20/2021																		
LC_PIZP1101	9/21/2021	83.0	< 2.0	175	< 1.0	< 1.0	175	0.0482	18.0	< 0.00010	0.00034	0.00092	0.00614	0.460	1.06		< 0.020		1.45
LC_PIZP1101	11/23/2021																		
LC_PIZP1101	11/23/2021	97.0	< 2.0	175	< 1.0	< 1.0	175	0.0046	23.3	0.00055	0.00051	0.00077	0.00937	0.618	1.19		< 0.020		1.50

Teck Location Code	Sample Date	2-Bromobenzotrifluoride	ACIDITY TO pH 8.3 (As CaCO3)	ALKALINITY, BICARBONATE (As CaCO3), lab measured.	ALKALINITY, CARBONATE (As CaCO3), lab measured.	ALKALINITY, HYDROXIDE (As CaCO3), lab measured.	ALKALINITY, TOTAL (As CaCO3), lab measured.	ALUMINUM	ALUMINUM	ANTIMONY	ANTIMONY	ARSENIC	ARSENIC	BARIUM	BARIUM	BERYLLIUM	BERYLLIUM	BICARBONATE	BISMUTH
		N	N	N	N	N	N	D	T	D	T	D	T	D	T	D	T	N	D
		%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	mg/l	mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	95.2	23.6	459	< 1.0	< 1.0	459	0.0040	6.52	0.0304	0.00067	0.00067	0.00438	0.102	0.285	< 0.020	0.470	560	< 0.000050
LC_PIZP1105	6/11/2021	90.0	159	427	< 1.0	< 1.0	427	0.0137	4.25	0.00382	0.00054	0.00014	0.00313	0.117	0.303	< 0.020	0.310	520	< 0.000050
LC_PIZP1105	9/16/2021	82.0	24.7	416	< 1.0	< 1.0	416	0.0033	12.5	0.00096	0.00187	< 0.00010	0.00964	0.115	0.795	< 0.020	0.936	507	< 0.000050
LC_PIZP1105	11/22/2021	96.6	13.1	437	< 1.0	< 1.0	437	0.0014	2.76	0.00011	0.00040	0.00012	0.00225	0.109	0.224	< 0.020	0.199	533	< 0.000050

Teck Location Code	Sample Date	CHLOROMETHANE	CHLOROMETHANE	CHROMIUM	CHROMIUM	CHROMIUM	CHRYSENE	CHRYSENE-D12	CIS-1,2-DICHLOROETHYLENE	CIS-1,2-DICHLOROETHYLENE	CIS-1,3-DICHLOROPROPENE	CIS-1,3-DICHLOROPROPENE	COBALT	COBALT	COBALT	COBALT	COBALT	CONDUCTIVITY, LAB	COPPER
		N	N	D	N	T	N	N	N	N	N	N	D	D	N	T	T	N	D
		mg/l	ug/l	mg/l	mg/kg	mg/l	mg/kg	%	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/kg	mg/l	ug/l	us/cm	mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	< 0.0010		< 0.00010		< 0.00010			< 0.0010		< 0.00050		0.00254			0.00275		399	< 0.00020
LC_SBPIN	2/17/2021	< 0.0010		0.00016		0.00103			< 0.0010		< 0.00050		0.00443			0.00486		474	< 0.00020
LC_SBPIN	3/22/2021			< 0.00010		0.00011							0.00391			0.00440		497	< 0.00020
LC_SBPIN	3/25/2021	< 0.0010							< 0.0010		< 0.0010								
LC_SBPIN	4/15/2021	< 0.0010		< 0.00010		0.00115			< 0.0010		< 0.0010			1.16			2.16	502	< 0.00020
LC_SBPIN	5/13/2021	< 0.0010		0.00012		0.00032			< 0.0010		< 0.0010			2.28			2.61	631	0.00103
LC_SBPIN	6/24/2021	< 0.0010		< 0.00010		0.00045			< 0.0010		< 0.0010			1.05			1.35	706	0.00021
LC_SBPIN	7/8/2021	< 0.0010		< 0.00010		0.00045			< 0.0010		< 0.0010			1.27			1.59	1030	< 0.00020
LC_SBPIN	8/23/2021	< 0.0010		< 0.00010	12.4	0.00019	1.38	89.9	< 0.0010		< 0.00050		0.00043		5.68	0.00093		627	0.00026
LC_SBPIN	9/16/2021	< 0.0050		< 0.00010		0.0196			< 0.0010		< 0.0010			2.13			17.3	1010	0.00078
LC_SBPIN	10/21/2021	< 0.0010		< 0.00010		0.00039			< 0.0010		< 0.00050		0.00108			0.00143		788	< 0.00020
LC_SBPIN	11/18/2021	< 0.0050		< 0.00010		0.00028			< 0.0010		< 0.0010			0.76			1.02	443	< 0.00020
LC_SBPIN	12/6/2021		< 5.0	< 0.00010		0.00013				< 1.0		< 1.0		1.06			1.12	583	0.00976

Teck Location Code	Sample Date	PHOSPHORUS	POTASSIUM	POTASSIUM	POTASSIUM	PYRENE	QUINOLINE	SEC-BUTYLBENZENE	SEC-BUTYLBENZENE	SELENIUM	SELENIUM	SELENIUM	SILICON	SILICON	SILVER	SILVER	SILVER	SODIUM	SODIUM
		T	D	N	T	N	N	N	N	D	N	T	D	T	D	N	T	D	N
		mg/l	mg/l	mg/kg	mg/l	mg/kg	mg/kg	mg/l	ug/l	ug/l	mg/kg	ug/l	mg/l	mg/l	mg/l	mg/kg	mg/l	mg/l	mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		2.70		2.83			< 0.0010		1.88		2.16	2.21	2.44	< 0.000010		< 0.000010	9.06	
LC_SBPIN	2/17/2021		3.76		8.04			< 0.0010		2.51		1.55	2.96	4.09	< 0.000010		0.000030	22.7	
LC_SBPIN	3/22/2021		7.57		6.15					1.65		2.23	5.02	4.68	< 0.000010		< 0.000010	18.3	
LC_SBPIN	3/25/2021							< 0.0010											
LC_SBPIN	4/15/2021	0.390	8.02		7.41			< 0.0010		9.69		10.5	2.41	3.03	< 0.000010		0.000065	7.09	
LC_SBPIN	5/13/2021	28.4	16.9		16.8			< 0.0010		20.2		20.4	5.00	5.11	< 0.000010		< 0.000010	15.4	
LC_SBPIN	6/24/2021	0.283	13.0		13.0			< 0.0010		13.5		13.3	3.36	4.17	< 0.000010		0.000019	24.1	
LC_SBPIN	7/8/2021	0.404	15.1		14.1			< 0.0010		4.23		3.90	3.27	3.55	< 0.000010		< 0.000010	65.6	
LC_SBPIN	8/23/2021		11.8	1440	12.3	0.555	< 0.050	< 0.0010		10.4	2.57	8.35	2.56	2.75	< 0.000010	0.36	0.000012	20.3	71
LC_SBPIN	9/16/2021	2.70	17.5		20.8			< 0.0010		30.2		31.8	3.50	12.3	< 0.000010		0.00113	58.3	
LC_SBPIN	10/21/2021		16.4		15.9			< 0.0010		6.92		4.45	3.14	3.33	< 0.000010		0.000018	21.2	
LC_SBPIN	11/18/2021	0.642	4.70		4.92			< 0.0010		4.54		4.66	2.10	2.20	< 0.000010		< 0.000010	8.83	
LC_SBPIN	12/6/2021	1.05	5.44		5.32				< 1.0	3.84		3.46	2.15	2.69	< 0.000010		< 0.000010	15.5	

Teck Location Code	Sample Date	1,1,1,2-TETRACHLOROETHANE	1,1,1,2-TETRACHLOROETHANE	1,1,1-TRICHLOROETHANE	1,1,1-TRICHLOROETHANE	1,1,2,2-TETRACHLOROETHANE	1,1,2,2-TETRACHLOROETHANE	1,1,2-TRICHLOROETHANE	1,1,2-TRICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	1,1-DICHLOROETHENE	1,1-DICHLOROPROPENE	1,1-DICHLOROPROPENE	1,2,3-TRICHLOROBENZENE	1,2,3-TRICHLOROBENZENE	1,2,3-TRICHLOROPROPANE	1,2,3-TRICHLOROPROPANE
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
		mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	< 0.0010		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.0010		< 0.0010		< 0.00050	
LC_SBPIN	2/17/2021	< 0.0010		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.0010		< 0.0010		< 0.00050	
LC_SBPIN	3/22/2021																		
LC_SBPIN	3/25/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	4/15/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	5/13/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	6/24/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	7/8/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	8/23/2021	< 0.0010		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.0010		< 0.0010		< 0.00050	
LC_SBPIN	9/16/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	10/21/2021	< 0.0010		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.00050		< 0.0010		< 0.0010		< 0.00050	
LC_SBPIN	11/18/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	12/6/2021		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0

Teck Location Code	Sample Date	BICARBONATE N mg/l	BISMUTH D mg/l	BISMUTH T mg/l	BORON D mg/l	BORON T mg/l	BROMIDE D mg/l	BROMIDE N mg/l	CADMIUM D mg/l	CADMIUM D ug/l	CADMIUM T mg/l	CADMIUM T ug/l	CALCIUM D mg/l	CALCIUM T mg/l	CARBON, DISSOLVED ORGANIC D mg/l	CARBONATE (AS CO3) N mg/l	Cation - Anion Balance D %	Cation - Anion Balance N %	CHLORIDE D mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021	240	< 0.000050	0.000157	0.021	0.033	< 0.050		< 0.000010		0.00149		28.4	69.9	< 0.50	< 5.0		-6.5	0.65
LC_PIZP1101	6/10/2021	228	< 0.000050	0.000055	0.020	0.031		< 0.050		< 0.0050		0.464	26.6	44.0	1.21	< 1.0	8.16		0.76
LC_PIZP1101	9/20/2021																		
LC_PIZP1101	9/21/2021	214	< 0.000050	0.000432	0.022	0.043		< 0.050		< 0.0150		4.01	28.6	187	0.82	< 1.0	3.50		0.90
LC_PIZP1101	11/23/2021																		
LC_PIZP1101	11/23/2021	214	< 0.000050	0.000490	0.023	0.045		< 0.050		0.0366		4.14	25.7	187	< 0.50	< 1.0	4.67		0.87

Teck Location Code	Sample Date	BISMUTH T mg/l	BORON D mg/l	BORON T mg/l	BROMIDE N mg/l	CADMIUM D ug/l	CADMIUM T ug/l	CALCIUM D mg/l	CALCIUM T mg/l	CARBON, DISSOLVED ORGANIC D mg/l	CARBONATE (AS CO3) N mg/l	Cation - Anion Balance D %	CHLORIDE D mg/l	CHROMIUM D mg/l	CHROMIUM T mg/l	COBALT D ug/l	COBALT T ug/l	CONDUCTIVITY, LAB N us/cm	COPPER D mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	0.000111	0.023	0.031	2.19	0.116	1.04	204	240	0.57	< 1.0	2.50	175	0.00011	0.0116	0.81	3.94	1300	0.00029
LC_PIZP1105	6/11/2021	0.000075	0.024	0.026	2.41	0.240	0.846	221	222	35.5	< 1.0	0.306	186	< 0.00010	0.00801	0.38	3.64	1330	< 0.00020
LC_PIZP1105	9/16/2021	0.000236	0.020	0.031	2.36	0.105	2.27	183	302	1.92	< 1.0	4.60	192	< 0.00010	0.0237	< 0.10	13.3	1340	0.00024
LC_PIZP1105	11/22/2021	< 0.000050	0.021	0.024	2.62	0.0665	0.479	193	194	0.84	< 1.0	4.73	199	< 0.00010	0.00456	0.70	2.47	1390	0.00046

Teck Location Code	Sample Date	COPPER N mg/kg	COPPER T mg/l	CYMENE N mg/l	CYMENE N ug/l	DIBENZ(A,H)ANTHRACENE N mg/kg	DIBROMOCHLOROMETHANE N mg/l	DIBROMOCHLOROMETHANE N ug/l	DIBROMODICHLOROMETHANE N mg/l	DIBROMODICHLOROMETHANE N ug/l	DIBROMOMETHANE N mg/l	DIBROMOMETHANE N ug/l	DICHLORODIFLUOROMETHANE N mg/l	DICHLORODIFLUOROMETHANE N ug/l	DIMETHYL BENZENE/ XYLENES, TOTAL N mg/kg	DIMETHYL BENZENE/ XYLENES, TOTAL N mg/l	DIMETHYL BENZENE/ XYLENES, TOTAL N ug/l	DISSOLVED OXYGEN, FIELD N mg/l	DISSOLVED OXYGEN, FIELD, in percent N %
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		0.00072	< 0.0010			< 0.00050		< 0.00050		< 0.00050		< 0.00050					2.82	29.5
LC_SBPIN	2/17/2021		0.00720	< 0.0010			< 0.00050		< 0.00050		< 0.00050		< 0.00050					4.37	44
LC_SBPIN	3/22/2021		0.00075															2.31	23.4
LC_SBPIN	3/25/2021			< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00075			
LC_SBPIN	4/15/2021		0.00428	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00075		4.23	42.7
LC_SBPIN	5/13/2021		0.00200	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00075		4.4	46
LC_SBPIN	6/24/2021		0.00853	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00075		2.95	32.8
LC_SBPIN	7/8/2021		0.00125	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00075		1.97	21.5
LC_SBPIN	8/23/2021	32.9	0.00065	< 0.0010		< 0.12	< 0.00050		< 0.00050		< 0.00050		< 0.00050		11.3			2.4	25.5
LC_SBPIN	9/16/2021		0.0627	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			0.00252		5.8	62.7
LC_SBPIN	10/21/2021		0.00255	< 0.0010			< 0.00050		< 0.00050		< 0.00050		< 0.00050					3.3	34.0
LC_SBPIN	11/18/2021		0.00224	< 0.0010			< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.00050		3.25	31.9
LC_SBPIN	12/6/2021		0.0217		< 1.0			< 1.0		< 1.0		< 1.0		< 1.0			< 0.50	2.51	26.2

Teck Location Code	Sample Date	SODIUM T mg/l	Specific conductivity, temperature corrected value (25 C) N uS/cm at 25 C	STRONTIUM D mg/l	STRONTIUM N mg/kg	STRONTIUM T mg/l	STYRENE N mg/kg	STYRENE N mg/l	STYRENE N ug/l	Sulphate (as SO4) D mg/l	Sulphate (as SO4) N mg/l	SULPHUR D mg/l	SULPHUR N mg/kg	SULPHUR T mg/l	T-BUTYLBENZENE N mg/l	T-BUTYLBENZENE N ug/l	TEMPERATURE, FIELD N deg c	TERT-BUTYL METHYL ETHER (MTBE) N mg/kg	TERT-BUTYL METHYL ETHER (MTBE) N mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	9.17	399	0.114		0.129		< 0.00050		68.3					< 0.0010		17.5		
LC_SBPIN	2/17/2021	60.5	517	0.154		0.157		< 0.00050		63.9		23.6		13.8	< 0.0010		15.71		
LC_SBPIN	3/22/2021	15.5	485	0.189		0.154				80.8		26.9		25.0			15.9		
LC_SBPIN	3/25/2021							< 0.00050							< 0.0010				< 0.00050
LC_SBPIN	4/15/2021	6.88	514	0.140		0.147		< 0.00050			86.9	29.2		31.5	< 0.0010		15.8		< 0.00050
LC_SBPIN	5/13/2021	16.1	674	0.122		0.121		< 0.00050		110		42.9		42.7	< 0.0010		17.4		< 0.00050
LC_SBPIN	6/24/2021	23.9	726	0.161		0.171		< 0.00050		169		59.0		57.0	< 0.0010		20.6		< 0.00050
LC_SBPIN	7/8/2021	64.4	1,065	0.529		0.485		< 0.00050		173		71.0		63.8	< 0.0010		19.4		< 0.00050
LC_SBPIN	8/23/2021	19.7	656.0	0.219	119	0.212	< 0.050	< 0.00050		137		44.4	< 1000	44.6	< 0.0010		17.9	< 0.20	
LC_SBPIN	9/16/2021	52.0	993.0	0.216		0.413		< 0.00050		220		76.1		79.0	< 0.0010		19.3		< 0.00050
LC_SBPIN	10/21/2021	21.6	790.0	0.173		0.179		< 0.00050		112		41.9		43.3	< 0.0010		16.6		
LC_SBPIN	11/18/2021	9.26	464	0.130		0.145		< 0.00050		66.9		24.2		22.3	< 0.0010		14.5		< 0.00050
LC_SBPIN	12/6/2021	14.7	580	0.193		0.193			< 0.50	84.1		29.9		30.8		< 1.0	17.3		

Teck Location Code	Sample Date	1,2,4-TRICHLOROBENZENE N mg/l	1,2,4-TRICHLOROBENZENE N ug/l	1,2,4-TRIMETHYLBENZENE N mg/l	1,2,4-TRIMETHYLBENZENE N ug/l	1,2-DIBROMO-3-CHLOROPROPANE N mg/l	1,2-DIBROMO-3-CHLOROPROPANE N ug/l	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE) N mg/l	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE) N ug/l	1,2-DICHLOROBENZENE N mg/l	1,2-DICHLOROBENZENE N ug/l	1,2-DICHLOROETHANE N mg/l	1,2-DICHLOROETHANE N ug/l	1,2-DICHLOROPROPANE N mg/l	1,2-DICHLOROPROPANE N ug/l	1,3,5-TRIMETHYLBENZENE (MESITYLENE) N mg/l	1,3,5-TRIMETHYLBENZENE (MESITYLENE) N ug/l	1,3-DICHLOROBENZENE N mg/l	1,3-DICHLOROBENZENE N ug/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	< 0.0010		< 0.0010		< 0.0010		< 0.00050		< 0.00050		< 0.0010		< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	2/17/2021	< 0.0010		< 0.0010		< 0.0010		< 0.00050		< 0.00050		< 0.0010		< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	3/22/2021																		
LC_SBPIN	3/25/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	4/15/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	5/13/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.00100		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	6/24/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.00100		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	7/8/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.00100		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	8/23/2021	< 0.0010		< 0.0010		< 0.0010		< 0.00050		< 0.00050		< 0.0010		< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	9/16/2021	< 0.0010		0.0011		< 0.0010		< 0.0010		< 0.00050		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	10/21/2021	< 0.0010		< 0.0010		< 0.0010		< 0.00050		< 0.00050		< 0.0010		< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	11/18/2021	< 0.0010		< 0.0010		< 0.0010		< 0.0010		< 0.00050		< 0.0010		< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	12/6/2021		< 1.0		< 1.0		< 1.0		< 1.0		< 0.50		< 1.0		< 1.0		< 1.0		< 1.0

Teck Location Code	Sample Date	CHROMIUM	CHROMIUM	COBALT	COBALT	COBALT	COBALT	CONDUCTIVITY, LAB	COPPER	COPPER	DISSOLVED OXYGEN, FIELD	DISSOLVED OXYGEN, FIELD, in percent	Extractable Petroleum Hydrocarbons C10-C19	Extractable Petroleum Hydrocarbons C19-C32	FLUORIDE	FLUORIDE	Hardness, Total or Dissolved CaCO3	Hardness, Total or Dissolved CaCO3	Hydroxide
		D mg/l	T mg/l	D mg/l	D ug/l	T mg/l	T ug/l	N us/cm	D mg/l	T mg/l	N mg/l	N %	N mg/l	N mg/l	D mg/l	N mg/l	D mg/l	N mg/l	N mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021	< 0.00010	0.0131	0.00017		0.00526		291	< 0.00020	0.0407	0.13	1.1	< 0.25	< 0.25	1.81			133	< 5.0
LC_PIZP1101	6/10/2021	< 0.00010	0.00731		0.19		1.91	303	0.00021	0.0132	0.09	0.8	< 0.25	< 0.25		1.88		121	< 1.0
LC_PIZP1101	9/20/2021										0	0.3							
LC_PIZP1101	9/21/2021	< 0.00010	0.0285		0.17		13.7	306	0.00181	0.110			< 0.25	< 0.25		1.89		125	< 1.0
LC_PIZP1101	11/23/2021										0.05	0.4							
LC_PIZP1101	11/23/2021	< 0.00010	0.0383		0.22		16.2	295	0.00048	0.119			< 0.25	< 0.25		1.79	120		< 1.0

Teck Location Code	Sample Date	COPPER	DISSOLVED OXYGEN, FIELD	DISSOLVED OXYGEN, FIELD, in percent	Extractable Petroleum Hydrocarbons C10-C19	Extractable Petroleum Hydrocarbons C19-C32	FLUORIDE	Hardness, Total or Dissolved CaCO3	Hardness, Total or Dissolved CaCO3	Hydroxide	ION BALANCE	IRON	IRON	LEAD	LEAD	LITHIUM	LITHIUM	MAGNESIUM	MAGNESIUM
		T mg/l	N mg/l	N %	N mg/l	N mg/l	N mg/l	D mg/l	N mg/l	N mg/l	D %	D mg/l	T mg/l	D mg/l	T mg/l	D mg/l	T mg/l	D mg/l	T mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	0.0133	3.06	25.1	< 0.25	< 0.25	0.207		740	< 1.0	95.1	< 0.010	12.2	< 0.000050	0.00548	0.0225	0.0308	56.1	66.7
LC_PIZP1105	6/11/2021	0.00980	3.01	26.1	< 0.25	< 0.25	0.189		782	< 1.0	101	< 0.010	9.11	< 0.000050	0.00396	0.0219	0.0265	55.9	61.6
LC_PIZP1105	9/16/2021	0.0315	4.6	40.3	< 0.25	0.38	0.249		687	< 1.0	91.2	< 0.010	29.3	< 0.000050	0.0130	0.0209	0.0390	55.8	85.1
LC_PIZP1105	11/22/2021	0.00579	4.6	36.8	< 0.25	< 0.25	0.268	720		< 1.0	91.0	0.063	5.93	< 0.000050	0.00238	0.0210	0.0235	57.9	56.5

Teck Location Code	Sample Date	ETHYLBENZENE	ETHYLBENZENE	ETHYLBENZENE	Extractable Petroleum Hydrocarbons C10-C19	Extractable Petroleum Hydrocarbons C10-C19	Extractable Petroleum Hydrocarbons C19-C32	Extractable Petroleum Hydrocarbons C19-C32	FLUORANTHENE	FLUORENE	FLUORIDE	FLUORIDE	Hardness, Total or Dissolved CaCO3	Hardness, Total or Dissolved CaCO3	Hazardous Waste Regulation Total Oil	HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (Calculated from C19-C32)	HEXACHLOROBUTADIENE	HEXACHLOROBUTADIENE	Hydroxide
		N mg/kg	N mg/l	N ug/l	N mg/kg	N mg/l	N mg/kg	N mg/l	N mg/kg	N mg/kg	D mg/l	N mg/l	D mg/l	N mg/l	N mg/kg	N mg/kg	N mg/l	N ug/l	N mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		< 0.00050			0.49		< 0.25			0.102			192			< 0.0010		
LC_SBPIN	2/17/2021		< 0.00050			2.23		8.85			0.184			244			< 0.0010		
LC_SBPIN	3/22/2021										0.271			262					
LC_SBPIN	3/25/2021		< 0.00050			0.25		< 0.25									< 0.0010		
LC_SBPIN	4/15/2021		< 0.00050			0.68		0.92				0.373		240			< 0.0010		
LC_SBPIN	5/13/2021		< 0.00050			< 0.25		0.27				0.494		239			< 0.0010		< 1.0
LC_SBPIN	6/24/2021		< 0.00050			< 0.25		< 0.25				0.599		308			< 0.0010		< 1.0
LC_SBPIN	7/8/2021		< 0.00050			0.32		2.90				0.278		431			< 0.0010		< 1.0
LC_SBPIN	8/23/2021	0.967	< 0.00050		1810	< 0.25	3790	< 0.25	0.238	1.65	0.448			292	4700	3790	< 0.0010		
LC_SBPIN	9/16/2021		< 0.00050			1.88		3.77				0.624		368			< 0.0010		< 1.0
LC_SBPIN	10/21/2021		< 0.00050			0.83		0.32			0.203			300			< 0.0010		
LC_SBPIN	11/18/2021		< 0.00050			0.67		0.50				0.321	191				< 0.0010		< 1.0
LC_SBPIN	12/6/2021			< 0.50		< 0.25		< 0.25				0.414	254					< 1.0	< 1.0

Teck Location Code	Sample Date	TERT-BUTYL METHYL ETHER (MTBE)	TETRACHLOROETHYLENE (PCE - 1,1,2,2-TETRACHLOROETHENE)	TETRACHLOROETHYLENE (PCE - 1,1,2,2-TETRACHLOROETHENE)	THALLIUM	THALLIUM	THALLIUM	The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32.	THM: TOTAL TRIHALOMETHANES	THM: TOTAL TRIHALOMETHANES	TIN	TIN	TIN	TITANIUM	TITANIUM	TITANIUM	TOLUENE	TOLUENE	TOLUENE
		N ug/l	N mg/l	N ug/l	D mg/l	N mg/kg	T mg/l	N mg/l	N mg/l	N ug/l	D mg/l	N mg/kg	T mg/l	D mg/l	N mg/kg	T mg/l	N mg/kg	N mg/l	N ug/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		< 0.00050		< 0.000010		< 0.000010	< 0.50			< 0.00010		< 0.00010	< 0.010		< 0.010		< 0.00050	
LC_SBPIN	2/17/2021		< 0.00050		< 0.000010		0.000011	11.1			< 0.00010		< 0.00010	< 0.010		< 0.010		< 0.00050	
LC_SBPIN	3/22/2021				< 0.000010		< 0.000010				< 0.00010		< 0.00010	< 0.010		< 0.010			
LC_SBPIN	3/25/2021		< 0.0010					< 0.4	< 0.0020									< 0.00050	
LC_SBPIN	4/15/2021		< 0.0010		< 0.000010		0.000042	1.60	< 0.0020		< 0.00010		< 0.00010	< 0.00030		0.00359		< 0.00050	
LC_SBPIN	5/13/2021		< 0.0010		< 0.000010		< 0.000010	< 0.4	< 0.0020		< 0.00010		< 0.00010	< 0.00030		< 0.00090		< 0.00050	
LC_SBPIN	6/24/2021		< 0.0010		< 0.000010		0.000018	< 0.4	< 0.0020		< 0.00010		0.00010	< 0.00030		0.0140		< 0.00050	
LC_SBPIN	7/8/2021		< 0.0010		< 0.000010		0.000013	3.22	< 0.0020		< 0.00010		< 0.00010	< 0.00060		0.00594		< 0.00050	
LC_SBPIN	8/23/2021		< 0.00050		< 0.000010	0.189	< 0.000010	< 0.50			< 0.00010	< 2.0	< 0.00010	< 0.010	8.4	< 0.010	6.13	< 0.00050	
LC_SBPIN	9/16/2021		< 0.0010		0.000042		0.000525	5.65	< 0.0020		< 0.00010		0.00039	< 0.00030		0.0285		0.00083	
LC_SBPIN	10/21/2021		< 0.00050		< 0.000010		0.000016	1.15			< 0.00010		< 0.00010	< 0.010		< 0.010		< 0.00050	
LC_SBPIN	11/18/2021		< 0.0010		< 0.000010		< 0.000010	1.17	< 0.0020		< 0.00010		< 0.00010	< 0.00030		0.00071		< 0.00050	
LC_SBPIN	12/6/2021	< 0.50		< 1.0	< 0.000010		< 0.000010	< 0.4		< 2.0	0.00013		0.00017	< 0.00060		0.00178			< 0.50

Teck Location Code	Sample Date	1,3-DICHLOROPROPANE	1,3-DICHLOROPROPANE	1,4-DICHLOROBENZENE	1,4-DICHLOROBENZENE	1,4-DIFLUOROBENZENE	1-BROMO-4-FLUOROBENZENE BROMOFLUOROBENZENE)	2,2-DICHLOROPROPANE	2,2-DICHLOROPROPANE	2-Bromobenzotrifluoride	2-CHLOROTOLUENE	2-CHLOROTOLUENE	2-METHYLNAPHTHALENE	3,4-Dichlorotoluene (SS)	4-CHLOROTOLUENE	4-CHLOROTOLUENE	ACENAPHTHENE	ACENAPHTHENE-D10	ACENAPHTHYLENE
		N mg/l	N ug/l	N mg/l	N ug/l	N %	N %	N mg/l	N ug/l	N %	N mg/l	N ug/l	N mg/kg	N %	N mg/l	N ug/l	N mg/kg	N %	N mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	< 0.0010		< 0.00050		101.4	81.2	< 0.0010		100.2	< 0.0010				< 0.0010				
LC_SBPIN	2/17/2021	< 0.0010		< 0.00050		99.4	84.4	< 0.0010		107.9	< 0.0010				< 0.0010				
LC_SBPIN	3/22/2021																		
LC_SBPIN	3/25/2021	< 0.0010		< 0.0010		95.4	76.2	< 0.0010		100	< 0.0010				< 0.0010				
LC_SBPIN	4/15/2021	< 0.0010		< 0.0010		98.6	74.6	< 0.0010		84.8	< 0.0010				< 0.0010				
LC_SBPIN	5/13/2021	< 0.0010		< 0.0010		94.6	85.7	< 0.0010		108	< 0.0010				< 0.0010				
LC_SBPIN	6/24/2021	< 0.0010		< 0.0010		101	84.5	< 0.0010		78.0	< 0.0010				< 0.0010				
LC_SBPIN	7/8/2021	< 0.0010		< 0.0010		97.4	89.9	< 0.0010		62.0	< 0.0010				< 0.0010				
LC_SBPIN	8/23/2021	< 0.0010		< 0.00050		78.2	90.4	< 0.0010		88.4	< 0.0010		16.8	70.2	< 0.0010		< 0.55	109.8	< 0.18
LC_SBPIN	9/16/2021	< 0.0010		< 0.0010		100	105	< 0.0010		86.0	< 0.0010				< 0.0010				
LC_SBPIN	10/21/2021	< 0.0010		< 0.00050		98.9	82.1	< 0.0010		102.7	< 0.0010				< 0.0010				
LC_SBPIN	11/18/2021	< 0.0010		< 0.0010		103	99.2	< 0.0010		100	< 0.0010				< 0.0010				
LC_SBPIN	12/6/2021		< 1.0		< 1.0	103	86.4		< 1.0	113		< 1.0				< 1.0			

Teck Location Code	Sample Date	ION BALANCE	ION BALANCE	IRON	IRON	LEAD	LEAD	LITHIUM	LITHIUM	MAGNESIUM	MAGNESIUM	MAJOR ANION SUM	MAJOR ANION SUM	MAJOR CATION SUM	MAJOR CATION SUM	MANGANESE	MANGANESE	MERCURY	MERCURY
		D	N	D	T	D	T	D	T	D	T	D	N	D	N	D	T	D	T
		%	%	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	meq/l	meq/l	meq/l	meq/l	mg/l	mg/l	mg/l	mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021		87.7	0.017	11.8	< 0.000050	0.00705	0.0092	0.0203	15.0	21.6		4.12		3.62	0.247	0.789	< 0.0000050	< 0.000050
LC_PIZP1101	6/10/2021	84.9		0.147	4.27	< 0.000050	0.00255	0.0091	0.0139	13.2	16.5	3.91		3.32		0.224	0.447	< 0.0000050	0.0000064
LC_PIZP1101	9/20/2021																		
LC_PIZP1101	9/21/2021	93.2		0.110	28.9	0.000063	0.0211	0.0093	0.0442	13.0	36.9	3.70		3.45		0.219	1.59	< 0.0000050	0.000148
LC_PIZP1101	11/23/2021																		
LC_PIZP1101	11/23/2021	91.1		< 0.010	35.5	< 0.000050	0.0233	0.0092	0.0421	13.7	41.9	3.70		3.37		0.198	1.78	< 0.0000050	0.0000111

Teck Location Code	Sample Date	MAJOR ANION SUM	MAJOR CATION SUM	MANGANESE	MANGANESE	MERCURY	MERCURY	MOLYBDENUM	MOLYBDENUM	NICKEL	NICKEL	NITRATE NITROGEN (NO3), AS N	NITRITE NITROGEN (NO2), AS N	NITROGEN, AMMONIA (AS N)	ORTHO-PHOSPHATE	OXIDATION-REDUCTION POTENTIAL, FIELD	OXIDATION-REDUCTION POTENTIAL, LAB	pH, Field	pH, LAB
		D	D	D	T	D	T	D	T	D	T	N	N	T	D	N	N	N	N
		meq/l	meq/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mv	mv	ph units	ph units
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	16.4	15.6	0.275	0.506	< 0.0000050	< 0.0000500	0.000884	0.00142	0.00300	0.0135	0.812	< 0.0050	0.0173	0.0060	182	424	6.92	7.48
LC_PIZP1105	6/11/2021	16.3	16.4	0.257	0.642	< 0.0000050	0.0000214	0.000365	0.00108	0.00218	0.0106	0.535	0.0102	0.0147	0.0092	1513	410	6.94	7.46
LC_PIZP1105	9/16/2021	15.9	14.5	0.0389	2.29	< 0.0000050	0.000265	0.000378	0.00147	0.00141	0.0333	0.0543	< 0.0050	0.0151	0.0063	205.9	457	7.1	7.37
LC_PIZP1105	11/22/2021	16.6	15.1	0.165	0.420	< 0.0000050	0.0000202	0.000321	0.000917	0.00274	0.00814	0.0536	< 0.0050	0.0882	0.0031	87	461	6.89	7.22

Teck Location Code	Sample Date	IACR (CCME)	INDENO(1,2,3-C,D)PYRENE	ION BALANCE	ION BALANCE	IRON	IRON	IRON	ISOPROPYLBENZENE (CUMENE)	ISOPROPYLBENZENE (CUMENE)	LEAD	LEAD	LEAD	LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (Calculated from C10-C19)	LITHIUM	LITHIUM	LITHIUM	M AND P XYLENES	M AND P XYLENES
		N	N	D	N	D	N	T	N	N	D	N	T	N	D	N	T	N	N
		none	mg/kg	%	%	mg/l	mg/kg	mg/l	mg/l	ug/l	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021				94.8	0.183		0.216	< 0.0010		< 0.000050		0.000117		0.157		0.157		< 0.00050
LC_SBPIN	2/17/2021				142	3.72		14.1	< 0.0010		< 0.000050		0.00216		0.119		0.255		< 0.00050
LC_SBPIN	3/22/2021				110	0.320		0.715			< 0.000050		0.000111		0.142		0.123		
LC_SBPIN	3/25/2021								< 0.0010										< 0.00050
LC_SBPIN	4/15/2021			96.2		0.112		1.17	< 0.0010		0.000086		0.00165		0.0884		0.0885		< 0.00050
LC_SBPIN	5/13/2021			113		< 0.010		0.166	< 0.0010		0.000284		0.000571		0.195		0.199		< 0.00050
LC_SBPIN	6/24/2021			95.8		0.029		0.400	< 0.0010		0.000136		0.00116		0.315		0.312		< 0.00050
LC_SBPIN	7/8/2021			112		1.60		1.69	< 0.0010		< 0.000050		0.000482		0.487		0.496		< 0.00050
LC_SBPIN	8/23/2021	6.11	0.068		93.8	< 0.010	15400	0.179	< 0.0010		< 0.000050	8.28	0.000298	1800	0.166	4.2	0.168	9.23	< 0.00050
LC_SBPIN	9/16/2021			92.8		< 0.010		20.0	< 0.0010		0.000135		0.0236		0.414		0.393		0.00190
LC_SBPIN	10/21/2021				99.5	0.365		0.614	< 0.0010		< 0.000050		0.000551		0.263		0.262		< 0.00050
LC_SBPIN	11/18/2021			84.3		0.076		0.315	< 0.0010		0.000055		0.000538		0.123		0.130		< 0.00040
LC_SBPIN	12/6/2021			88.8		0.324		0.434		< 1.0	0.00249		0.00223		0.148		0.152		

Teck Location Code	Sample Date	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	TOTAL EXTRACTABLE HYDROCARBONS (TEH 10-30)	TOTAL KJELDAHL NITROGEN	TOTAL OIL WASTE IN SOIL/SEDIMENT	TOTAL ORGANIC CARBON	TOTAL SUSPENDED SOLIDS, LAB	TOTAL, 1,3-DICHLOROPROPENE (CIS AND TRANS)	TOTAL, 1,3-DICHLOROPROPENE (CIS AND TRANS)	TRANS-1,2-DICHLOROETHENE	TRANS-1,2-DICHLOROETHENE	TRANS-1,3-DICHLOROPROPENE	TRANS-1,3-DICHLOROPROPENE	TRICHLOROETHYLENE (TCE)	TRICHLOROETHYLENE (TCE)	TRICHLOROFLUOROMETHANE	TRICHLOROFLUOROMETHANE	TUNGSTEN	TURBIDITY, FIELD
		N	N	N	N	T	N	N	N	N	N	N	N	N	N	N	N	N	N
		mg/l	mg/l	mg/l	mg/kg	mg/l	mg/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l	ug/l	mg/kg	ntu
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	258	0.60	0.878		15.6	1.0			< 0.00050		< 0.0010		< 0.00050		< 0.0010			4.09
LC_SBPIN	2/17/2021	397	10.7	14.6		292	71.2			< 0.00050		< 0.0010		< 0.00050		< 0.0010			231.5
LC_SBPIN	3/22/2021	317		1.51		6.66	18.5												6.02
LC_SBPIN	3/25/2021		0.32					< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			
LC_SBPIN	4/15/2021	308	1.52	3.82		60.5	140	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			123.89
LC_SBPIN	5/13/2021	365	0.32	18.6		11.2	30.5	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			29.69
LC_SBPIN	6/24/2021	325	< 0.25	1.27		9.06	41.3	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			44.93
LC_SBPIN	7/8/2021	678	2.64	0.764		86.3	14.1	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			18.68
LC_SBPIN	8/23/2021	409	0.27	0.981	3600	4.82	20.2			< 0.00050		< 0.0010		< 0.00050		< 0.0010		< 0.50	17.4
LC_SBPIN	9/16/2021	714	5.22	2.12		674	1990	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			561.4
LC_SBPIN	10/21/2021	440	1.12	17.8		58.7	36.1			< 0.00050		< 0.0010		< 0.00050		< 0.0010			46.9
LC_SBPIN	11/18/2021	266	1.14	1.14		15.5	35.6	< 0.0015		< 0.0010		< 0.0010		< 0.0010		< 0.0010			85.40
LC_SBPIN	12/6/2021	380	0.29	2.11		14.0	44.3		< 1.5		< 1.0		< 1.0		< 1.0		< 1.0		76.59

Teck Location Code	Sample Date	ACIDITY TO pH 8.3 (As CaCO3)	ALKALINITY, BICARBONATE (As CaCO3), lab measured.	ALKALINITY, CARBONATE (As CaCO3), lab measured.	ALKALINITY, HYDROXIDE (As CaCO3), lab measured.	ALKALINITY, TOTAL (As CaCO3), lab measured.	ALUMINUM	ALUMINUM	ALUMINUM	ANTHRACENE	ANTIMONY	ANTIMONY	ANTIMONY	ARSENIC	ARSENIC	ARSENIC	B(a)P Total Potency Equivalent	BARIUM	BARIUM
		N	N	N	N	N	D	N	T	N	D	N	T	D	N	T	N	D	N
		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/l	mg/kg	mg/l	mg/kg	mg/l	mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	21.1	143	< 1.0	< 1.0	143	< 0.0030		0.0230		0.00402		0.00356	0.00048		0.00057		0.110	
LC_SBPIN	2/17/2021	41.8	160	< 1.0	< 1.0	160	0.0119		0.159		0.00037		0.00111	0.00097		0.00065		0.114	
LC_SBPIN	3/22/2021	6.3	178	< 1.0	< 1.0	178	0.0034		0.0214		0.00076		0.00065	0.00054		0.00032		0.143	
LC_SBPIN	3/25/2021																		
LC_SBPIN	4/15/2021	< 2.0	174	< 1.0	< 1.0	174	0.0071		0.482		0.00500		0.00482	0.00087		0.00145		0.143	
LC_SBPIN	5/13/2021	9.6	170	< 1.0	< 1.0	170	0.0023		0.0677		0.00673		0.00700	0.00728		0.00746		0.0485	
LC_SBPIN	6/24/2021	10.7	187	< 1.0	< 1.0	187	0.0062		0.429		0.00966		0.0102	0.00206		0.00234		0.100	
LC_SBPIN	7/8/2021	18.8	244	< 1.0	< 1.0	244	0.0056		0.199		0.00197		0.00616	0.00031		0.00051		0.188	
LC_SBPIN	8/23/2021	4.9	199	< 1.0	< 1.0	199	0.0117	4090	0.135	< 0.080	0.00401	1.22	0.00389	0.00098	5.12	0.00095	0.417	0.0996	501
LC_SBPIN	9/16/2021	3.4	187	< 1.0	< 1.0	187	0.0101		7.71		0.0104		0.00964	0.00326		0.0144		0.0788	
LC_SBPIN	10/21/2021	18.7	274	< 1.0	< 1.0	274	0.0050		0.166		0.00101		0.00154	0.00083		0.00111		0.159	
LC_SBPIN	11/18/2021	< 2.0	180	< 1.0	< 1.0	180	0.0161		0.101		0.00289		0.00489	0.00052		0.00070		0.115	
LC_SBPIN	12/6/2021	4.7	199	< 1.0	< 1.0	199	0.0227		0.0462		0.00354		0.00187	0.00055		0.00058		0.120	

Teck Location Code	Sample Date	MOLYBDENUM	MOLYBDENUM	NICKEL	NICKEL	NITRATE NITROGEN (NO3), AS N	NITRITE NITROGEN (NO2), AS N	NITROGEN, AMMONIA (AS N)	NITROGEN, AMMONIA (AS N)	ORTHO-PHOSPHATE	ORTHO-PHOSPHATE	OXIDATION-REDUCTION POTENTIAL, FIELD	OXIDATION-REDUCTION POTENTIAL, LAB	pH, Field	pH, LAB	PHOSPHORUS	PHOSPHORUS	POTASSIUM	POTASSIUM
		D mg/l	T mg/l	D mg/l	T mg/l	N mg/l	N mg/l	N mg/l	T mg/l	D mg/l	N mg/l	N mv	N mv	N ph units	N ph units	N mg/l	T mg/l	D mg/l	T mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021	0.0111	0.00931	< 0.00050	0.0200	0.0095	< 0.0010	0.0287			0.0107	-85	280	7.96	7.92	0.551		0.841	3.47
LC_PIZP1101	6/10/2021	0.0130	0.0121	< 0.00050	0.00701	< 0.0050	< 0.0010		0.0268	0.0091		-123	412	7.56	8.29		0.213	0.765	2.66
LC_PIZP1101	9/20/2021											-189.2		7.8					
LC_PIZP1101	9/21/2021	0.0123	0.00387	< 0.00050	0.0516	< 0.0050	< 0.0010		0.0471	0.0045			299		8.15		2.04	0.798	4.80
LC_PIZP1101	11/23/2021											-152		8.02					
LC_PIZP1101	11/23/2021	0.0127	0.00736	0.00118	0.0622	0.207	0.0013		0.0848	0.0118			376		8.14		1.89	0.942	6.55

Teck Location Code	Sample Date	PHOSPHORUS	POTASSIUM	POTASSIUM	SELENIUM	SELENIUM	SILICON	SILICON	SILVER	SILVER	SODIUM	SODIUM	Specific conductivity, temperature corrected value (25 C)	STRONTIUM	STRONTIUM	Sulphate (as SO4)	Sulphate (as SO4)	SULPHUR	SULPHUR
		T mg/l	D mg/l	T mg/l	D ug/l	T ug/l	D mg/l	T mg/l	D mg/l	T mg/l	D mg/l	T mg/l	N uS/cm at 25 C	D mg/l	T mg/l	D mg/l	N mg/l	D mg/l	T mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	0.911	2.33	4.14	0.200	0.887	5.04	15.5	0.000015	0.000167	18.2	15.8	1630	0.446	0.502	106	106	38.8	39.9
LC_PIZP1105	6/11/2021	0.558	2.26	3.48	0.236	0.382	4.79	10.7	< 0.000010	0.000112	16.3	14.5	1451	0.504	0.488	120		39.3	35.7
LC_PIZP1105	9/16/2021	2.06	2.12	4.85	0.272	0.702	4.95	20.7	< 0.000010	0.000413	15.7	14.2	1356.0	0.421	0.599	105		35.1	34.5
LC_PIZP1105	11/22/2021	0.384	2.04	2.84	0.091	0.239	4.62	8.67	< 0.000010	0.000069	14.7	14.1	1,418	0.422	0.408	106		36.0	35.6

Teck Location Code	Sample Date	M AND P XYLENES	MAGNESIUM	MAGNESIUM	MAGNESIUM	MAJOR ANION SUM	MAJOR ANION SUM	MAJOR CATION SUM	MAJOR CATION SUM	MANGANESE	MANGANESE	MANGANESE	MERCURY	MERCURY	MERCURY	METHYLENE CHLORIDE	METHYLENE CHLORIDE	MOISTURE	MOLYBDENUM
		N ug/l	D mg/l	N mg/kg	T mg/l	D meq/l	N meq/l	D meq/l	N meq/l	D mg/l	N mg/kg	T mg/l	D mg/l	N mg/kg	T ug/l	N mg/l	N ug/l	N %	D mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		14.6		15.6		4.56		4.33	0.176		0.198				< 0.0010			0.0649
LC_SBPIN	2/17/2021		18.7		22.2		4.78		6.79	0.267		0.355				0.0011			0.0304
LC_SBPIN	3/22/2021		20.6		18.2		5.73		6.30	0.151		0.128	< 0.0000050		< 0.0020				0.0282
LC_SBPIN	3/25/2021															< 0.0010			
LC_SBPIN	4/15/2021		18.6		19.4	5.55		5.34		0.100		0.118				< 0.0010			0.0522
LC_SBPIN	5/13/2021		21.4		22.0	6.28		7.11		0.0638		0.0683				< 0.0010			0.0906
LC_SBPIN	6/24/2021		26.6		26.3	7.87		7.54		0.191		0.193				< 0.0010			0.162
LC_SBPIN	7/8/2021		36.1		34.5	10.6		11.9		0.237		0.238				< 0.0010			0.272
LC_SBPIN	8/23/2021		23.5	5730	23.0		7.50		7.03	0.00074	245	0.0649		0.0733		< 0.0010		23.5	0.0912
LC_SBPIN	9/16/2021		33.7		42.3	11.2		10.4		0.0370		0.373				< 0.0010			0.171
LC_SBPIN	10/21/2021		27.2		27.3		8.55		8.51	0.136		0.142				< 0.0010			0.119
LC_SBPIN	11/18/2021		15.9		16.6	5.15		4.34		0.0916		0.0999				< 0.0010			0.0603
LC_SBPIN	12/6/2021	< 0.40	20.4		19.6	6.69		5.94		0.133		0.134					< 1.0		0.129

Teck Location Code	Sample Date	TURBIDITY, LAB	URANIUM	URANIUM	URANIUM	VANADIUM	VANADIUM	VANADIUM	VINYL CHLORIDE	VINYL CHLORIDE	VOLATILE PETROLEUM HYDROCARBONS BTEX	VOLATILE PETROLEUM HYDROCARBONS BTEX	ZINC	ZINC	ZINC	ZIRCONIUM
		N ntu	D mg/l	N mg/kg	T mg/l	D mg/l	N mg/kg	T mg/l	N mg/l	N ug/l	N mg/l	N ug/l	D mg/l	N mg/kg	T mg/l	N mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	5.25	0.00131		0.00132	0.00072		0.00086	< 0.00050				0.0184		0.0310	
LC_SBPIN	2/17/2021	241	0.000042		0.000240	< 0.00050		0.00352	< 0.00050				0.0340		0.0754	
LC_SBPIN	3/22/2021	19.4	0.00211		0.000896	0.00090		0.00055					< 0.0010		< 0.0030	
LC_SBPIN	3/25/2021								< 0.0010		< 0.0012					
LC_SBPIN	4/15/2021	125	0.00500		0.00498	0.00078		0.00510	< 0.0010		< 0.0012		0.0104		0.0284	
LC_SBPIN	5/13/2021	21.8	0.000464		0.000419	0.0116		0.0122	< 0.0010		< 0.0012		0.0406		0.0442	
LC_SBPIN	6/24/2021	37.2	0.00472		0.00449	0.00346		0.00570	< 0.0010		< 0.0012		0.0149		0.0369	
LC_SBPIN	7/8/2021	27.1	0.000682		0.000722	< 0.00050		0.00100	< 0.0010		< 0.0012		0.0023		0.0134	
LC_SBPIN	8/23/2021	11.0	0.00585	1.42	0.00573	0.00058	33.9	0.00129	< 0.00050				0.0166	137	0.0146	2.7
LC_SBPIN	9/16/2021	4000	0.0103		0.0137	0.00734		0.0715	< 0.0010		0.0034		0.0203		0.293	
LC_SBPIN	10/21/2021	51.2	0.00231		0.00234	< 0.00050		0.00126	< 0.00050				0.0022		0.0274	
LC_SBPIN	11/18/2021	28.9	0.00268		0.00259	0.00116		0.00187	< 0.0010		< 0.0010		0.0089		0.0381	
LC_SBPIN	12/6/2021	33.6	0.00189		0.00204	< 0.00050		< 0.00050		< 1.0		< 1.0	0.0657		0.0591	

Teck Location Code	Sample Date	BARIUM	BENZENE	BENZENE	BENZENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B&J)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	BERYLLIUM	BERYLLIUM	BERYLLIUM	BERYLLIUM	BERYLLIUM	BICARBONATE	BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	BISMUTH	BISMUTH
		T mg/l	N mg/kg	N mg/l	N ug/l	N mg/kg	N mg/kg	N mg/kg	N mg/kg	N mg/kg	D mg/l	D ug/l	N mg/kg	T mg/l	T ug/l	N mg/l	N mg/l	D mg/l	N mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	0.114		< 0.00050							< 0.000020			< 0.000020				< 0.000050	
LC_SBPIN	2/17/2021	0.0947		< 0.00050							< 0.000020			0.000056				< 0.000050	
LC_SBPIN	3/22/2021	0.131									< 0.000020			< 0.000020			8.0	< 0.000050	
LC_SBPIN	3/25/2021			< 0.00050															
LC_SBPIN	4/15/2021	0.191		< 0.00050								< 0.020			0.091			< 0.000050	
LC_SBPIN	5/13/2021	0.0563		< 0.00050								< 0.020			< 0.020	207		< 0.000050	
LC_SBPIN	6/24/2021	0.115		< 0.00050								< 0.020			0.028	229		< 0.000100	
LC_SBPIN	7/8/2021	0.180		< 0.00050								< 0.020			< 0.020	298		< 0.000050	
LC_SBPIN	8/23/2021	0.105	0.822	< 0.00050		< 0.43	0.252	0.565	0.254	0.043	< 0.000020		0.67	< 0.000020				< 0.000050	< 0.20
LC_SBPIN	9/16/2021	1.02		< 0.00050								< 0.020			1.16	228	10.0	< 0.000050	
LC_SBPIN	10/21/2021	0.175		< 0.00050							< 0.000020			0.000024				< 0.000050	
LC_SBPIN	11/18/2021	0.128		< 0.00050								< 0.020			0.021	219		< 0.000050	
LC_SBPIN	12/6/2021	0.118			< 0.50							< 0.020			< 0.020	243		< 0.000050	

Teck Location Code	Sample Date	SELENIUM D ug/l	SELENIUM T ug/l	SILICON D mg/l	SILICON T mg/l	SILVER D mg/l	SILVER T mg/l	SODIUM D mg/l	SODIUM T mg/l	Specific conductivity, temperature corrected value (25 C) N uS/cm at 25 C	STRONTIUM D mg/l	STRONTIUM T mg/l	Sulphate (as SO4) D mg/l	SULPHUR D mg/l	SULPHUR T mg/l	TEMPERATURE, FIELD N deg c	THALLIUM D mg/l	THALLIUM T mg/l	The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32. N mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1101	3/22/2021	< 0.050	3.2	3.70	16.9	< 0.000010	0.000593	21.5	19.6	363	0.222	0.286	3.26	1.47	1.23	8.0	< 0.000010	0.000541	< 0.50
LC_PIZP1101	6/10/2021	< 0.050	0.799	3.77	13.0	< 0.000010	0.000188	20.1	20.8	308	0.214	0.238	2.66	1.13	1.12	9.1	< 0.000010	0.000227	< 0.4
LC_PIZP1101	9/20/2021									295.5						17.2			
LC_PIZP1101	9/21/2021	< 0.050	4.99	3.79	29.6	< 0.000010	0.00170	21.0	21.2		0.196	0.403	3.91	0.98	1.40		< 0.000010	0.00130	< 0.4
LC_PIZP1101	11/23/2021									306						4.1			
LC_PIZP1101	11/23/2021	1.60	8.38	3.37	34.9	< 0.000010	0.00158	21.3	19.5		0.201	0.426	3.31	1.45	1.08		0.000032	0.00152	< 0.4

Teck Location Code	Sample Date	TEMPERATURE, FIELD N deg c	THALLIUM D mg/l	THALLIUM T mg/l	The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32. N mg/l	TIN D mg/l	TIN T mg/l	TITANIUM D mg/l	TITANIUM T mg/l	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) N mg/l	TOTAL EXTRACTABLE HYDROCARBONS (TEH 10-30) N mg/l	TOTAL KJELDAHL NITROGEN N mg/l	TOTAL ORGANIC CARBON T mg/l	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu	TURBIDITY, LAB N ntu	URANIUM D mg/l	URANIUM T mg/l	VANADIUM D mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_PIZP1105	3/24/2021	6.5	0.000040	0.000370	< 0.4	0.00106	0.00035	< 0.00030	0.0528	830	< 0.25	< 0.050	74.5	2590	602.1	2450	0.000544	0.000860	< 0.00050
LC_PIZP1105	6/11/2021	8.9	0.000050	0.000250	< 0.4	< 0.00010	0.00025	< 0.00030	0.0302	854	< 0.25	0.227	2.44	242	267.85	143	0.000389	0.000771	< 0.00050
LC_PIZP1105	9/16/2021	7.1	0.000046	0.000662	< 0.4	0.00020	0.00109	< 0.00030	0.0330	989	0.43	0.122	36.7	1740	617.7	1240	0.000320	0.00170	< 0.00050
LC_PIZP1105	11/22/2021	5.6	0.000016	0.000165	< 0.4	0.00028	0.00043	< 0.00030	0.0175	906	< 0.25	0.084	9.55	424	302.70	290	0.000350	0.000522	< 0.00050

Teck Location Code	Sample Date	MOLYBDENUM N mg/kg	MOLYBDENUM T mg/l	NAPHTHALENE N mg/kg	NAPHTHALENE N mg/l	NAPHTHALENE N ug/l	Naphthalene, 1-methyl- (1-METHYLNAPHTHALENE) N mg/kg	NAPHTHALENE-D8 N %	N-BUTYLBENZENE N mg/l	N-BUTYLBENZENE N ug/l	NICKEL D mg/l	NICKEL N mg/kg	NICKEL T mg/l	NITRATE NITROGEN (NO3), AS N N mg/l	NITRITE NITROGEN (NO2), AS N N mg/l	NITROGEN, AMMONIA (AS N) N mg/l	NITROGEN, AMMONIA (AS N) T mg/l	NON-HALOGENATED VOLATILES: VOLATILE HYDROCARBONS N mg/kg	NON-HALOGENATED VOLATILES: VPH N mg/kg
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021		0.0589						< 0.0010		0.00706		0.00766	0.199	< 0.0010	0.0546			
LC_SBPIN	2/17/2021		0.00780						< 0.0010		0.0124		0.0131	0.0164	< 0.0010	8.69			
LC_SBPIN	3/22/2021		0.0125								0.00606		0.00637	< 0.0050	0.0011	0.654			
LC_SBPIN	3/25/2021				< 0.0010				< 0.0010										
LC_SBPIN	4/15/2021		0.0543		< 0.0010				< 0.0010		0.00347		0.00948	0.410	0.138		0.165		
LC_SBPIN	5/13/2021		0.0870		< 0.0010				< 0.0010		0.00869		0.0103	1.14	0.318		17.2		
LC_SBPIN	6/24/2021		0.166		< 0.0010				< 0.0010		0.00432		0.00596	0.0096	< 0.0010		< 0.0050		
LC_SBPIN	7/8/2021		0.305		< 0.0010				< 0.0010		0.00314		0.00406	0.0454	0.0072		0.0094		
LC_SBPIN	8/23/2021	41.3	0.0894	6.10			11.6	84.5	< 0.0010		0.00319	31.1	0.00449	0.140	0.0144	0.330		37	17
LC_SBPIN	9/16/2021		0.282		< 0.0010				< 0.0010		0.00924		0.0826	2.71	0.686		0.981		
LC_SBPIN	10/21/2021		0.113						< 0.0010		0.00388		0.00517	< 0.0050	0.0012	16.0			
LC_SBPIN	11/18/2021		0.0652		< 0.0010				< 0.0010		0.00303		0.00414	< 0.0050	0.0028		0.176		
LC_SBPIN	12/6/2021		0.122			< 1.0				< 1.0	0.00305		0.00304	0.0201	0.0072		0.420		

Teck Location Code	Sample Date
LC_SBPIN	1/14/2021
LC_SBPIN	2/17/2021
LC_SBPIN	3/22/2021
LC_SBPIN	3/25/2021
LC_SBPIN	4/15/2021
LC_SBPIN	5/13/2021
LC_SBPIN	6/24/2021
LC_SBPIN	7/8/2021
LC_SBPIN	8/23/2021
LC_SBPIN	9/16/2021
LC_SBPIN	10/21/2021
LC_SBPIN	11/18/2021
LC_SBPIN	12/6/2021

Teck Location Code	Sample Date	BISMUTH T mg/l	BORON D mg/l	BORON N mg/kg	BORON T mg/l	BROMIDE D mg/l	BROMIDE N mg/l	BROMOBENZENE N mg/l	BROMOBENZENE N ug/l	BROMOCHLOROMETHANE N mg/l	BROMOCHLOROMETHANE N ug/l	BROMOFORM N mg/l	BROMOFORM N ug/l	BROMOMETHANE N mg/l	BROMOMETHANE N ug/l	CADMIUM D mg/l	CADMIUM D ug/l	CADMIUM N mg/kg	CADMIUM T mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_SBPIN	1/14/2021	< 0.000050	0.313		0.349	< 0.050		< 0.0010		< 0.0010		< 0.00050		< 0.0010		< 0.000025			0.0000765
LC_SBPIN	2/17/2021	< 0.000050	0.446		0.799	< 0.050		< 0.0010		< 0.0010		< 0.00050		< 0.0010		< 0.000015			0.000263
LC_SBPIN	3/22/2021	< 0.000050	0.271		0.276	0.114										< 0.000010			0.0000212
LC_SBPIN	3/25/2021							< 0.0010		< 0.0010		< 0.0010		< 0.0010					
LC_SBPIN	4/15/2021	< 0.000050	0.122		0.141		0.062	< 0.0010		< 0.0010		< 0.0010		< 0.0010			0.152		
LC_SBPIN	5/13/2021	< 0.000050	0.192		0.218		0.067	< 0.0010		< 0.0010		< 0.0010		< 0.0010			0.718		
LC_SBPIN	6/24/2021	< 0.000050	0.416		0.464		0.092	< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.0700		
LC_SBPIN	7/8/2021	< 0.000050	1.90		2.06		1.07	< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.115		
LC_SBPIN	8/23/2021	< 0.000050	0.210	6.5	0.204	0.270		< 0.0010		< 0.0010		< 0.00050		< 0.0010		< 0.00010		2.01	< 0.00019
LC_SBPIN	9/16/2021	0.000307	0.338		0.353		0.491	< 0.0010		< 0.0010		< 0.0010		< 0.0010			0.385		
LC_SBPIN	10/21/2021	< 0.000050	0.442		0.530	0.233		< 0.0010		< 0.0010		< 0.00050		< 0.0010		0.0000235			0.000269
LC_SBPIN	11/18/2021	< 0.000050	0.154		0.158		< 0.050	< 0.0010		< 0.0010		< 0.0010		< 0.0010			< 0.0400		
LC_SBPIN	12/6/2021	< 0.000050	0.437		0.511		0.196		< 1.0		< 1.0		< 1.0		< 1.0		0.452		

Teck Location Code	Sample Date	TIN D mg/l Result	TIN T mg/l Result	TITANIUM D mg/l Result	TITANIUM T mg/l Result	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) N mg/l Result	TOTAL EXTRACTABLE HYDROCARBONS (TEH 10-30) N mg/l Result	TOTAL KJELDAHL NITROGEN N mg/l Result	TOTAL ORGANIC CARBON T mg/l Result	TOTAL SUSPENDED SOLIDS, LAB N mg/l Result	TURBIDITY, FIELD N ntu Result	TURBIDITY, LAB N ntu Result	URANIUM D mg/l Result	URANIUM T mg/l Result	VANADIUM D mg/l Result	VANADIUM T mg/l Result	ZINC D mg/l Result	ZINC T mg/l Result
LC_PIZP1101	3/22/2021	0.00012	0.00033	< 0.010	0.029	376	< 0.25	0.647	< 5.0	300	600.00	472	0.00137	0.00197	0.00056	0.0255	< 0.0010	0.118
LC_PIZP1101	6/10/2021	< 0.00010	0.00027	0.00053	0.104	192	< 0.25	0.242	2.08	69.9	255.00	102	0.00140	0.00186	< 0.00050	0.0139	< 0.0010	0.0316
LC_PIZP1101	9/20/2021										2972.4							
LC_PIZP1101	9/21/2021	< 0.00010	0.00047	< 0.00240	0.0380	397	< 0.25	0.116	32.3	2010		4000	0.00169	0.00451	0.00057	0.0463	0.0018	0.221
LC_PIZP1101	11/23/2021										1847.00							
LC_PIZP1101	11/23/2021	< 0.00010	0.00065	< 0.00030	0.0442	533	0.34	0.114	9.88	2160		3110	0.00243	0.00448	0.00128	0.0605	< 0.0010	0.274

Teck Location Code	Sample Date	VANADIUM T mg/l Result	ZINC D mg/l Result	ZINC T mg/l Result
LC_PIZP1105	3/24/2021	0.0192	0.0106	0.0902
LC_PIZP1105	6/11/2021	0.0125	0.0446	0.0791
LC_PIZP1105	9/16/2021	0.0338	0.0025	0.194
LC_PIZP1105	11/22/2021	0.00812	0.0040	0.0378

Teck Location Code	Sample Date	N-PROPYLBENZENE N mg/l Result	N-PROPYLBENZENE N ug/l Result	ORTHO-PHOSPHATE D mg/l Result	ORTHO-PHOSPHATE N mg/l Result	OXIDATION-REDUCTION POTENTIAL, FIELD N mv Result	OXIDATION-REDUCTION POTENTIAL, LAB N mv Result	O-XYLENE (1,2-DIMETHYLBENZENE) N mg/kg Result	O-XYLENE (1,2-DIMETHYLBENZENE) N mg/l Result	O-XYLENE (1,2-DIMETHYLBENZENE) N ug/l Result	pH (1:2 soil:water) N ph units Result	pH, Field N ph units Result	pH, LAB N ph units Result	PHENANTHRENE N mg/kg Result	PHENANTHRENE-D10 N % Result	PHOSPHORUS N mg/kg Result	PHOSPHORUS N mg/l Result
LC_SBPIN	1/14/2021	< 0.0010			0.0950	115	251		< 0.00050			6.82	7.15				0.880
LC_SBPIN	2/17/2021	< 0.0010			4.52	-45.4	92.1		< 0.00050			6.46	6.69				21.2
LC_SBPIN	3/22/2021				0.0849	-156	279					7.19	7.39				0.632
LC_SBPIN	3/25/2021	< 0.0010							< 0.00050								
LC_SBPIN	4/15/2021	< 0.0010		0.0075		-79	384		< 0.00050			7.77	8.19				
LC_SBPIN	5/13/2021	< 0.0010		25.5		34.9	383		< 0.00050			7.91	7.90				
LC_SBPIN	6/24/2021	< 0.0010		0.0116		54	449		< 0.00050			7.74	7.54				
LC_SBPIN	7/8/2021	< 0.0010		< 0.0010		159	424		< 0.00050			6.92	7.26				
LC_SBPIN	8/23/2021	< 0.0010			0.0531	0	429	2.08	< 0.00050		8.89	7.6	7.93	7.14	100.5	1150	0.174
LC_SBPIN	9/16/2021	< 0.0010		0.380		242.2	416		0.00062			8.4	7.95				
LC_SBPIN	10/21/2021	< 0.0010			0.0013	-152.3	433		< 0.00050			7.5	7.63				0.709
LC_SBPIN	11/18/2021	< 0.0010		0.0747		-72	522		< 0.00030			7.77	8.03				
LC_SBPIN	12/6/2021		< 1.0	0.0990		-171.1	395			< 0.30		7.38	7.53				

Teck Location Code	Sample Date
LC_SBPIN	1/14/2021
LC_SBPIN	2/17/2021
LC_SBPIN	3/22/2021
LC_SBPIN	3/25/2021
LC_SBPIN	4/15/2021
LC_SBPIN	5/13/2021
LC_SBPIN	6/24/2021
LC_SBPIN	7/8/2021
LC_SBPIN	8/23/2021
LC_SBPIN	9/16/2021
LC_SBPIN	10/21/2021
LC_SBPIN	11/18/2021
LC_SBPIN	12/6/2021

Teck Location Code	Sample Date	CADMIUM T ug/l Result	CALCIUM D mg/l Result	CALCIUM N mg/kg Result	CALCIUM T mg/l Result	CARBON TETRACHLORIDE N mg/l Result	CARBON TETRACHLORIDE N ug/l Result	CARBON, DISSOLVED ORGANIC D mg/l Result	CARBONATE (AS CO3) N mg/l Result	Cation - Anion Balance D % Result	Cation - Anion Balance N % Result	CHLORIDE D mg/l Result	CHLOROBENZENE (Monochlorobenzene) N mg/l Result	CHLOROBENZENE (Monochlorobenzene) N ug/l Result	CHLOROETHANE N mg/l Result	CHLOROETHANE N ug/l Result	CHLOROFORM (Trichloromethane) N mg/l Result	CHLOROFORM (Trichloromethane) N ug/l Result
LC_SBPIN	1/14/2021		52.9		54.7	< 0.00050		16.7			-2.6	9.25	< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	2/17/2021		66.9		79.2	< 0.00050		264			17.3	8.45	< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	3/22/2021		71.1		57.4			5.23			4.8	16.9						
LC_SBPIN	3/25/2021					< 0.0010							< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	4/15/2021	0.469	65.6		64.2	< 0.0010		4.14		1.93		7.14	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	5/13/2021	0.802	60.5		64.0	< 0.00100		8.40	< 1.0	6.20		16.3	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	6/24/2021	< 0.205	79.4		81.0	< 0.00100		10.8	< 1.0	2.14		20.8	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	7/8/2021	< 0.160	113		108	< 0.00100		83.8	< 1.0	5.78		76.0	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	8/23/2021		78.0	19300	77.7	< 0.00050		3.73			-3.2	21.9	< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	9/16/2021	4.36	91.9		122	< 0.00050		6.13	< 1.0	3.70		92.7	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	10/21/2021		75.3		76.4	< 0.00050		30.9			-0.3	26.1	< 0.00050		< 0.0010		< 0.00050	
LC_SBPIN	11/18/2021	0.117	50.2		53.3	< 0.00050		5.88	< 1.0	8.54		5.04	< 0.0010		< 0.0010		< 0.0010	
LC_SBPIN	12/6/2021	0.687	68.2		69.0		< 0.50	6.79	< 1.0	5.94		33.4		< 1.0		< 1.0		< 1.0

Teck Location Code	Sample Date	Flow Remark	Method	INSTANT_FLOW m3/s
				Result
LC_DC1	1/31/2021	Partially Frozen	rating curve	
LC_DC1	2/28/2021	Partially Frozen	rating curve	
LC_DC1	3/31/2021	Partially Frozen	rating curve	
LC_DC1	4/6/2021		rating curve	0.22931024
LC_DC1	4/15/2021		rating curve	0.73545331
LC_DC1	4/20/2021		rating curve	0.35581157
LC_DC1	4/21/2021	RISC Grade=C; EDP calculated instant_flow = 0.3 m3/s; EDP calculated velocity = 0.465 m/s	open channel	0.30008301
LC_DC1	4/28/2021		rating curve	0.3130382
LC_DC1	5/4/2021		rating curve	0.59310406
LC_DC1	5/7/2021	RISC Grade=A; EDP calculated instant_flow = 0.976 m3/s; EDP calculated velocity = 0.75 m/s	open channel	0.97612917
LC_DC1	5/10/2021		rating curve	0.49200276
LC_DC1	5/17/2021		rating curve	0.96580416
LC_DC1	5/26/2021		rating curve	1.38288724
LC_DC1	6/1/2021		rating curve	1.61311626
LC_DC1	6/2/2021		rating curve	1.61311626
LC_DC1	6/8/2021		rating curve	0.73545331
LC_DC1	6/14/2021		rating curve	0.46845376
LC_DC1	6/16/2021	RISC Grade=A	open channel	0.35407889
LC_DC1	6/22/2021		rating curve	0.3130382
LC_DC1	6/29/2021		rating curve	0.29066035
LC_DC1	7/5/2021		rating curve	0.22931024
LC_DC1	7/14/2021		rating curve	0.1763476
LC_DC1	7/20/2021		rating curve	0.16049083
LC_DC1	7/29/2021		rating curve	0.21438238
LC_DC1	8/3/2021		rating curve	0.22931024
LC_DC1	8/6/2021	RISC Grade=C; EDP calculated instant_flow = 0.138 m3/s; EDP calculated velocity = 0.285 m/s	open channel	0.13750499
LC_DC1	8/9/2021		rating curve	0.17962515
LC_DC1	8/17/2021		rating curve	0.22931024
LC_DC1	8/24/2021		rating curve	0.18967238
LC_DC1	8/30/2021		rating curve	0.13138404
LC_DC1	9/2/2021	RISC Grade=C; EDP calculated instant_flow = 0.099 m3/s; EDP calculated velocity = 0.187 m/s	open channel	0.09882
LC_DC1	9/8/2021		rating curve	0.13138404
LC_DC1	9/12/2021		rating curve	0.11810305
LC_DC1	9/21/2021		rating curve	0.08315573
LC_DC1	9/27/2021		rating curve	0.10564905
LC_DC1	10/6/2021		rating curve	0
LC_DC1	10/12/2021		rating curve	0.10564905
LC_DC1	10/18/2021		rating curve	0.10564905
LC_DC1	10/26/2021		rating curve	0.10564905
LC_DC1	10/27/2021	RISC Grade=C; EDP calculated instant_flow = 0.065 m3/s; EDP calculated velocity = 0.147 m/s	open channel	0.0652135
LC_DC1	11/3/2021		rating curve	0.10564905
LC_DC1	11/8/2021		rating curve	0.10564905
LC_DC1	11/15/2021		rating curve	0.1763476
LC_DC1	11/23/2021		rating curve	0.18628743
LC_DC1	11/30/2021		rating curve	0.13693161
LC_DC1	12/13/2021		rating curve	0.14261508
LC_DC1	12/20/2021	Ice causing staff guage reading to be high	rating curve	5.91637659
LC_DC1	12/30/2021		rating curve	0.13693161
LC_DC3	1/6/2021		rating curve	0.07822506
LC_DC3	1/12/2021		rating curve	0.05839743
LC_DC3	1/26/2021		rating curve	0.05839743
LC_DC3	2/2/2021		rating curve	0.05839743
LC_DC3	2/18/2021	RISC Grade=A; EDP calculated instant_flow = 0.012 m3/s; EDP calculated velocity = 0.12 m/s	open channel	0.0309125
LC_DC3	2/19/2021	RISC Grade=A; EDP calculated instant_flow = 0.022 m3/s; EDP calculated velocity = 0.085 m/s	open channel	0.021696
LC_DC3	2/19/2021	RISC Grade=A; EDP calculated instant_flow = 0.022 m3/s; EDP calculated velocity = 0.085 m/s	open channel	0.021696
LC_DC3	2/24/2021	RISC Grade=A; EDP calculated instant_flow = 0.029 m3/s; EDP calculated velocity = 0.161 m/s	open channel	0.02862528
LC_DC3	3/2/2021	RISC Grade=A; EDP calculated instant_flow = 0.035 m3/s; EDP calculated velocity = 0.18 m/s	open channel	0.035392
LC_DC3	3/4/2021	RISC Grade=A; EDP calculated instant_flow = 0.03 m3/s; EDP calculated velocity = 0.077 m/s	open channel	0.029708
LC_DC3	3/9/2021	RISC Grade=A; EDP calculated instant_flow = 0.031 m3/s; EDP calculated velocity = 0.155 m/s	open channel	0.030704
LC_DC3	3/11/2021	RISC Grade=A; EDP calculated instant_flow = 0.036 m3/s; EDP calculated velocity = 0.16 m/s	open channel	0.036054
LC_DC3	3/17/2021		rating curve	0.1447915
LC_DC3	3/17/2021	RISC Grade=A; EDP calculated instant_flow = 0.071 m3/s; EDP calculated velocity = 0.233 m/s	open channel	0.070928
LC_DC3	3/18/2021	RISC Grade=A; EDP calculated instant_flow = 0.088 m3/s; EDP calculated velocity = 0.288 m/s	open channel	0.088064
LC_DC3	3/18/2021		rating curve	0.1447915
LC_DC3	3/23/2021	RISC Grade=A; EDP calculated instant_flow = 0.06 m3/s; EDP calculated velocity = 0.206 m/s	open channel	0.060414
LC_DC3	3/25/2021	RISC Grade=A; EDP calculated instant_flow = 0.052 m3/s; EDP calculated velocity = 0.189 m/s	open channel	0.052255
LC_DC3	3/30/2021	RISC Grade=A; EDP calculated instant_flow = 0.045 m3/s; EDP calculated velocity = 0.147 m/s	open channel	0.045256
LC_DC3	4/1/2021		rating curve	0.09932838
LC_DC3	4/5/2021		rating curve	0.1447915
LC_DC3	4/5/2021	RISC Grade=A; EDP calculated instant_flow = 0.051 m3/s; EDP calculated velocity = 0.19 m/s	open channel	0.050862
LC_DC3	4/7/2021	RISC Grade=A; EDP calculated instant_flow = 0.071 m3/s; EDP calculated velocity = 0.213 m/s	open channel	0.07106
LC_DC3	4/10/2021		rating curve	0.1447915
LC_DC3	4/11/2021		rating curve	0.1447915
LC_DC3	4/15/2021		rating curve	0.14006805
LC_DC3	4/19/2021		rating curve	0.1447915
LC_DC3	4/19/2021	RISC Grade=A; EDP calculated instant_flow = 0.154 m3/s; EDP calculated velocity = 0.498 m/s	open channel	0.15441801
LC_DC3	4/20/2021		rating curve	0.26800337
LC_DC3	4/21/2021	RISC Grade=A; EDP calculated instant_flow = 0.135 m3/s; EDP calculated velocity = 0.331 m/s	open channel	0.1354624
LC_DC3	4/27/2021		rating curve	0.1447915
LC_DC3	4/28/2021		rating curve	0.25980487
LC_DC3	5/4/2021		rating curve	0.41280541
LC_DC3	5/10/2021		rating curve	0.36488822
LC_DC3	5/17/2021		rating curve	0.487198
LC_DC3	5/25/2021		rating curve	0.38867202
LC_DC3	5/27/2021	RISC Grade=A; EDP calculated instant_flow = 0.345 m3/s; EDP calculated velocity = 0.332 m/s	open channel	0.34466299
LC_DC3	6/1/2021		rating curve	0.46207801
LC_DC3	6/2/2021		rating curve	0.46207801
LC_DC3	6/2/2021	RISC Grade=A; EDP calculated instant_flow = 0.311 m3/s; EDP calculated velocity = 0.441 m/s	open channel	0.31123599
LC_DC3	6/8/2021		rating curve	0.14006805
LC_DC3	6/14/2021		rating curve	0.2985689
LC_DC3	6/15/2021	2nd Set of Params	rating curve	0.2985689
LC_DC3	6/16/2021	3rd Set of Params	rating curve	0.2985689
LC_DC3	6/16/2021	RISC Grade=A; EDP calculated instant_flow = 0.129 m3/s; EDP calculated velocity = 0.167 m/s	open channel	0.1293875
LC_DC3	6/22/2021		rating curve	0.25980487
LC_DC3	6/23/2021		rating curve	0.25980487
LC_DC3	6/24/2021		rating curve	0.25980487
LC_DC3	6/30/2021		rating curve	0.2462763
LC_DC3	7/5/2021		rating curve	0.24091321
LC_DC3	7/14/2021	Old staff gauge: 0.161 new staff gauge: 0.182	rating curve	0.27902752
LC_DC3	7/15/2021	Old staff gauge: 0.158 new staff gauge: 0.175	rating curve	0.27902752
LC_DC3	7/20/2021	old: .154 new: .175	rating curve	0.20417796
LC_DC3	7/27/2021	Old: 0.146 New: 0.268	rating curve	0.18385291
LC_DC3	7/30/2021		rating curve	0.18385291
LC_DC3	8/3/2021	old: 0.146 new: 0.17	rating curve	0.18385291
LC_DC3	8/6/2021	RISC Grade=C; EDP calculated instant_flow = 0.068 m3/s; EDP calculated velocity = 0.292 m/s	open channel	0.067798

Teck Location Code	Sample Date	Flow Remark	Method	INSTANT_FLOW m3/s
				Result
LC_DC3	8/9/2021	new: 0.17	rating curve	0.18888669
LC_DC3	8/11/2021	old: 0.145 new:0165	rating curve	0.18888669
LC_DC3	8/17/2021	Old: 0.172 New: 0.19	rating curve	0.25166717
LC_DC3	8/24/2021	Old: 0.16 New: 0.18	rating curve	0.21974531
LC_DC3	8/30/2021	Old: 0.150 New: 0.17	rating curve	0.19395241
LC_DC3	9/2/2021	RISC Grade=C; EDP calculated instant_flow = 0.067 m3/s; EDP calculated velocity = 0.107 m/s	open channel	0.06717375
LC_DC3	9/8/2021	Old: 0.135, New: 0.165	rating curve	0.15675955
LC_DC3	9/12/2021	old:0.13 new: 0.15	rating curve	0.1447915
LC_DC3	9/21/2021	new: 0.15 old: 0.13	rating curve	0.1447915
LC_DC3	9/27/2021	old: 013, new:0.15	rating curve	0.1447915
LC_DC3	10/6/2021	new: 0.14	rating curve	0.12155522
LC_DC3	10/12/2021	New: 0.12	rating curve	0.15675955
LC_DC3	10/18/2021	New: 0.14	rating curve	0.12155522
LC_DC3	10/26/2021	New: 0.14	rating curve	0.12612487
LC_DC3	10/27/2021	RISC Grade=C; EDP calculated instant_flow = 0.039 m3/s; EDP calculated velocity = 0.083 m/s	open channel	0.03915562
LC_DC3	11/3/2021	New: 0.14	rating curve	0.12612487
LC_DC3	11/8/2021	New: 0.148	rating curve	0.12155522
LC_DC3	11/15/2021	New: 0.165	rating curve	0.28736404
LC_DC3	11/23/2021	New: 0.16	rating curve	0.19395241
LC_DC3	11/30/2021	New: 0.26	rating curve	0.16894794
LC_DC3	12/8/2021	New: 0.165	rating curve	0.20675364
LC_DC3	12/13/2021	New: 0.155	rating curve	0.15917988
LC_DC3	12/20/2021	new: 0.158	rating curve	0.16649304
LC_DC3	12/30/2021	Frozen	rating curve	0
LC_DCDS	1/6/2021		rating curve	0.06771426
LC_DCDS	1/12/2021		rating curve	0.06771426
LC_DCDS	2/2/2021		rating curve	0.06012839
LC_DCDS	3/5/2021	RISC Grade=C; EDP calculated instant_flow = 0.028 m3/s; EDP calculated velocity = 0.122 m/s	open channel	0.0282186
LC_DCDS	3/6/2021		rating curve	0.0843416
LC_DCDS	3/9/2021	RISC Grade=A; EDP calculated instant_flow = 0.028 m3/s; EDP calculated velocity = 0.117 m/s	open channel	0.028216
LC_DCDS	3/19/2021	RISC Grade=A; EDP calculated instant_flow = 0.161 m3/s; EDP calculated velocity = 0.25 m/s	open channel	0.161401
LC_DCDS	3/24/2021	RISC Grade=A; EDP calculated instant_flow = 0.106 m3/s; EDP calculated velocity = 0.209 m/s	open channel	0.106464
LC_DCDS	3/31/2021	RISC Grade=A; EDP calculated instant_flow = 0.054 m3/s; EDP calculated velocity = 0.132 m/s	open channel	0.054388
LC_DCDS	4/7/2021	RISC Grade=A; EDP calculated instant_flow = 0.073 m3/s; EDP calculated velocity = 0.155 m/s	open channel	0.07286
LC_DCDS	4/9/2021		rating curve	0.17077106
LC_DCDS	4/13/2021		rating curve	0.17077106
LC_DCDS	4/19/2021	RISC Grade=C; EDP calculated instant_flow = 0.228 m3/s; EDP calculated velocity = 0.366 m/s	open channel	0.22781
LC_DCDS	4/20/2021		rating curve	0.44391239
LC_DCDS	4/26/2021		rating curve	0.32537937
LC_DCDS	5/4/2021		rating curve	0.68579054
LC_DCDS	5/10/2021		rating curve	0.54343659
LC_DCDS	5/18/2021		rating curve	1.50101757
LC_DCDS	5/25/2021		rating curve	0.92015743
LC_DCDS	5/27/2021	RISC Grade=C; EDP calculated instant_flow = 0.821 m3/s; EDP calculated velocity = 0.638 m/s	open channel	0.8212617
LC_DCDS	6/1/2021		rating curve	1.34157753
LC_DCDS	6/2/2021	RISC Grade=A; EDP calculated instant_flow = 0.828 m3/s; EDP calculated velocity = 0.728 m/s	open channel	0.82835197
LC_DCDS	6/2/2021		rating curve	1.34157753
LC_DCDS	6/8/2021		rating curve	0.64331019
LC_DCDS	6/8/2021		rating curve	0.17077106
LC_DCDS	6/15/2021		rating curve	0.41862988
LC_DCDS	6/16/2021	RISC Grade=C; EDP calculated instant_flow = 0.258 m3/s; EDP calculated velocity = 0.357 m/s	open channel	0.258396
LC_DCDS	6/22/2021		rating curve	0.40221471
LC_DCDS	6/29/2021		rating curve	0.32537937
LC_DCDS	6/30/2021		rating curve	0.32537937
LC_DCDS	7/5/2021		rating curve	0.24146643
LC_DCDS	7/13/2021	Valve closed and water running through bypass	rating curve	0.22035222
LC_DCDS	7/13/2021	Valve closed and water running through bypass	rating curve	0.22035222
LC_DCDS	7/20/2021	old: .21 new: .115	rating curve	0.19748239
LC_DCDS	7/27/2021	Old: 0.254 New: 0.152	rating curve	0.34005111
LC_DCDS	8/3/2021	old: 0.248 new: 0.252	rating curve	0.31817317
LC_DCDS	8/6/2021	RISC Grade=C; EDP calculated instant_flow = 0.134 m3/s; EDP calculated velocity = 0.333 m/s	open channel	0.13392401
LC_DCDS	8/10/2021	old: 0.22 new:0.135	rating curve	0.22627947
LC_DCDS	8/17/2021	old: 0.22 new:0.135	rating curve	0.22627947
LC_DCDS	8/24/2021	Old: 0.15 New: 0.20	rating curve	0.06771426
LC_DCDS	8/31/2021	Old: 0.17 New: 0.10	rating curve	0.10293438
LC_DCDS	9/2/2021	RISC Grade=C; EDP calculated instant_flow = 0.082 m3/s; EDP calculated velocity = 0.212 m/s	open channel	0.081693
LC_DCDS	9/7/2021	Old:0.19, New:0.1	rating curve	0.14612444
LC_DCDS	9/12/2021	old: 0.19 new:0.1	rating curve	0.14612444
LC_DCDS	9/21/2021	new: 0.098 old: 0.18	rating curve	0.12352014
LC_DCDS	9/23/2021	RISC Grade=C; EDP calculated instant_flow = 0.05 m3/s; EDP calculated velocity = 0.151 m/s	open channel	0.0502815
LC_DCDS	9/27/2021		rating curve	0.01289434
LC_DCDS	10/6/2021	new: 0.097	rating curve	0.12352014
LC_DCDS	10/12/2021	New: 0.09	rating curve	0.13456845
LC_DCDS	10/19/2021		rating curve	0.00335859
LC_DCDS	10/26/2021		rating curve	0.10293438
LC_DCDS	10/27/2021	RISC Grade=C; EDP calculated instant_flow = 0.037 m3/s; EDP calculated velocity = 0.104 m/s	open channel	0.0373003
LC_DCDS	11/2/2021		rating curve	0.009885
LC_DCDS	11/9/2021	New: 0.09	rating curve	0.12352014
LC_DCDS	11/15/2021	0.14	rating curve	0.25718221
LC_DCDS	11/23/2021	New 0.10	rating curve	0.19197392
LC_DCDS	11/30/2021	New: 0.10	rating curve	0.17594746
LC_DCDS	12/8/2021	New: 0.11	rating curve	0.18386729
LC_DCDS	12/13/2021	New: 0.10	rating curve	0.14612444
LC_DCDS	12/20/2021	new: 0.102	rating curve	0.45251629
LC_DCDS	12/30/2021	New: 0.1	rating curve	0.12352014
LC_DCEF	1/6/2021		rating curve	0.00190193
LC_DCEF	2/2/2021		rating curve	0.00190193
LC_DCEF	3/16/2021		rating curve	0.0423951
LC_DCEF	4/5/2021		rating curve	0.01305778
LC_DCEF	5/4/2021		rating curve	0.14625899
LC_DCEF	6/1/2021		rating curve	0.06370098
LC_DCEF	7/5/2021		rating curve	0.02652141
LC_DCEF	8/3/2021		rating curve	0.01525174
LC_DCEF	9/13/2021		rating curve	0.00327518
LC_DCEF	10/12/2021		rating curve	0
LC_DCEF	11/3/2021		rating curve	0.00327518
LC_DCEF	12/8/2021		rating curve	0.00519879
LC_DCEF	12/8/2021	RISC Grade=C; EDP calculated instant_flow = 0.019 m3/s; EDP calculated velocity = 0.153 m/s	open channel	0.01856855
LC_GRCK	1/27/2021		rating curve	0.01550028
LC_GRCK	2/28/2021	Partially Frozen	rating curve	
LC_GRCK	3/31/2021	Partially Frozen	rating curve	
LC_GRCK	4/22/2021		rating curve	0.02970393
LC_GRCK	5/6/2021		rating curve	0.1282901
LC_GRCK	6/2/2021		rating curve	0.46740201
LC_GRCK	7/7/2021		rating curve	1.01187932
LC_GRCK	8/5/2021		rating curve	0.037171
LC_GRCK	9/13/2021		rating curve	0.037171
LC_GRCK	10/13/2021		rating curve	0.01550028
LC_GRCK	11/3/2021		rating curve	0.02246233
LC_GRCK	12/9/2021		rating curve	0.08526132
LC_GRCK	12/9/2021	RISC Grade=A; EDP calculated instant_flow = 0.035 m3/s; EDP calculated velocity = 0.154 m/s	open channel	0.03452625
LC_LC11	1/14/2021		volumetric	23.10000038
LC_LC11	4/16/2021	Average Flows	volumetric	14.30000019

Teck Location Code	Sample Date	Flow Remark	Method	INSTANT_FLOW m3/s
				Result
LC_LC11	4/26/2021	Average Flows	volumetric	16
LC_LC11	5/4/2021	Average Flows	volumetric	16.39999962
LC_LC11	5/12/2021	Average Flows	volumetric	16.79999924
LC_LC11	5/19/2021	Average Flows	volumetric	17.89999962
LC_LC11	5/28/2021	Average Flows	volumetric	18.20000076
LC_LC11	6/8/2021	Average Flows	volumetric	15.80000019
LC_LC11	6/16/2021	Average Flows	volumetric	16.70000076
LC_LC11	6/28/2021	Average Flows	volumetric	18.10000038
LC_LC11	7/8/2021	Average Flows	volumetric	16.20000076
LC_LC11	7/16/2021	Average Flows	volumetric	11.69999981
LC_LC7	1/14/2021		rating curve	0.06072305
LC_LC7	2/1/2021		rating curve	0.04102906
LC_LC7	3/15/2021		rating curve	0.21105769
LC_LC7	3/23/2021		rating curve	0.21105769
LC_LC7	3/30/2021		rating curve	0.21105769
LC_LC7	4/7/2021		rating curve	0.27660036
LC_LC7	4/12/2021		rating curve	0.19050026
LC_LC7	4/20/2021		rating curve	0.24312553
LC_LC7	4/27/2021		rating curve	0.15147902
LC_LC7	5/4/2021		rating curve	0.18047772
LC_LC7	5/11/2021		rating curve	0.21105769
LC_LC7	5/18/2021		rating curve	0.19050026
LC_LC7	5/27/2021		rating curve	0.19050026
LC_LC7	6/4/2021		rating curve	0.17063075
LC_LC7	6/7/2021		rating curve	0.17063075
LC_LC7	6/15/2021		rating curve	0.17063075
LC_LC7	6/21/2021		rating curve	0.16096318
LC_LC7	6/28/2021		rating curve	0.17063075
LC_LC7	7/7/2021		rating curve	0.11892379
LC_LC7	7/12/2021		rating curve	0.17063075
LC_LC7	8/3/2021		rating curve	0.13307838
LC_LC7	8/10/2021		rating curve	0.13307838
LC_LC7	9/14/2021		rating curve	0.10696948
LC_LC7	9/22/2021	RISC Grade=C; EDP calculated instant_flow = 0.068 m3/s; EDP calculated velocity = 0.247 m/s	open channel	0.068334
LC_LC7	10/25/2021		rating curve	0.08278745
LC_LC7	11/4/2021		rating curve	0.09868626
LC_LC7	12/3/2021	RISC Grade=C; EDP calculated instant_flow = 0.106 m3/s; EDP calculated velocity = 0.305 m/s	open channel	0.106273
LC_LC7	12/5/2021		rating curve	0.13307838
LC_LC8	1/31/2021	Not discharging	rating curve	0
LC_LC8	2/28/2021	Not discharging	rating curve	0
LC_LC8	3/31/2021	Not discharging	rating curve	0
LC_LC8	7/1/2021	Not discharging	rating curve	0
LC_LC8	8/1/2021	Not discharging	rating curve	0
LC_LC8	9/1/2021	Not discharging	rating curve	0
LC_LC9	1/31/2021	Not discharging	rating curve	0
LC_LC9	2/28/2021	Not discharging	rating curve	0
LC_LC9	3/31/2021	Not discharging	rating curve	0
LC_LC9	7/1/2021	Not discharging	rating curve	0
LC_LC9	8/1/2021	Not discharging	rating curve	0
LC_LC9	9/1/2021	Not discharging	rating curve	0
LC_SBPIN	1/14/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	2/17/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	3/22/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	3/25/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	4/15/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	5/13/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	6/24/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	7/8/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	8/23/2021	Max volume capacity of steam bay	volumetric	67.5
LC_SBPIN	9/16/2021	Max volume capacity of steam bay	volumetric	67.5
LC_UC	1/12/2021	EDP calculated instant_flow = 0.326 l	volumetric	0.00097711
LC_UC	2/24/2021	EDP calculated instant_flow = 0.329 l	volumetric	0.00098583
LC_UC	3/24/2021	EDP calculated instant_flow = 0.346 l	volumetric	0.00103733
LC_UC	4/22/2021	EDP calculated instant_flow = 0.99 l	volumetric	0.0029695
LC_UC	5/6/2021	EDP calculated instant_flow = 0.761 l	volumetric	0.00228426
LC_UC	6/2/2021	EDP calculated instant_flow = 1.637 l	volumetric	0.00491043
LC_UC	7/7/2021	EDP calculated instant_flow = 1.024 l	volumetric	0.0030724
LC_UC	8/5/2021	EDP calculated instant_flow = 0.473 l	volumetric	0.00141833
LC_UC	9/13/2021	EDP calculated instant_flow = 0.424 l	volumetric	0.00127212
LC_UC	10/13/2021	EDP calculated instant_flow = 0.342 l	volumetric	0.00102683
LC_UC	11/3/2021	EDP calculated instant_flow = 0.345 l	volumetric	0.00103581
LC_UC	12/9/2021	EDP calculated instant_flow = 0.634 l	volumetric	0.00190258

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LC1	3/19/2021	< 1.0	0.14
LC_LC1	4/7/2021	< 1.0	0.01
LC_LC1	4/16/2021	< 1.0	0.01
LC_LC1	4/21/2021	< 1.0	
LC_LC1	4/27/2021	< 1.0	0.05
LC_LC1	5/4/2021	< 1.0	0.01
LC_LC1	5/11/2021	< 1.0	0.39
LC_LC1	5/18/2021	3.7	1.95
LC_LC1	5/25/2021	< 1.0	0
LC_LC1	6/4/2021	30.2	15.05
LC_LC1	6/7/2021	1.4	
LC_LC1	6/21/2021	1.2	0.01
LC_LC1	6/28/2021	< 1.0	0.01
LC_LC1	7/7/2021	1.0	1.2
LC_LC1	7/12/2021	< 1.0	0.49
LC_LC1	8/3/2021	2.5	0.24
LC_LC1	9/14/2021	< 1.0	-0.14
LC_LC1	10/25/2021	< 1.0	0.34
LC_LC1	11/4/2021	1.1	0.26
LC_LC1	12/6/2021	1.3	1.06
LC_LC12	5/4/2021	< 1.0	0.06
LC_LC12	5/11/2021	1.8	1.39
LC_LC12	5/18/2021	1.2	0.82
LC_LC12	5/25/2021	< 1.0	0
LC_LC12	6/4/2021	1.0	0.62
LC_LC12	6/7/2021	< 1.0	
LC_LC12	6/15/2021	1.7	
LC_LC12	6/15/2021	2.6	
LC_LC12	6/21/2021	< 1.0	0.01
LC_LC12	6/28/2021	1.1	0.01
LC_LC12	7/7/2021	< 1.0	0.4
LC_LC12	7/12/2021	< 1.0	0.28
LC_LC2	1/14/2021	< 1.0	0.21
LC_LC2	2/1/2021	< 1.0	0.23
LC_LC2	3/15/2021	< 1.0	0.12
LC_LC2	3/22/2021	< 1.0	0.5
LC_LC2	3/30/2021	< 1.0	0.04
LC_LC2	4/7/2021	< 1.0	0.72
LC_LC2	4/12/2021	< 1.0	0.01
LC_LC2	4/20/2021	8.4	1.73
LC_LC2	4/27/2021	< 1.0	0.18
LC_LC2	5/4/2021	< 1.0	0.08
LC_LC2	5/11/2021	< 1.0	0.33
LC_LC2	5/18/2021	8.7	5.87
LC_LC2	5/27/2021	2.3	0.54
LC_LC2	6/4/2021	38.5	20.1
LC_LC2	6/7/2021	3.4	0.01

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LC2	6/15/2021	2.0	0.01
LC_LC2	6/21/2021	1.1	0.01
LC_LC2	6/28/2021	< 1.0	0.01
LC_LC2	7/7/2021	< 1.0	0.7
LC_LC2	7/12/2021	< 1.0	0.32
LC_LC2	8/3/2021	< 1.0	0.24
LC_LC2	9/14/2021	< 1.0	0
LC_LC2	10/25/2021	< 1.0	0.31
LC_LC2	11/4/2021	< 1.0	0.25
LC_LC2	12/5/2021	< 1.0	1.8
LC_LC3	1/5/2021	< 1.0	0.34
LC_LC3	1/11/2021	1.4	0.48
LC_LC3	1/18/2021	< 1.0	0.34
LC_LC3	1/25/2021	< 1.0	0.33
LC_LC3	2/1/2021	1.0	0.38
LC_LC3	2/8/2021	2.3	0.47
LC_LC3	2/16/2021	1.5	0.29
LC_LC3	2/22/2021	1.5	0.31
LC_LC3	2/23/2021	< 1.0	1.10
LC_LC3	2/24/2021	< 1.0	0.34
LC_LC3	2/25/2021	< 1.0	0.29
LC_LC3	2/26/2021	< 1.0	0.24
LC_LC3	3/2/2021	< 1.0	0.26
LC_LC3	3/9/2021	< 1.0	0.29
LC_LC3	3/16/2021	1.5	0.97
LC_LC3	3/23/2021	< 1.0	0.1
LC_LC3	3/30/2021	< 1.0	0.3
LC_LC3	4/5/2021	< 1.0	0.1
LC_LC3	4/13/2021	< 1.0	0.03
LC_LC3	4/20/2021	< 1.0	0.21
LC_LC3	4/27/2021	< 1.0	0.40
LC_LC3	5/4/2021	< 1.0	0.33
LC_LC3	5/11/2021	< 1.0	0.11
LC_LC3	5/18/2021	< 1.0	0.65
LC_LC3	5/25/2021	< 1.0	0
LC_LC3	6/1/2021	5.4	2.91
LC_LC3	6/8/2021	< 1.0	0.06
LC_LC3	6/15/2021	51.0	0.01
LC_LC3	6/21/2021	1.5	0.01
LC_LC3	6/29/2021	1.1	0.33
LC_LC3	7/6/2021	< 1.0	0.47
LC_LC3	7/12/2021	< 1.0	0.51
LC_LC3	7/20/2021	< 1.0	0.54
LC_LC3	7/28/2021	< 1.0	0.39
LC_LC3	8/4/2021	< 1.0	0.37
LC_LC3	8/10/2021	< 1.0	0.17
LC_LC3	8/17/2021	2.4	2.41

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LC3	8/24/2021	< 1.0	0.22
LC_LC3	8/31/2021	< 1.0	0.68
LC_LC3	9/7/2021	< 1.0	0.48
LC_LC3	9/14/2021	< 1.0	0.01
LC_LC3	9/20/2021	< 1.0	0.57
LC_LC3	9/27/2021	1.4	0.34
LC_LC3	10/5/2021	< 1.0	0.52
LC_LC3	10/12/2021	1.8	0.59
LC_LC3	10/19/2021	< 1.0	0.67
LC_LC3	10/26/2021	2.1	0.74
LC_LC3	11/2/2021	1.3	0.46
LC_LC3	11/9/2021	1.5	0.67
LC_LC3	11/16/2021	1.4	0.5
LC_LC3	11/22/2021	< 1.0	0.20
LC_LC3	11/29/2021	< 1.0	0.14
LC_LC3	12/5/2021	< 1.0	1.84
LC_LC3	12/16/2021	< 1.0	0
LC_LC3	12/21/2021	< 1.0	0.04
LC_LC3	12/29/2021	< 1.0	0.27
LC_LC4	1/5/2021	< 1.0	0.24
LC_LC4	1/11/2021	< 1.0	0.31
LC_LC4	1/18/2021	< 1.0	0.15
LC_LC4	1/25/2021	< 1.0	0.22
LC_LC4	2/1/2021	< 1.0	0.31
LC_LC4	2/8/2021	< 1.0	3.12
LC_LC4	2/16/2021	< 1.0	1.26
LC_LC4	2/22/2021	< 1.0	0.30
LC_LC4	3/4/2021	< 1.0	0.57
LC_LC4	3/10/2021	< 1.0	0.49
LC_LC4	3/16/2021	1.7	0.34
LC_LC4	3/22/2021	1.1	0.46
LC_LC4	3/28/2021	32.0	
LC_LC4	3/30/2021	< 1.0	0.42
LC_LC4	4/5/2021	< 1.0	0.34
LC_LC4	4/12/2021	< 1.0	0.12
LC_LC4	4/20/2021	1.3	0.37
LC_LC4	4/27/2021	< 1.0	0.45
LC_LC4	5/4/2021	3.3	2.76
LC_LC4	5/11/2021	1.8	0.63
LC_LC4	5/18/2021	10.4	4.09
LC_LC4	5/25/2021	3.2	1.42
LC_LC4	6/1/2021	4.9	5.51
LC_LC4	6/8/2021	2.0	0.93
LC_LC4	6/14/2021	< 1.0	0.41
LC_LC4	6/22/2021	1.1	0.01
LC_LC4	6/29/2021	1.5	0.62
LC_LC4	7/6/2021	1.1	1.1

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LC4	7/12/2021	1.5	0.07
LC_LC4	7/20/2021	1.5	0.01
LC_LC4	7/28/2021	1.3	0.42
LC_LC4	8/4/2021	< 1.0	0.37
LC_LC4	8/9/2021	< 1.0	0.05
LC_LC4	8/16/2021	< 1.0	0
LC_LC4	8/24/2021	< 1.0	0.72
LC_LC4	8/31/2021	< 1.0	0.88
LC_LC4	9/8/2021	< 1.0	0.06
LC_LC4	9/16/2021	< 1.0	0.2
LC_LC4	9/20/2021	1.2	0.61
LC_LC4	9/27/2021	1.9	0.45
LC_LC4	10/5/2021	6.8	0.72
LC_LC4	10/13/2021	5.1	0.77
LC_LC4	10/18/2021	2.8	0.45
LC_LC4	10/25/2021	2.2	1.17
LC_LC4	11/2/2021	< 1.0	0.56
LC_LC4	11/8/2021	1.6	0.50
LC_LC4	11/16/2021	3.8	2.2
LC_LC4	11/22/2021	1.5	0.46
LC_LC4	11/29/2021	< 1.0	0.26
LC_LC4	12/5/2021	1.2	1.83
LC_LC4	12/16/2021	< 1.0	0
LC_LC4	12/21/2021	< 1.0	0.17
LC_LC4	12/29/2021	1.4	1.57
LC_LC5	1/5/2021	< 1.0	0.79
LC_LC5	2/1/2021	< 1.0	0.32
LC_LC5	2/23/2021	< 1.0	0.29
LC_LC5	3/2/2021	1.3	1.38
LC_LC5	3/9/2021	1.1	1.01
LC_LC5	3/16/2021	1.9	0.98
LC_LC5	3/23/2021	1.1	0.1
LC_LC5	3/30/2021	4.7	4.06
LC_LC5	4/6/2021	< 1.0	0.52
LC_LC5	4/13/2021	< 1.0	0.19
LC_LC5	4/20/2021	1.8	0.82
LC_LC5	4/27/2021	< 1.0	0.69
LC_LC5	5/4/2021	4.9	2.25
LC_LC5	5/11/2021	2.5	1.26
LC_LC5	5/18/2021	76.3	28.33
LC_LC5	5/25/2021	6.6	4.24
LC_LC5	6/1/2021	30.7	7.95
LC_LC5	6/8/2021	10.6	
LC_LC5	6/15/2021	11.3	4.27
LC_LC5	6/22/2021	1.7	0.17
LC_LC5	6/29/2021	3.8	1.24
LC_LC5	7/6/2021	< 1.0	1.27

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LC5	7/12/2021	1.2	0.12
LC_LC5	8/10/2021	< 1.0	0
LC_LC5	8/17/2021	9.9	9.7
LC_LC5	8/24/2021	1.3	0.9
LC_LC5	8/31/2021	< 1.0	0.8
LC_LC5	9/7/2021	< 1.0	0.01
LC_LC5	10/12/2021	2.0	0.5
LC_LC5	10/19/2021	1.2	0.42
LC_LC5	10/26/2021	< 1.0	0.67
LC_LC5	11/2/2021	1.3	1.83
LC_LC5	11/9/2021	< 1.0	0.67
LC_LC5	12/6/2021	1.2	0.8
LC_LCUSWLC	1/5/2021	< 1.0	0.22
LC_LCUSWLC	1/11/2021	< 1.0	0.28
LC_LCUSWLC	1/18/2021	< 1.0	0.19
LC_LCUSWLC	1/25/2021	2.4	0.36
LC_LCUSWLC	2/1/2021	< 1.0	0.82
LC_LCUSWLC	2/8/2021	< 1.0	0.19
LC_LCUSWLC	2/16/2021	< 1.0	0.20
LC_LCUSWLC	2/22/2021	< 1.0	0.22
LC_LCUSWLC	2/23/2021	< 1.0	0.36
LC_LCUSWLC	2/24/2021	< 1.0	0.29
LC_LCUSWLC	2/25/2021	< 1.0	0.25
LC_LCUSWLC	2/26/2021	< 1.0	0.13
LC_LCUSWLC	3/4/2021	< 1.0	0.7
LC_LCUSWLC	3/10/2021	< 1.0	0.02
LC_LCUSWLC	3/16/2021	1.5	1.39
LC_LCUSWLC	3/22/2021	< 1.0	0.46
LC_LCUSWLC	3/29/2021	3.5	-0.6
LC_LCUSWLC	4/6/2021	< 1.0	0.14
LC_LCUSWLC	4/12/2021	< 1.0	0.01
LC_LCUSWLC	4/20/2021	< 1.0	0.19
LC_LCUSWLC	4/27/2021	< 1.0	0.34
LC_LCUSWLC	5/4/2021	< 1.0	0.2
LC_LCUSWLC	5/11/2021	< 1.0	0.02
LC_LCUSWLC	5/17/2021	< 1.0	0.37
LC_LCUSWLC	5/26/2021	< 1.0	0.1
LC_LCUSWLC	5/27/2021	< 1.0	0.01
LC_LCUSWLC	6/1/2021	< 1.0	3.03
LC_LCUSWLC	6/10/2021	< 1.0	2.9
LC_LCUSWLC	6/14/2021	< 1.0	0.01
LC_LCUSWLC	6/21/2021	< 1.0	0.01
LC_LCUSWLC	6/28/2021	< 1.0	0.01
LC_LCUSWLC	7/6/2021	< 1.0	0.36
LC_LCUSWLC	7/12/2021	< 1.0	0.39
LC_LCUSWLC	7/20/2021	< 1.0	0.57
LC_LCUSWLC	7/28/2021	< 1.0	0.31

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_LCUSWLC	8/4/2021	< 1.0	0.57
LC_LCUSWLC	8/10/2021	< 1.0	5.84
LC_LCUSWLC	8/16/2021	< 1.0	0
LC_LCUSWLC	8/24/2021	< 1.0	0.63
LC_LCUSWLC	8/31/2021	< 1.0	0.67
LC_LCUSWLC	9/9/2021	< 1.0	0.02
LC_LCUSWLC	9/14/2021	< 1.0	0
LC_LCUSWLC	9/20/2021	< 1.0	0.52
LC_LCUSWLC	9/27/2021	< 1.0	1.06
LC_LCUSWLC	10/5/2021	< 1.0	0.5
LC_LCUSWLC	10/14/2021	< 1.0	0.61
LC_LCUSWLC	10/18/2021	< 1.0	0.41
LC_LCUSWLC	10/25/2021	2.0	0.63
LC_LCUSWLC	11/1/2021	< 1.0	0.37
LC_LCUSWLC	11/8/2021	1.4	0.63
LC_LCUSWLC	11/16/2021	< 1.0	0.7
LC_LCUSWLC	11/22/2021	< 1.0	1.62
LC_LCUSWLC	11/29/2021	< 1.0	0.1
LC_LCUSWLC	12/2/2021	< 1.0	0.42
LC_LCUSWLC	12/3/2021	1.1	1.50
LC_LCUSWLC	12/5/2021	< 1.0	1.77
LC_LCUSWLC	12/14/2021	< 1.0	0
LC_LCUSWLC	12/21/2021	< 1.0	6.77
LC_LCUSWLC	12/29/2021	< 1.0	0.01
LC_SLC	1/18/2021	< 1.0	0.08
LC_SLC	2/23/2021	< 1.0	0.33
LC_SLC	3/2/2021	< 1.0	0.10
LC_SLC	3/9/2021	< 1.0	0.16
LC_SLC	3/16/2021	< 1.0	0.10
LC_SLC	3/23/2021	< 1.0	0.1
LC_SLC	3/30/2021	< 1.0	
LC_SLC	4/6/2021	< 1.0	0.23
LC_SLC	4/13/2021	< 1.0	0.19
LC_SLC	5/18/2021	5.5	35.17
LC_SLC	5/25/2021	1.8	0.95
LC_SLC	6/1/2021	3.6	5.41
LC_SLC	6/8/2021	1.4	0.46
LC_SLC	6/15/2021	< 1.0	0.27
LC_SLC	7/6/2021	< 1.0	0.41
LC_SLC	8/10/2021	< 1.0	0.01
LC_SLC	8/17/2021	1.7	2.4
LC_SLC	8/24/2021	< 1.0	0.1
LC_SLC	8/31/2021	< 1.0	0.6
LC_SLC	9/7/2021	< 1.0	0.56
LC_SLC	10/12/2021	< 1.0	0.6
LC_SLC	10/19/2021	< 1.0	0.44
LC_SLC	10/26/2021	< 1.0	0.53

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_SLC	11/2/2021	2.9	0.64
LC_SLC	11/9/2021	< 1.0	0.55
LC_SLC	12/6/2021	< 1.0	0.02
LC_SPDC	1/6/2021	< 1.0	0.55
LC_SPDC	1/12/2021	< 1.0	0.5
LC_SPDC	1/19/2021	1.5	0.5
LC_SPDC	1/26/2021	< 1.0	0.4
LC_SPDC	2/2/2021	1.2	1.05
LC_SPDC	2/10/2021	2.0	2.30
LC_SPDC	2/12/2021	< 1.0	2.08
LC_SPDC	2/13/2021	1.6	0.46
LC_SPDC	2/14/2021	1.5	0.71
LC_SPDC	2/15/2021	< 1.0	0.66
LC_SPDC	2/16/2021	< 1.0	0.52
LC_SPDC	2/17/2021	< 1.0	0.60
LC_SPDC	2/18/2021	2.0	1.82
LC_SPDC	2/19/2021	1.6	0.89
LC_SPDC	2/20/2021	1.8	0.81
LC_SPDC	2/21/2021	1.7	0.76
LC_SPDC	2/22/2021	< 1.0	0.75
LC_SPDC	2/23/2021	< 1.0	0.66
LC_SPDC	2/24/2021	< 1.0	1.17
LC_SPDC	2/25/2021	< 1.0	0.75
LC_SPDC	2/26/2021		0.27
LC_SPDC	2/27/2021		0.58
LC_SPDC	2/28/2021		0.58
LC_SPDC	3/1/2021	< 1.0	0.95
LC_SPDC	3/2/2021		0.34
LC_SPDC	3/3/2021		0.81
LC_SPDC	3/5/2021		14.39
LC_SPDC	3/6/2021		25.65
LC_SPDC	3/7/2021	29.8	28.84
LC_SPDC	3/8/2021	< 1.0	12.12
LC_SPDC	3/10/2021		9.5
LC_SPDC	3/11/2021	11.4	10.3
LC_SPDC	3/12/2021		0
LC_SPDC	3/13/2021		13.17
LC_SPDC	3/14/2021		16.30
LC_SPDC	3/15/2021		16.42
LC_SPDC	3/16/2021	17.0	
LC_SPDC	3/16/2021		16.28
LC_SPDC	3/17/2021		18.05
LC_SPDC	3/18/2021		16.74
LC_SPDC	3/19/2021		19.12
LC_SPDC	3/20/2021		18.16
LC_SPDC	3/21/2021		17.33
LC_SPDC	3/22/2021	19.8	14.90

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_SPDC	3/23/2021		14.36
LC_SPDC	3/24/2021	12.5	13.14
LC_SPDC	3/25/2021		11.64
LC_SPDC	3/26/2021		10.99
LC_SPDC	3/29/2021	12.7	8.98
LC_SPDC	3/30/2021		7.98
LC_SPDC	3/31/2021		7.52
LC_SPDC	4/1/2021	31.6	7.10
LC_SPDC	4/2/2021		7.43
LC_SPDC	4/3/2021		8.35
LC_SPDC	4/4/2021		9.76
LC_SPDC	4/5/2021		10.92
LC_SPDC	4/6/2021		9.66
LC_SPDC	4/7/2021	9.0	
LC_SPDC	4/7/2021	13.2	10.32
LC_SPDC	4/8/2021		9.56
LC_SPDC	4/9/2021	10.7	
LC_SPDC	4/9/2021		10.59
LC_SPDC	4/10/2021		9.95
LC_SPDC	4/11/2021		9.81
LC_SPDC	4/12/2021	9.8	
LC_SPDC	4/12/2021	10.3	7.76
LC_SPDC	4/13/2021		12.61
LC_SPDC	4/14/2021	10.8	
LC_SPDC	4/15/2021	13.0	11.22
LC_SPDC	4/17/2021		15.67
LC_SPDC	4/18/2021		25.06
LC_SPDC	4/19/2021	25.1	
LC_SPDC	4/19/2021		23.08
LC_SPDC	4/20/2021	17.5	16.22
LC_SPDC	4/21/2021	20.2	
LC_SPDC	4/21/2021		15.60
LC_SPDC	4/22/2021	24.0	18.35
LC_SPDC	4/26/2021	11.7	
LC_SPDC	4/26/2021	14.2	12.32
LC_SPDC	4/28/2021	13.4	8.93
LC_SPDC	4/30/2021		10.97
LC_SPDC	5/3/2021		10.27
LC_SPDC	5/4/2021	11.4	
LC_SPDC	5/4/2021	12.0	9.31
LC_SPDC	5/6/2021	14.9	10.62
LC_SPDC	5/10/2021	12.6	
LC_SPDC	5/10/2021		16.43
LC_SPDC	5/11/2021		14.65
LC_SPDC	5/12/2021	18.1	11.25
LC_SPDC	5/14/2021		9.43
LC_SPDC	5/17/2021	31.8	7.16

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_SPDC	5/19/2021	12.6	
LC_SPDC	5/25/2021	8.7	4.97
LC_SPDC	5/27/2021	17.9	20.78
LC_SPDC	6/1/2021	4.6	5.57
LC_SPDC	6/2/2021	7.1	5.56
LC_SPDC	6/8/2021	1.9	5.85
LC_SPDC	6/10/2021	1.5	4.74
LC_SPDC	6/14/2021	1.6	5.85
LC_SPDC	6/16/2021	1.9	1.36
LC_SPDC	6/22/2021	< 1.0	0.58
LC_SPDC	6/24/2021	2.5	0.73
LC_SPDC	6/29/2021	4.1	
LC_SPDC	6/30/2021	3.4	1.90
LC_SPDC	7/5/2021	5.3	2.08
LC_SPDC	7/7/2021	4.7	2.2
LC_SPDC	7/13/2021	4.1	3.98
LC_SPDC	7/15/2021	2.1	1.35
LC_SPDC	7/20/2021	< 1.0	1.44
LC_SPDC	7/22/2021	1.6	1.27
LC_SPDC	7/27/2021	< 1.0	0.63
LC_SPDC	7/30/2021	< 1.0	1.27
LC_SPDC	8/3/2021	1.9	
LC_SPDC	8/5/2021	6.2	
LC_SPDC	8/5/2021		7.07
LC_SPDC	8/9/2021	1.2	0.55
LC_SPDC	8/11/2021	2.3	1.36
LC_SPDC	8/17/2021	2.6	2.60
LC_SPDC	8/19/2021	1.7	
LC_SPDC	8/19/2021		1.1
LC_SPDC	8/24/2021	< 1.0	1.02
LC_SPDC	8/26/2021		1.8
LC_SPDC	8/26/2021	1.3	
LC_SPDC	8/30/2021	< 1.0	1.2
LC_SPDC	9/8/2021	< 1.0	1.12
LC_SPDC	9/12/2021	< 1.0	0.3
LC_SPDC	9/27/2021	1.2	
LC_SPDC	9/27/2021		1.1
LC_SPDC	9/30/2021	< 1.0	0.8
LC_SPDC	10/6/2021	< 1.0	3.3
LC_SPDC	10/12/2021	1.4	1.99
LC_SPDC	10/18/2021	< 1.0	0.89
LC_SPDC	10/26/2021	< 1.0	0.69
LC_SPDC	11/2/2021	2.9	0.71
LC_SPDC	11/8/2021	< 1.0	0.55
LC_SPDC	11/15/2021	7.2	4.3
LC_SPDC	11/23/2021	< 1.0	0.63
LC_SPDC	11/30/2021	< 1.0	0.62

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_SPDC	12/8/2021	< 1.0	1.57
LC_SPDC	12/13/2021	< 1.0	0
LC_SPDC	12/20/2021	1.1	0.38
LC_SPDC	12/30/2021	< 1.0	0.89
LC_WLC	1/4/2021	1.4	0
LC_WLC	1/5/2021	< 1.0	0.09
LC_WLC	1/11/2021	< 1.0	0.08
LC_WLC	1/18/2021	< 1.0	0.02
LC_WLC	1/25/2021	< 1.0	0
LC_WLC	2/1/2021	< 1.0	0.14
LC_WLC	2/8/2021	2.9	0.64
LC_WLC	2/16/2021	2.2	0
LC_WLC	2/22/2021	3.7	0.04
LC_WLC	2/23/2021	< 1.0	0.10
LC_WLC	2/24/2021	< 1.0	0.08
LC_WLC	2/25/2021	1.5	0.05
LC_WLC	2/26/2021	< 1.0	0.1
LC_WLC	3/4/2021	2.3	0.12
LC_WLC	3/10/2021	< 1.0	0.28
LC_WLC	3/15/2021	1.5	-0.06
LC_WLC	3/22/2021	< 1.0	-0.08
LC_WLC	3/29/2021	2.7	-0.8
LC_WLC	4/6/2021	< 1.0	0.08
LC_WLC	4/12/2021	< 1.0	0.01
LC_WLC	4/20/2021	2.2	0.01
LC_WLC	4/27/2021	< 1.0	0
LC_WLC	5/4/2021	1.5	0.01
LC_WLC	5/11/2021	2.0	0.06
LC_WLC	5/17/2021	1.0	0.01
LC_WLC	5/26/2021	1.7	0.1
LC_WLC	6/4/2021	1.5	0.7
LC_WLC	6/10/2021	1.2	2.70
LC_WLC	6/14/2021	1.2	0.01
LC_WLC	6/21/2021	< 1.0	0.01
LC_WLC	6/28/2021	< 1.0	0.01
LC_WLC	7/6/2021	< 1.0	0.33
LC_WLC	7/12/2021	< 1.0	0.33
LC_WLC	7/20/2021	< 1.0	0.3
LC_WLC	7/28/2021	< 1.0	0.09
LC_WLC	8/4/2021	< 1.0	0.11
LC_WLC	8/9/2021	< 1.0	0
LC_WLC	8/16/2021	< 1.0	0
LC_WLC	8/24/2021	< 1.0	0.34
LC_WLC	8/31/2021	< 1.0	0.44
LC_WLC	9/9/2021	1.2	0
LC_WLC	9/14/2021	< 1.0	0
LC_WLC	9/20/2021	1.7	0.37

Teck Location Code	Sample Date	TOTAL SUSPENDED SOLIDS, LAB N mg/l	TURBIDITY, FIELD N ntu
		Result	Result
LC_WLC	9/27/2021	2.2	
LC_WLC	9/27/2021		0.29
LC_WLC	10/5/2021	1.6	0.37
LC_WLC	10/14/2021	< 1.0	0.39
LC_WLC	10/18/2021	1.2	0.15
LC_WLC	10/25/2021	< 1.0	0.25
LC_WLC	11/1/2021	< 1.0	0.23
LC_WLC	11/8/2021	1.9	0.64
LC_WLC	11/16/2021	2.3	0
LC_WLC	11/22/2021	1.4	0
LC_WLC	11/29/2021	1.4	0.01
LC_WLC	12/5/2021	1.4	1.63
LC_WLC	12/14/2021	1.9	0
LC_WLC	12/21/2021	< 1.0	-0.17
LC_WLC	12/29/2021	1.7	0.10

Teck Location Code	Sample Date	The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32. N mg/l
		Result
LC_LC2	1/14/2021	< 0.50
LC_LC2	4/7/2021	< 0.4
LC_LC2	7/7/2021	< 0.4
LC_LC2	10/25/2021	< 0.4
LC_LC7	1/14/2021	< 0.50
LC_LC7	4/7/2021	< 0.4
LC_LC7	7/7/2021	< 0.4
LC_LC7	9/14/2021	< 0.4
LC_LC7	10/25/2021	< 0.4
LC_LC7	11/4/2021	< 0.4
LC_WLC	1/4/2021	< 0.4
LC_WLC	1/5/2021	< 0.50
LC_WLC	2/23/2021	< 0.50
LC_WLC	2/24/2021	< 0.50
LC_WLC	2/25/2021	< 0.50
LC_WLC	2/26/2021	< 0.50
LC_WLC	4/6/2021	< 0.4
LC_WLC	7/6/2021	< 0.4

Teck Location Code	Sample Date	BIOCHEMICAL OXYGEN DEMAND, FIVE DAY N mg/l	TOTAL SUSPENDED SOLIDS, LAB N mg/l
		Result	Result
LC_LC11	1/14/2021	113	23.4
LC_LC11	4/16/2021	136	32.6
LC_LC11	4/26/2021	150	26.9
LC_LC11	5/4/2021	207	29.2
LC_LC11	5/12/2021	167	25.5
LC_LC11	5/19/2021	150	37.2
LC_LC11	5/28/2021	140	51.8
LC_LC11	6/8/2021	156	32.5
LC_LC11	6/16/2021	158	38.9
LC_LC11	6/28/2021	190	47.6
LC_LC11	7/8/2021	116	27.7
LC_LC11	7/16/2021	128	28.1
LC_LC11	7/16/2021	128	28.1
LC_LC11	10/21/2021	170	26.9

Teck Location Code	Sample Date	48-h Daphnia magna 100% screening (single concentration) acute lethality toxicity test - Units of % Mortality N %	96-h rainbow trout 100% screening (single concentration) acute lethality toxicity test - Units of % Mortality N %	COBALT D mg/l	COBALT D ug/l	COBALT T mg/l	COBALT T ug/l	COPPER D mg/l	COPPER T mg/l	Dimethylselenoxide D ug/l	DISSOLVED OXYGEN, FIELD N mg/l	MERCURY D mg/l	MERCURY T mg/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_HSP	1/8/2021									< 0.010			
LC_HSP	3/1/2021	0	0	< 0.00010		0.00053		0.00026	0.00106	< 0.010	6.84	< 0.0000050	
LC_HSP	3/22/2021	0	10	< 0.00010		0.00014		< 0.00020	< 0.00050	< 0.010	9.93	< 0.0000050	
LC_HSP	3/29/2021				< 0.10		0.15	< 0.00020	< 0.00050		11.14	< 0.0000050	
LC_HSP	4/6/2021	0	0		< 0.10		0.16	0.00020	< 0.00050	< 0.010	9.47	< 0.0000050	
LC_HSP	4/12/2021				< 0.10		0.14	0.00023	< 0.00050		9.9	< 0.0000050	
LC_HSP	4/20/2021				< 0.10		0.18	0.00020	< 0.00050		9.72	< 0.0000050	
LC_HSP	4/27/2021				0.14		0.28	0.00021	< 0.00050		9.15	< 0.0000050	
LC_HSP	5/4/2021	0	0		0.34		0.59	0.00022	0.00093	< 0.010	9.55	< 0.0000050	
LC_HSP	5/13/2021				0.36		0.64	< 0.00020	< 0.00050		9.43	< 0.0000050	
LC_HSP	5/17/2021				0.30		0.71	< 0.00020	0.00051		8.32	< 0.0000050	
LC_MSXS	5/17/2021									< 0.010			
LC_MSXS	5/26/2021				5.62		111	< 0.00020	0.316	< 0.100		< 0.0000050	< 0.000500
LC_HSP	5/27/2021				0.34		0.60	< 0.00020	< 0.00050		8.86	< 0.0000050	
LC_HSP	6/3/2021									< 0.010	8.83		
LC_HSP	6/3/2021	0	0		0.16		0.67	0.00051	0.00158			< 0.0000050	
LC_MSXS	6/7/2021									< 0.010			
LC_HSP	6/8/2021										8.98		
LC_HSP	6/10/2021				0.24		0.30	0.00038	0.00050		8.78	< 0.0000050	
LC_HSP	6/14/2021				0.25		0.34	0.00032	< 0.00050		8.57	< 0.0000050	
LC_MSXS	6/16/2021				9.84		9.85	0.00035	0.00052	0.021	6.74	< 0.0000050	< 0.0000050
LC_HSP	6/21/2021				0.23		0.35	0.00026	< 0.00050		8.09	< 0.0000050	
LC_MSXS	6/23/2021				6.76		7.65	< 0.00020	< 0.00050			< 0.0000050	< 0.0000050
LC_HSP	6/28/2021				0.20		0.47	0.00029	0.00056		7.58	< 0.0000050	
LC_HSP	7/6/2021	0	0		0.16		0.33	0.00068	< 0.00050	< 0.010	7.64	< 0.0000050	
LC_HSP	7/12/2021				0.12		0.24	0.00039	< 0.00050		7.81	< 0.0000050	
LC_HSP	7/20/2021				< 0.10		0.22	0.00034	< 0.00050		8.19	< 0.0000050	
LC_HSP	7/30/2021				0.12		0.20	0.00030	< 0.00050		7.7	< 0.0000050	
LC_HSP	8/4/2021				0.14		0.22	0.00033	< 0.00050		8.06	< 0.0000050	
LC_HSP	8/9/2021	0	0		0.12		0.28	0.00030	0.00086	< 0.010	8.19	< 0.0000050	
LC_HSP	8/16/2021				0.12		0.31	0.00031	0.00065		8.43	< 0.0000050	
LC_MSXS	8/18/2021									0.015			
LC_HSP	8/24/2021				0.11		0.26	0.00030	< 0.00050	< 0.010	8.77	< 0.0000050	
LC_HSP	8/31/2021				< 0.10		0.50	< 0.00020	0.00067	< 0.010	8.23	< 0.0000050	
LC_HSP	9/9/2021				0.17		0.55	0.00025	0.00056	< 0.010	8.76	< 0.0000050	
LC_HSP	9/14/2021	0	0		0.36		0.54	0.00025	< 0.00050	0.014	9.03	< 0.0000050	
LC_HSP	9/20/2021				2.31		2.93	0.00020	< 0.00050		9.71	< 0.0000050	
LC_HSP	9/27/2021				2.10		2.66	0.00025	< 0.00050		9.4	< 0.0000050	
LC_HSP	10/5/2021				3.11		3.62	< 0.00020	< 0.00050		9.48	< 0.0000050	
LC_HSP	10/13/2021				5.47		5.91	< 0.00020	< 0.00050		9.96	< 0.0000050	
LC_HSP	10/18/2021	0	0		7.18		7.32	< 0.00020	< 0.00050		9.73	< 0.0000050	
LC_HSP	10/25/2021				7.96		7.73	0.00022	< 0.00050	0.016	9.31	< 0.0000050	
LC_HSP	11/1/2021	0	0		7.74		8.00	< 0.00020	< 0.00050	0.025	10.18	< 0.0000050	
LC_HSP	11/8/2021				5.50		7.55	< 0.00020	< 0.00050		10.2	< 0.0000050	
LC_HSP	11/16/2021				6.52		6.95	< 0.00020	< 0.00050		10.3	< 0.0000050	< 0.0000050
LC_HSP	11/22/2021				6.72		7.36	< 0.00020	< 0.00050		9.48	< 0.0000050	
LC_HSP	11/29/2021				7.15		7.19	< 0.00020	< 0.00050		9.64	< 0.0000050	
LC_MSXS	12/2/2021				9.25		510	< 0.00020	1.56		5.8	< 0.0000050	< 0.0100
LC_MSXS	12/3/2021	0	0		24.0		25.6	0.00058	0.00217		8.31	< 0.0000050	0.0000058
LC_MSXS	12/6/2021	0	100		16.7		89.9	0.00021	0.263		4.67	< 0.0000050	< 0.000500
LC_HSP	12/8/2021									0.015			
LC_HSP	12/9/2021	0	0				7.06	< 0.00020	< 0.00050		9.39	< 0.0000050	
LC_HSP	12/14/2021				6.45		6.65	< 0.00020	< 0.00050		9.52	< 0.0000050	
LC_MSXS	12/14/2021				12.4		13.1	0.00165	0.00471		8.3	< 0.0000050	
LC_MSXS	12/16/2021									< 0.010			
LC_MSXS	12/20/2021						10.2	0.00048	0.00110	< 0.010	7.89	< 0.0000050	< 0.0000050

Teck Location Code	Sample Date	MERCURY T ng/l	MERCURY T ug/l	Methaneselenonic Acid D ug/l	NICKEL D mg/l	NICKEL T mg/l	NITRITE NITROGEN (NO2), AS N N mg/l	NITROGEN, AMMONIA (AS N) N mg/l	NITROGEN, AMMONIA (AS N) T mg/l	PHOSPHORUS N mg/l	PHOSPHORUS T mg/l	Se(IV) – selenite SeO3(-2) D ug/l	Se(VI) – selenate SeO4(-2) D ug/l	SeCN – selenocyanate SeCN(-1) D ug/l
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
LC_HSP	1/8/2021			< 0.010								0.393	8.96	< 0.010
LC_HSP	3/1/2021		0.00274	< 0.010	0.00960	0.0113	0.0082	0.0304		0.0136		0.458	10.1	< 0.010
LC_HSP	3/22/2021		< 0.00050	< 0.010	0.0110	0.0116	0.0103	0.0225		< 0.0020		0.520	11.2	< 0.010
LC_HSP	3/29/2021		< 0.00050		0.0109	0.0118	0.0073		0.0175		< 0.0020			
LC_HSP	4/6/2021		< 0.00050	< 0.010	0.0112	0.0122	0.0097		0.0218		< 0.0020	0.446	10.4	< 0.010
LC_HSP	4/12/2021		< 0.00050		0.0112	0.0114	0.0091		0.0243		< 0.0020			
LC_HSP	4/20/2021		< 0.00100		0.0116	0.0120	< 0.0010		0.0221		0.0022			
LC_HSP	4/27/2021		< 0.00050		0.0118	0.0124	0.0026		0.0236		0.0050			
LC_HSP	5/4/2021		0.00096	< 0.010	0.0121	0.0127	0.0095		0.0348		0.0035	0.346	9.53	< 0.010
LC_HSP	5/13/2021		0.00057		0.0132	0.0138	0.0028		0.0250		0.0023			
LC_HSP	5/17/2021		0.00070		0.0137	0.0145	0.0114		0.0350		0.0038			
LC_MSXS	5/17/2021			< 0.010								0.838	0.384	< 0.010
LC_MSXS	5/26/2021			< 0.100	0.0150	0.388	0.420		2.36		0.279	2.59	8.96	< 0.100
LC_HSP	5/27/2021		< 0.00050		0.0138	0.0146	0.0083		0.0146		< 0.0020			
LC_HSP	6/3/2021			< 0.010								0.240	11.6	< 0.010
LC_HSP	6/3/2021		0.00296		0.00646	0.00837	0.0063		0.0092		0.0393			
LC_MSXS	6/7/2021			< 0.010								1.52	2.38	< 0.010
LC_HSP	6/8/2021													
LC_HSP	6/10/2021		0.00096		0.00390	0.00399	< 0.0010		< 0.0050		0.0106			
LC_HSP	6/14/2021		0.00077		0.00411	0.00446	0.0049		0.0213		0.0072			
LC_MSXS	6/16/2021			< 0.010	0.0473	0.0467	0.144		2.10		0.0085	0.701	0.581	< 0.010
LC_HSP	6/21/2021		0.00067		0.00469	0.00519	0.0060		0.0619		0.0039			
LC_MSXS	6/23/2021				0.0391	0.0399	0.163		1.94		0.0066			
LC_HSP	6/28/2021		0.00086		0.00528	0.00558	0.0057		0.0074		0.0043			
LC_HSP	7/6/2021		0.00091	< 0.010	0.00541	0.00553	0.0050		0.0160		0.0343	0.214	8.51	< 0.010
LC_HSP	7/12/2021		0.00075		0.00534	0.00605	0.0083		0.0088		< 0.0020			
LC_HSP	7/20/2021		0.00074		0.00578	0.00646	< 0.0010		0.0137		0.0033			
LC_HSP	7/30/2021		0.00056		0.00624	0.00676	0.0111		0.0199		< 0.0020			
LC_HSP	8/4/2021		0.00056		0.00780	0.00773	0.0131		0.0241		0.0028			
LC_HSP	8/9/2021		0.00103	< 0.010	0.00810	0.00821	0.0146		0.0233		0.0040	0.311	9.10	< 0.010
LC_HSP	8/16/2021		0.00114		0.0102	0.0103	0.0131		0.0183		0.0260			
LC_MSXS	8/18/2021			0.015								1.34	18.8	< 0.010
LC_HSP	8/24/2021		0.00097	< 0.010	0.0121	0.0126	0.0111		0.0317		0.0027	0.408	11.2	< 0.010
LC_HSP	8/31/2021		0.00123	< 0.010	0.0122	0.0136	0.0173		0.0312		0.0160	0.538	11.4	< 0.010
LC_HSP	9/9/2021		0.00098	< 0.010	0.0141	0.0152	0.0274		0.0578		0.0139	0.698	11.2	< 0.010
LC_HSP	9/14/2021		0.00063	< 0.010	0.0149	0.0148	0.0318		0.0813		0.0050	0.734	10.4	< 0.010
LC_HSP	9/20/2021		0.00057		0.0171	0.0190	0.0692		0.150		0.0047			
LC_HSP	9/27/2021		< 0.00050		0.0168	0.0182	0.0597		0.149		0.0056			
LC_HSP	10/5/2021		0.00058		0.0175	0.0187	0.0461		0.196		0.0051			
LC_HSP	10/13/2021		< 0.00050		0.0190	0.0200	0.0330		0.290		0.0031			
LC_HSP	10/18/2021		< 0.00050		0.0202	0.0202	0.0222		0.353		< 0.0020			
LC_HSP	10/25/2021		< 0.00050	< 0.010	0.0212	0.0205	0.0195		0.350		0.0040	1.51	3.81	< 0.010
LC_HSP	11/1/2021		< 0.00050	< 0.010	0.0202	0.0210	0.0215		0.404		0.0027	1.58	4.35	< 0.010
LC_HSP	11/8/2021		< 0.00050		0.0193	0.0214	0.0183		0.381		0.0252			
LC_HSP	11/16/2021				0.0196	0.0210	0.0168		0.356		0.602			
LC_HSP	11/22/2021		< 0.00050		0.0201	0.0222	0.0210		0.364		0.0031			
LC_HSP	11/29/2021		< 0.00050		0.0213	0.0220	0.0188		0.466		0.0033			
LC_MSXS	12/2/2021				0.0386	1.46	0.302		4.25		44.5			
LC_MSXS	12/3/2021				0.104	0.114	0.162		0.129		0.0771			
LC_MSXS	12/6/2021				0.0685	0.306	0.141		6.74		12.6			
LC_HSP	12/8/2021			< 0.010								1.23	6.79	< 0.010
LC_HSP	12/9/2021	< 0.50			0.0206	0.0219	0.0206		0.495		0.0030			
LC_HSP	12/14/2021		< 0.00050		0.0207	0.0217	0.0203		0.498		< 0.0020			
LC_MSXS	12/14/2021	< 0.50			0.0691	0.0736	0.0838		4.14		0.0369			
LC_MSXS	12/16/2021			< 0.010								0.173	0.190	< 0.010
LC_MSXS	12/20/2021			< 0.010	0.0615	0.0629	0.0394		3.97		0.0116	0.129	0.091	< 0.010

Teck Location Code	Sample Date	SELENIUM D ug/l	SELENIUM T ug/l	Selenosulfate, SeSO3 D ug/l	Unknown selenium species – all other selenium species which elute from the applied chromatographic column and are not identified through retention time matching with known standards D ug/l
		Result	Result	Result	Result
LC_HSP	1/8/2021			< 0.010	< 0.010
LC_HSP	3/1/2021	11.7	11.9	< 0.010	< 0.010
LC_HSP	3/22/2021	11.7	12.8	< 0.010	< 0.010
LC_HSP	3/29/2021	10.8	11.7		
LC_HSP	4/6/2021	11.1	12.5	< 0.010	< 0.010
LC_HSP	4/12/2021	10.8	11.6		
LC_HSP	4/20/2021	12.0	12.0		
LC_HSP	4/27/2021	12.4	12.3		
LC_HSP	5/4/2021	12.7	12.6	< 0.010	< 0.010
LC_HSP	5/13/2021	15.8	15.3		
LC_HSP	5/17/2021	16.3	17.6		
LC_MSXS	5/17/2021			< 0.010	< 0.010
LC_MSXS	5/26/2021	10.7	32.4	< 0.100	< 0.100
LC_HSP	5/27/2021	17.4	18.6		
LC_HSP	6/3/2021	10.8	10.6	< 0.010	< 0.010
LC_HSP	6/3/2021	10.8	10.8		
LC_MSXS	6/7/2021			< 0.010	0.096
LC_HSP	6/8/2021				
LC_HSP	6/10/2021	8.10	8.15		
LC_HSP	6/14/2021	8.78	8.90		
LC_MSXS	6/16/2021	1.74	1.24	< 0.010	< 0.010
LC_HSP	6/21/2021	9.29	9.93		
LC_MSXS	6/23/2021	1.48	1.36		
LC_HSP	6/28/2021	8.94	9.10		
LC_HSP	7/6/2021	9.45	9.80	< 0.010	< 0.010
LC_HSP	7/12/2021	11.4	10.6		
LC_HSP	7/20/2021	11.8	10.9		
LC_HSP	7/30/2021	10.9	11.2		
LC_HSP	8/4/2021	11.5	10.9		
LC_HSP	8/9/2021	11.0	10.3	< 0.010	< 0.010
LC_HSP	8/16/2021	11.1	11.2		
LC_MSXS	8/18/2021			< 0.010	< 0.010
LC_HSP	8/24/2021	12.4	13.1	< 0.010	< 0.010
LC_HSP	8/31/2021	12.6	12.6	< 0.010	< 0.010
LC_HSP	9/9/2021	11.7	11.3	< 0.010	< 0.010
LC_HSP	9/14/2021	11.0	10.6	< 0.010	< 0.010
LC_HSP	9/20/2021	8.96	9.93		
LC_HSP	9/27/2021	8.78	8.83		
LC_HSP	10/5/2021	8.58	8.98		
LC_HSP	10/13/2021	6.75	6.98		
LC_HSP	10/18/2021	6.69	6.42		
LC_HSP	10/25/2021	6.10	6.04	< 0.010	< 0.010
LC_HSP	11/1/2021	5.88	6.25	< 0.010	< 0.010
LC_HSP	11/8/2021	6.96	6.38		
LC_HSP	11/16/2021	9.02	9.30		
LC_HSP	11/22/2021	9.42	9.78		
LC_HSP	11/29/2021	8.09	8.12		
LC_MSXS	12/2/2021	20.7	71.1		
LC_MSXS	12/3/2021	9.61	7.39		
LC_MSXS	12/6/2021	4.92	17.1		
LC_HSP	12/8/2021			< 0.010	< 0.010
LC_HSP	12/9/2021	8.55	8.26		
LC_HSP	12/14/2021	7.85	8.56		
LC_MSXS	12/14/2021	1.21	1.01		
LC_MSXS	12/16/2021			< 0.010	< 0.010
LC_MSXS	12/20/2021	0.598	0.512	< 0.010	< 0.010

Appendix F – 2021 LCO Hydrometric Monitoring Program

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TECK COAL LIMITED – LINE CREEK OPERATIONS

2021 LCO Hydrometric Program

Final Report
March 30, 2022
KWL Project No. 2544.067-300

Prepared for:

Teck

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1. Introduction

To satisfy permitting requirements, Teck Coal's Line Creek Operations (LCO) collects water quality and quantity data at multiple locations on its operation. The data is collected by LCO resources throughout the field season. Kerr Wood Leidal Associates (KWL) is retained by LCO to provide hydrometric network oversite to the data collection and to provide yearly data assurance and reporting along with the data collected.

This report details LCO's 2021 Hydrometric Monitoring Program and data is presented for the period between January and December 2021 (2021 monitoring period).

1.1 Flow Monitoring Protocol

Teck Coal Limited (TCL) operates five coal mines in southeastern British Columbia and has been developing protocols to provide consistent monitoring and reporting protocols to satisfy permitting requirements. TCL's Flow Monitoring Protocol[1] outlines standard procedures for flow monitoring and provides information on equipment, measurement approaches, calculations, documentation, and quality control.

The collection of hydrometric data by LCO should therefore be consistent with the 2017 Flow Monitoring Protocol Document as well as the most recent version of the Manual of British Columbia Hydrometric Standards[2].

1.2 Hydrometric and Climate Stations

The Line Creek hydrometric network includes eleven active hydrometric stations (collecting continuous water level and/or discharge data), and two active climate stations. These sites are listed in Table 1 and locations are shown on Figure 1.

1.3 Staff Gauge Sites

In addition to hydrometric and climate stations, LCO operates sites where staff gauges have been installed and flows are measured periodically (no continuous water level data is collected). These sites and locations are also shown on Figure 1.

1.4 Roles and Responsibilities

LCO is responsible for collecting stage and discharge measurements throughout the year at each of its hydrometric stations and conducting regular maintenance of the sites (e.g., changing batteries and cleaning orifice lines). LCO also contracts Nupqu Development Corporation (Nupqu) to collect manual discharge measurements as part of the mine water quality sampling program.

KWL conducts one site visit per year to maintain the hydrometric stations (e.g., survey benchmarks, check equipment, etc.) and make any necessary adjustments or station equipment repair. In addition,

[1] KWL, 2017. *Flow Monitoring Protocol*. Report prepared for Teck Coal Limited. (KWL Project 2628.033).

[2] Ministry of Environment and Climate Change Strategy Knowledge Management Branch. December 2018. *Manual of British Columbia Hydrometric Standards*, Version 2.0 (Resources Information Standards Committee), 2018.

KWL performs monthly quality assurance/quality control checks on the continuous water level data and reviews the manual stage-discharge data collected by local LCO resources (LCO staff and other consultants). KWL develops or refines stage-discharge curves for each of the stations based on manual stage-discharge measurements.

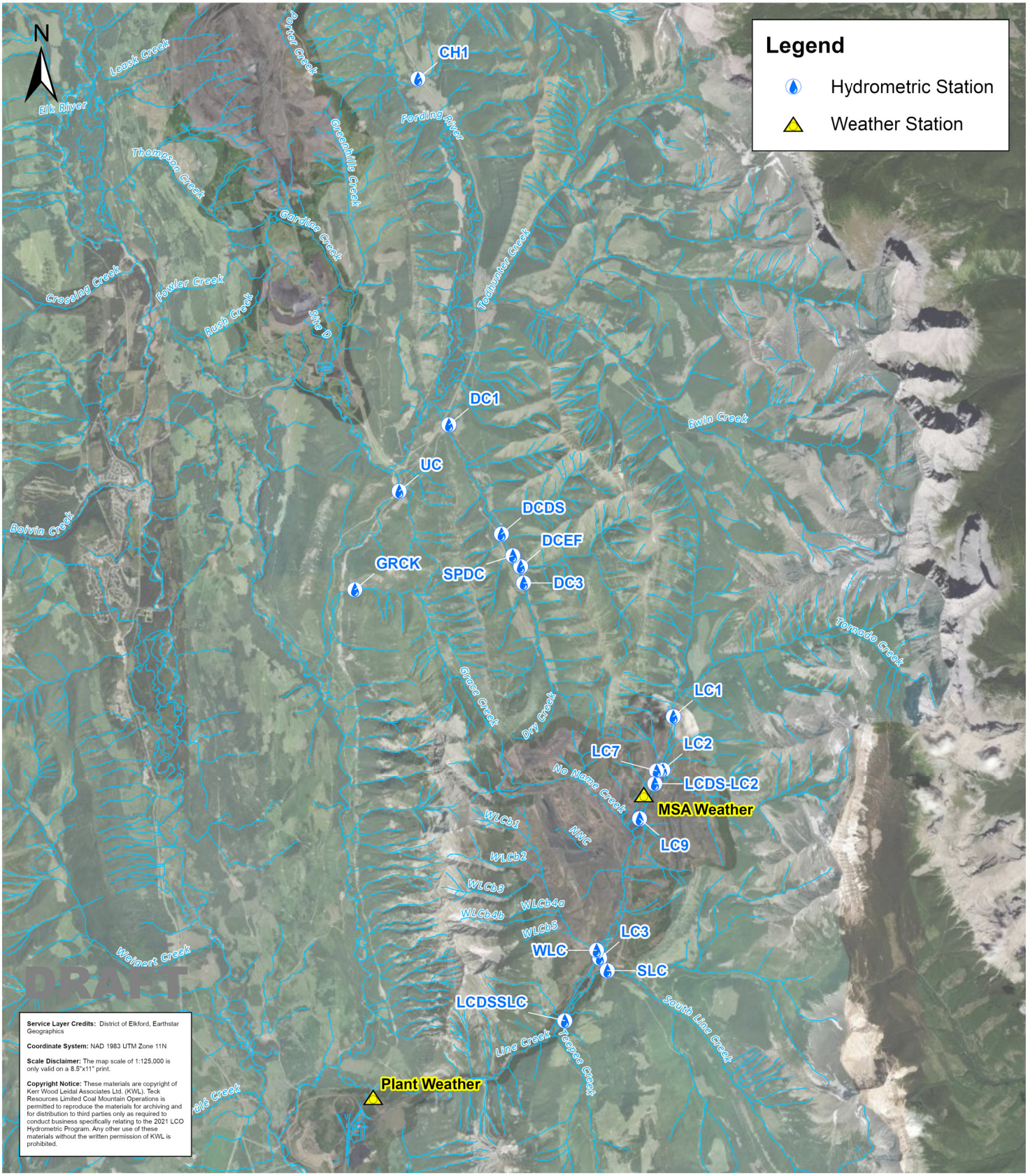
Table 1: LCO Hydrometric, Climate and Staff Gauge Site Summary

Monitoring Station ID	Station	Water Level Sensor	Stream Section	Status	Period of Record
LC_LC1	Hydrometric	Bubbler	Open Channel	Active	Jun 2010 to present
LC_LC2	Hydrometric	Bubbler	Open Channel	Active	Nov 2009 to present
LC_LC3	Hydrometric	Bubbler	Open Channel	Active	Nov 2009 to present
LC9in (formerly LC9)	Hydrometric	Pressure Transducer	Open Channel	Inactive	Jun 2010 to Dec 2013
LC_LCDS-LC2	Hydrometric (Water Level Only)	Pressure Transducer	Open Channel	Active	Jun 2010 to Jun 2013 2014 to present (water level only)
LC_WLC	Hydrometric	Pressure Transducer	Weir	Active	Nov 2009 to present
LC_LCDSSLCC	Hydrometric	Bubbler	Open Channel	Active	Jul 2016 to present
LC_DC1	Hydrometric	Bubbler	Open Channel	Active	Jul 2011 to present
LC_DCEF	Hydrometric	Bubbler	Open Channel	Active	May 2012 to present
LC_SPDC	Hydrometric	Flowmeter	Pipe	Active	Mar 2015 to present
LC_DCDS	Hydrometric	Pressure Transducer	Open Channel	Active	Jan 2016 to present
LC_DC3	Hydrometric	Pressure Transducer	Open Channel	Active	August 2019 to present
LC_DC4	Hydrometric	Pressure Transducer	Open Channel	Active	August 2019 to present
LC_LC7	Staff Gauge	N/A	Weir	Active	N/A
LC_LC9	Staff Gauge	N/A	Weir	Active	N/A
LC_GRCK	Staff Gauge	N/A	Open Channel	Active	N/A
LC_UC	Staff Gauge	N/A	Open Channel	Active	N/A
LC_SLC	Staff Gauge	N/A	Open Channel	Active	N/A
MSA Weather	Climate	N/A	N/A	Active	Jun 2010 to present
Plant Weather	Climate	N/A	N/A	Active	Apr 2010 to present

Teck Resources Limited Line Creek Operations

2021 LCO Hydrometric Program

KERR WOOD LEIDAL consulting engineers



Service Layer Credits: District of Elkford, Earthstar Geographics

Coordinate System: NAD 1983 UTM Zone 11N

Scale Disclaimer: The map scale of 1:125,000 is only valid on a 8.5"x11" print.

Project No.	2544-067
Date	March 2022
Scale	1:125,000

0 1 2 4 Kilometers

LCO Hydrometric Station Locations

Figure 1

2. Stage-Discharge Relationships

2.1 Background

Each of LCO's hydrometric stations includes a continuous water level sensor and a staff gauge. Discharge is not measured directly by the sensors. Discharge is related to water level at the staff gauge through manual discharge measurements and the development of a stage-discharge relationship (SDR). At the remaining LCO stations there is no continuous water level sensor, but a staff gauge has been installed to allow for the development of a SDR at each station.

Stage-discharge relationships are created by measuring instantaneous discharge at different water levels and relating the measured discharge to water level on a fixed staff gauge. Measured flows are plotted against the associated stages, and a curve relating the two is fit through the plotted points (the SDR).

KWL uses a maximum-likelihood analysis method for creating SDRs. Discharge points are assigned an uncertainty value based on criteria outlined in the *Manual of British Columbia Hydrometric Standards*. The discharge measurements performed by LCO generally meet 'Class B' and 'Class C' hydrometric data standards (refer to Table 2 for a list of data quality indicators) and are typically assigned an uncertainty value of +/-15% (Grade B) to +/- 25% (Grade C). A best-fit power law curve is generated to describe the relationship between measured discharge and stage.

Once a SDR has been developed for a given site, stage-discharge measurements are performed annually to confirm that the existing curve is representative of current channel conditions. Channel changes such as sediment deposition or erosion (typically caused by major flow events) can result in the need for a new SDR to be developed.

2.2 Offsets

SDRs reference the water level on the staff gauge (the stage) that is recorded by field crews at the time of each discharge measurement. Due to many factors (sensor drift, logger movement, environmental factors etc.) the logger values typically vary slightly from the staff gauge readings (less than 1 cm is typical). LCO staff record the staff gauge and sensor water level readings during each site visit. This data is used to calculate the visit offset values which are then applied during the post processing procedure to correct the water level time series data.

2.3 Station Datums

Each station uses a local datum to which stage values are referenced. Typically, the bottom of the station staff gauge is assigned the assumed value of 0.000 m to which all station benchmarks are referenced (station datum). The station benchmarks (three stable benchmarks at each site) are surveyed each year to document any movement to them or the staff gauge. This was performed in 2021 by KWL for all LCO stations discussed in this report.

2.4 Field Data Collection

Discharge Measurements

As mentioned previously, the collection of hydrometric data by LCO should be consistent with the *Flow Monitoring Protocol*. Table 2 summarizes discharge data quality indicators corresponding to different grades of hydrometric data according to the British Columbia Hydrometric Standards (also referred to as RISC). In general, LCO attempts to collect hydrometric data consistent with RISC Grade B standard, as follows:

- minimum three benchmarks per station;
- discharge measurements consist of 20 or more vertical panels (for open-channel-style measurements);
- vertical panels are spaced so that no one panel contains more than 10% of the total flow (note that even spacing may not achieve this criterion);
- three or more manual flow measurements are collected per year over an adequate range of streamflows; and
- two or more level checks are completed per year or at least once per year when ref. gauge and the benchmarks have been documented to be stable.

Vertical Panels

As mentioned above, spacing should be adjusted such that the discharge measured in any one vertical panel does not exceed 10%. Practically speaking, this means tighter panel spacing in areas of the stream where the flow is concentrated; collecting evenly-spaced verticals may not achieve this criterion.

Relatively narrow wetted stream widths will require fine spacing to achieve 20 verticals. Tight spacing of verticals can be achieved using an electromagnetic-type velocity meter (such as the Marsh McBirney brand) or Acoustic Doppler Velocimeters (ADV). Propeller type meters have a minimum spacing limit; this should be considered when making tightly-spaced velocity measurements.

Improving the Measurement Section

Personnel making discharge measurements are encouraged to make improvements to the measurement cross-section to improve the hydraulic conditions. Improvements may include the following actions:

- removing large rocks and debris from the section, and immediately upstream;
- removing weeds; and
- concentrating into a single channel the flow when low water levels cause a braided channel.

The intent of improving the measurement section is to improve the accuracy of the discharge measurement; these changes should not affect the local hydraulic control and the station stage measured by the staff gauge (note the stage before and after any improvements to confirm there is no effect).

After improvements are made, allow sufficient time for conditions to stabilize before proceeding with the discharge measurement. Importantly, all improvements to the metering section should be completed before starting the measurement: do not make changes to the metering section (such as by moving rocks) during the discharge measurement.

Stage Measurements

Except at very low flows, the water level surface in a creek or river is rarely flat (streams naturally surge with time). As such, there is uncertainty associated with the stage measurement that needs to be incorporated into the SDR.

KWL suggests that the following field procedures be adopted when reading staff gauges:

- Observe the water level at the staff gauge for a sufficient period to observe any pattern in stage fluctuations at the time of measurement (e.g., 30 seconds);
- Make a 'best estimate' of the average stage (i.e., the stage around which the fluctuations are centered, or what the water level would be if the surface were flat);
- Record an estimate of the range of stage fluctuation (e.g. best estimate is 0.3 m, water level fluctuated between 0.295 m and 0.305 m); and
- If possible, record a short (e.g., 10-15 second) video rather than a photo to document the observed stage: a video provides far more accurate confirmation of the field conditions than photos, which rarely capture the 'real' stage value.

Channel Condition

Stream channel condition is also a factor in the grade that is assigned to the data. This factor can only be controlled through careful station siting to avoid locations with unstable beds or other hydraulic challenges.

Table 2: Summary of Discharge Data Quality Indicators for Field Procedures

Data Quality Indicator	Standard Grade for Discharge Data					
	Grade A/RS	Grade A	Grade B	Grade C	Grade E (Estimated)	Grade U (Unknown Data Quality)
Field Procedure						
Minimum Number of Benchmarks	3	3	3	3	See notes below	Undefined
Number of Verticals in Manual Flow Measurements When Current Meter is Used	N/A	20 or more (if sufficient channel width to meet minimum flow meter panel widths) and not more than 10% of total flow in each panel	20 or more (if sufficient channel width to meet minimum flow meter panel widths) and not more than 10% of total flow in each panel	10 or more (if sufficient channel width to meet minimum flow meter panel widths) and not more than 20% of total flow in each panel		
Number of Manual Flow Measurements Per Year	Minimum of one field measurement for rating verification	5 or more over adequate range of streamflows	3 or more over adequate range of streamflows	2 or more over adequate range of streamflows		
Number of benchmark elevation and ref. gauge elevation level checks per year	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	1 or more		
Data Calculation & Assessment						
Discharge rating accuracy /Rating curve shift deviation threshold	<5%	<7%	<15%	<25%	See notes below	Undefined
Data and calculation reviewed for anomalies	Yes	Yes	Yes	Yes		
Results are compared with other stations and/or other years for consistency	Yes	Yes	No	No		

Notes:
Hydrometric data should be graded as "E" (i.e., Estimated) when stations were operated using RISC Standards (i.e., water level or discharge data could be either Grade A/RS, A, B or C but data were estimated because of instrument anomalies, shift correction, missing data or rating curve extrapolation beyond measured discharge level). Hydrometric data should be graded as "U" (i.e., Unknown data quality), when RISC Hydrometric Standards are not followed for data collection and/or data quality is unknown.

Source: Table 1: Standards Requirement Criteria (MoE, 2018).

3. 2021 Station Work

A summary of 2021 hydrometric work is provided below for each station. Appendices at the end of this report contain the following information for each station:

- the station SDR;
- a list of missing data (for stations with water level sensors);
- a list of replaced/repaired equipment (if applicable);
- a list of manual discharge measurements for 2021 (if applicable);
- average monthly discharge data (for stations with water level sensors); and
- an annual hydrograph (for stations with water level sensors).

3.1 LC_LC1

LC1 is located on Line Creek in a location upstream of mine influence (Figure 1). This monitoring location is also used to sample water quality parameters representative of background (non-mine-influenced) conditions. In June 2020, the station was upgraded with a Sutron XLink Logger, OTT PLS Pressure transducer, and solar panels. The station has operated well following replacement in 2020, however through the January - March 2021 period no water levels were recorded. This could be because the station flow went to zero or in-channel changes isolated the sensor from any under ice flow. The Teck field was unable to access the stream water due to heavy ice cover and therefore we cannot confirm.

Ice affected data (spikes and erroneous data) were removed from the dataset (January to April).

LC1 SDR

During the 2021 monitoring period KWL staff collected one discharge measurement during the annual maintenance site visit (Grade B). LCO performed three flow measurements at LC_LC1 in 2021 (Grade B).

There was a clear change to the hydraulic control at the station during the 2020-2021 winter period, a new SDR was created using the four available 2021 discharge measurements. Because the 2021 discharge measurements are all toward the lower end of the expected station flows, calculated discharges below 0.4 m^3/s are graded B, those above 0.04 m^3/s are grade E.

Appendix A presents summary hydrometric data for LC1.

3.2 LC_LC2

LC2 is located on Line Creek downstream of LC1 and upstream of the Line Creek rock drain and LCDS-LC2 (Figure 1). At this location, the creek is influenced by mining activities. In June 2020, the station was upgraded with a Sutron XLink Logger, OTT PLS Pressure transducer, and solar panels. The station operated well following replacement.

The station performed well during the 2021 monitoring period. No significant data was removed for this year.

LC2 SDR

In the 2021 monitoring period, LCO personnel collected three discharge measurements (Grade B) at LC2 and KWL staff performed one discharge measurement during the annual maintenance site visit (Grade B). The 2021 measurements were used to refine the station SDR to better reflect low flow conditions at the site.

The KWL field team identified some potential flow bypass to the east of LC2. They estimated the bypass of flow around LC2 to be approximately 10% of the flow measured at LC2.

Appendix B presents summary hydrometric data for LC2.

3.3 LC_LCDS-LC2

LCDS-LC2 is located on Line Creek downstream of station LC2 and upstream of LC3 (Figure 1). It captures flow from Line Creek plus flow from a two-stage settling pond and a three-stage settling pond situated to the north and northeast, respectively. This is the last monitoring station before water flows into the Line Creek rock drain. Given proximity to the rock drain, this station is regularly backwatered throughout the spring months. In June 2020, the station was upgraded with a Sutron XLink Logger, OTT PLS Pressure transducer, and solar panels.

The station operated well in 2021.

LCDS-LC2 SDR

LCO has decided not to pursue further SDR development at this time but rather to use the station as an indication of water elevation of the pool that forms when Line Creek is backwatered by the capacity of the rock drain inlet.

Stage data when the station was backwatered in 2021 are presented in Appendix C.

3.4 LC_LC3

LC3 is located downstream of the Line Creek rock drain and the West Line Creek Confluence (Figure 1). The hydrometric station is located above a trapezoidal section of engineered concrete channel. The station consists of a Sutron XLink Logger, OTT PLS Pressure transducer, and solar panels.

In 2021 a new vertical staff gauge was installed upstream of concrete channel. The old staff gauge is affixed to the concrete side of the channel and is sloped at approximately 3 horizontals to 1 vertical[3].

The station operated well in 2021, with only a small amount of ice affected data being removed from the 2021 period.

LC3 SDR

During the 2021 monitoring period LCO personnel performed three discharge measurements (Grade B) at LC3. KWL staff performed one discharge measurement (Grade B) during the annual maintenance site visit.

[3] Slope is 2.72H:1V based on field survey.

Because the new staff gauge was installed post freshet it was decided to calculate the 2021 discharge timeseries with the existing SDR and then create a new SDR using the new Staff gauge with 2021 and 2022 measurement data.

There is a high degree of scatter in the existing SDR dataset. This could be related to the difficultly in reading the sloped staff gauge. Because the station has a concrete hydraulic control, a shift in the curve would be considered unlikely and the station SDR should be one of stability. Due to the measurement scatter LC_LC3 discharge data is graded C.

Appendix D presents summary hydrometric data for LC3.

3.5 LC_LC7

The LC7 site is the authorized discharge point located downstream of the MSA North Ponds which decant to a collector ditch located immediately upstream of the Line Creek Rock Drain (Figure 1). A concrete weir structure controls the flow, and a staff gauge is affixed to the face of the structure. LC7 is a staff gauge site: no continuous water level data are collected at this site.

LC7 SDR

LC_LC7 discharge values are calculated using a weir equation (developed by others). LCO collected two measurements in 2021 (Grade B).

There is significant scatter in the station measurements. We suggest that additional notes/pictures be taken at the time of site visits to document channel conditions in attempt to explain the measurement scatter and that the crest of the weir be cleaned if aquatic growth is noted by the field crews. Because of the measurement scatter the station SDR is Graded E.

Appendix E presents summary hydrometric data for LC7.

3.6 LC_LC9

The LC9 is the authorized discharge point located at the spillway from the No Name Creek diversion and sediment pond to the Line Creek rock drain (Figure 1), upstream of the rock drain. A broad concrete weir structure regulates flow from the pond system. The staff gauge is located approximately 5 m downstream of the structure in a decant channel. LC9 is a staff gauge site: no continuous water level data are collected at this site.

LC9 SDR

During 2021, the sediment pond did not decant, therefore no discharge measurements were collected.

Appendix F presents summary hydrometric data for LC9.

3.7 LC_LCDSSLCC

Line Creek downstream of South Line Creek Confluence (LCDSSLCC) is a site on Line Creek located immediately downstream of the South Line Creek Confluence. This is a permit compliance location for LCO. The station consists of a permanent bubbler water level sensor and datalogger on the right bank of the stream. This station consists of an FTS Axiom Logger, a Waterlog H-3553 Bubbler sensor and an OTT PLS-C pressure transducer (conductivity included on this sensor). In 2021 a new staff gauge was installed at this site which should allow for more accurate stage readings.

The station performed well during the 2021 period. A small amount of data was removed when the bubbler leaked in February. The data from this site remains noisy which could be due to a partially blocked orifice tip. The orifice line may need to be trimmed periodically to resolve this.

LCDSSLCC SDR

LCO conducted four discharge measurements (Grade B) during the 2021 season and KWL collected one measurement (Grade B) during the annual maintenance visit.

The SDR stage values were converted to the new staff gauge and therefore the SDR equation changes for 2021.

LCDSSLCC data is presented in Appendix G.

3.8 LC_SLC

The South Line Creek site is located about 500 m upstream of the confluence with Line Creek near the old South Line Creek settling ponds. The site is accessed off the South Line Creek Forest Service Road. The staff gauge was damaged, and the stream infilled causing challenges developing a stable SDR. In 2018 a new staff gauge was installed approximately 400 m downstream of the old gauge. Manual measurements and staff gauge readings have been obtained at the new location to develop a new SDR however Teck decided that the old location was where they would measure flows. A new, more stable staff gauge was installed by KWL in 2021 at the same location as the 2018 replacement.

SLC SDR

LCO performed three manual flow measurements at the upstream LC_SLC location in 2021 (Grade B, KWL performed one discharge measurement (Grade B) at the same location. The station SDR (Upstream location) showed a clear trend change, however with only two measurements and associated staff gauge readings a new SDR can not be developed. A shift was applied to the existing Upstream SDR and while the two manual measurements with associated staff gauge readings agree with the shifted SDR all 2021 measurements calculated using the staff gauge readings and shifted SDR are graded E.

To avoid confusion moving forward, all 2021 stage readings at the upstream site were converted to the new staff gauge elevation and the SDR equation is in relation to this new staff gauge.

Appendix H presents summary hydrometric data for SLC.

3.9 LC_WLC

The West Line Creek (WLC) hydrometric station is located at a concrete structure downstream of the West Line Creek rock drain, and immediately upstream of the active wastewater treatment (AWTF) intake (Figure 1). Flow at WLC passes through a rated 120^{o} V-notch weir.

In August 2021, the Neon logger at this site failed. A temporary OTT Orpheus mini was installed at the beginning of October and a new logger was installed in January 2022 (Sutron XLink 500 logger linked to the existing Esterline pressure transducer sensor). This resulted in a data outage from mid August to October. The station performed well outside of this gap.

WLC SDR

No discharge measurements were collected by LCO at WLC in 2021. KWL performed one manual discharge measurement (Grade C). The SDR has remained stable over the years (as expected with an engineered structure), however at least one manual discharge measurement should be collected annually to confirm the weir continues to operate as expected.

Appendix I presents summary hydrometric data for WLC.

3.10 LC_DC1

The Dry Creek (DC1) hydrometric station is located upstream of the confluence of Dry Creek and the Fording River (Figure 1). This station was installed to monitor the flow regime of Dry Creek prior to development of mine operations in the headwaters of the watershed. This station consists of an FTS Axiom Logger, a Waterlog H-3553 Bubbler sensor and an OTT PLS-C pressure transducer (conductivity included on this sensor).

The DC1 station operated through the open-water season of the 2021 monitoring period but the water level throughout the ice cover period was heavily influenced by the in-channel ice. Ice effected data was removed from the 2021 data period.

DC1 SDR

KWL staff performed two measurements in 2021 (Grade B). LCO performed five discharge measurements in 2021 (Grade B). The 2021 measurement correlates well to the SDR (with the exception of August 6, 2021 which was taken during at the time of falling stage due to pumping activity increasing the chance for a misreading of the staff reading). The SDR was not updated in 2021.

Appendix J presents summary hydrometric data for DC1.

3.11 LC_DCEF

The Dry Creek East Fork (DCEF) hydrometric station is located on a tributary to Dry Creek known as East Fork. The hydrometric station is located immediately downstream of the Dry Creek Forest Service Road (FSR) bridge about 110 m upstream of the confluence with Dry Creek (Figure 1). This station consists of an FTS Axiom Logger, a Waterlog H-3553 Bubbler sensor and an OTT PLS-C pressure transducer (conductivity included on this sensor) was added in 2019.

The station performed well in 2021. Ice affected data was removed when applicable (February and November 2021). The station's pressure transducer was used to calculate discharge data, the resulting data series is much less "noisy" than it has been historically.

DCEF SDR

KWL staff performed two measurements in 2021 (Grade B), LCO performed one Grade B measurement. The 2021 measurements indicate a shift in the SDR to the right post-freshet (July 2021), due to the lack of measurements a shift was applied to the SDR post freshet, and this data graded E.

Appendix K presents summary hydrometric data for DCEF.

3.12 LC_DC3

DC3 is located on Dry Creek immediately upstream of the head pond/intake for the Dry Creek Settling Ponds. The station consists of a staff gauge, a Sutron Xlink Logger and Ott PLS-C pressure sensor that was installed in August 2019. A new staff gauge was installed at this site in 2021.

The station performed well during 2021. Ice effected data removed at the beginning and end of the year.

DC3 SDR

LCO personnel performed 13 measurements (12 Grade B and one Grade C) in 2021 and KWL performed one (Grade B). A shift to the SDR occurred post freshet and new relationship was developed using the post freshet 2021 dataset.

Appendix L presents summary hydrometric data for DC3.

3.13 LC_DC4

DC4 is located on Dry Creek midway between DCDS and DC1. The station consists of a staff gauge, a Sutron Xlink Logger and Ott PLS-C pressure sensor, which was installed in August 2019.

The station performed well during 2021. Ice effected data removed at the beginning and end of the year.

DC4 SDR

KWL performed one manual flow measurement (Grade B) in 2021. LCO performed one flow measurement in 2021 (Grade B). The survey performed by KWL during the annual site visit indicated that the station staff gauge had moved. This movement was applied to the SDR equation to avoid confusion in future.

Appendix M presents summary hydrometric data for DC4.

3.14 LC_DCDS

The Dry Creek Downstream of Settling Ponds (DCDS) site is located on Dry Creek immediately downstream of the Dry Creek Settling Pond outflow confluence with Dry Creek. This location captures flow from DCEF, the Dry Creek Settling Ponds and any flow bypassing the settling ponds via the head pond spillway. Initially DCDS was installed as a staff gauge site: no continuous water level data were collected at this site.

In 2021 a new staff gauge was installed at this site.

The station performed well during 2021. In late June, the sensor went dry in the channel and was repositioned further into channel. This data period when the sensor was out of channel was removed from the 2021 record.

DCDS SDR

LCO personnel collected 13 discharge measurement (Grade B) and KWL collected two measurements (Grade B) in 2021.

The SDR was refined with 2021 points and references the new staff gauge.

Appendix N presents summary hydrometric data for DCDS.

3.15 LC_SPDC

The Setting Ponds at Dry Creek (SPDC) hydrometric station is located on the discharge pipe of the Dry Creek Settling Ponds.

Data was recorded at this location in 2021 but it did not flow through FlowWorks as it has in the past due to power and connection issues at the Dry Creek Settling Pond facility. LCO provided the data to KWL in two datasets from two separate flowmeters; Flowmeter 2 which is installed in the Dry Creek Settling Pond outlet pipe as it exits the most downstream pond and the Greyline Flowmeter installed at the downstream end of the outlet pipe, the two datasets have been combined into a single dataset.

The data provided shows flow from the Dry Creek Settling Pond system to be higher than that of DCDS, that collects both the Dry Creek Settling Pond discharge and the Dry Creek East Fork. This could suggest the accuracy of the flow meter may not be as high as expected.

The inlet flow to the Dry Creek Settling ponds was not recorded in 2021.

Appendix O presents SPDC Data.

3.16 LC_GRCK

The Grace Creek staff gauge is located approximately 1.5 km up the Grace Creek FSR (accessed via Fording Mine Road FSR) upstream of the CP rail tracks (Figure 1). Grace Creek is not mine influenced and is a tributary to the Fording River. The staff gauge is on the low side of the road, immediately downstream of the culvert. LC_GRCK is a staff gauge site: no continuous water level data are collected at this site.

GRCK SDR

LCO performed one discharge measurement (Grade B) at GRCK in 2021.

The single 2021 discharge measurement has good agreement with the existing SDR. The existing SDR is preliminary, therefore no extrapolation of the curve is recommended above the largest measured discharge and emphasis should be placed on collecting additional stage-discharge measurements at all stages to help finalize the SDR.

Appendix P presents summary hydrometric data for GRCK. Appendix P presents summary hydrometric data for GRCK.

3.17 LC_UC

The Unnamed Creek (UC) staff gauge is located approximately 670 m south from the Fording River Road along the Fording Mine Road FSR. Unnamed Creek is not mine-influenced and is a tributary to the Fording River. The staff gauge is located on the downstream side of the CP Rail tracks just below the culvert which conveys water under the tracks. No continuous water level data are collected at this site.

UC SDR

LCO performed 11 volumetric flow measurements (Grade U as no measurement info was provided) at LC_UC in 2021.The existing data points for UC plot over a relatively small vertical range (stage) and large horizontal range (discharge) meaning this relationship does not allow for the generation of an accurate SDR and as such, manual flow measurements should be taken at this site until an SDR can be developed. Care should be taken to read the staff gauge to the millimeter in the hope that the relationship will become clearer.

The staff gauge should be surveyed against three benchmarks at least once per year to verify that it has not moved.

Appendix Q presents summary hydrometric data for LC_UC.

3.18 RG_CH1

Chauncey Creek is a tributary of the Fording River located upstream of LCO and approximately 8.2 km upstream of Dry Creek. The creek is not mine-influenced. A permanent station was installed at this site in April 2019 immediately downstream of twin culverts that convey water under the Fording River Road. In late 2020 Teck began replacing the culverts with a single span bridge. The station was removed for construction and was re-installed in September 2021. Due to channel changes a new staff gauge was installed at the same time the station was re-installed.

RG_CH1 SDR

There have been three flow measurements (Grade B) performed following the installation of the new staff gauge, which is insufficient to create a full SDR. A temporary SDR has been developed using this limited information; however, additional measurements (seven or more) are required in 2022 to create a new SDR.

Appendix Q presents summary hydrometric data for RG_CH1.

4. Summary of SDRs

4.1 Rating Curve Equations

Table 3 provides a summary of the SDR equations for the active LCO sites.

Table 3: Stage-Discharge Relationship Summary for LCO Sites

Monitoring Station ID	SDR Revised Since 2020	Stage-Discharge Relationship
LC_LC1	Yes	Pre-Freshet (up to May 31, 2021) Discharge = $13.34*(\text{Stage} - 0.150)^{1.89}$ Post-Freshet (Jun 1, 2021 onward) Discharge = $37.748*(\text{Stage} - 0.226)^{2.956}$
LC_LC2	Yes	Discharge = $31.427*(\text{Stage} - 0.466)^{2.542}$
LC_LC3	No	Discharge = $3.98*(\text{Stage})^{1.99}$
LC_LC7	No	Discharge = $1.838*(2.007 - (\text{Stage}*0.2))*(\text{Stage})^{1.5}$
LC_LC9	No	Discharge = $2.45*(\text{Stage} + 0.38)^{5.98}$
LC_LCDSSLCC	Yes	Discharge = $17.611*(\text{Stage} - 0.015)^{2.211}$
LC_SLC	Yes	Before New Staff Gauge (up to Jul 11, 2021) Discharge = $11.398*(\text{Stage} - 0.365)^{2.474}$ After New Staff Gauge (Jul 12, 2021 onward) Discharge = $11.398*(\text{Stage} + 0.076)^{2.474}$

Monitoring Station ID	SDR Revised Since 2020	Stage-Discharge Relationship
LC_WLC	No	Discharge = 2.39*(Stage – 0.408)$^{2.5}$
LC_DC1	No	Discharge = 14.891*(Stage – 0.295)$^{1.689}$
LC_DCEF	Yes[a]	Pre-Freshet (up to Jun 3, 2021) Discharge = 16.547*(Stage – 0.763)$^{2.865}$ Post-Freshet (Jun 4, 2021 onward) Discharge= 16.547*(Stage – 0.716)$^{2.865}$
LC_DC3	Yes	Pre-Freshet (up to Jun 5, 2021) Discharge = 5.91*(Stage – 0.062)$^{1.69}$ Post-Freshet (Jun 6, 2021 onward) Discharge= 10.525*(Stage – 0.03)$^{2.325}$
LC_DC4	No[b]	Discharge=5.72*(Stage – 0.007)$^{1.69}$
LC_DCDS	Yes	Discharge = 8.469*(Stage – 0.024)$^{2.708}$
LC_SPDC	N/A	N/A
LC_GRCK	No	Discharge = 2.195*(Stage + 0.008)$^{1.139}$
LC_UC[c]	N/A	N/A
RG_CH1[d]	N/A	Discharge = 11.87*(Stage – 0.376)$^{2.49}$

Notes:
a. Shift applied post freshet.
b. Staff gauge movement, SDR adjusted for this movement.
c. No SDR created due to excessive scatter in available data.
d. New SDR developed with limited measurements and very limited range of validity.

SDRs are based on 'free discharge' conditions: curves are not valid during ice cover. If freezing of the water surface occurs, these conditions should be documented and the SDR should not be applied.

4.2 Recommended Upper Limit of Applicability

The recommended upper limit of applicability for each SDR is an indication of how far the curve should be extrapolated beyond the highest discharge measurement. An industry standard is to extrapolate to the lowest of:

- two times the highest discharge measurement; or
- the next major change in channel geometry not captured by discharge measurements (e.g., top of bank).

Table 4 summarizes the recommended upper limit of applicability for each of the LCO SDRs.

4.3 Data Gaps

Stage-discharge relationships should be refined over time as more discharge measurements are collected. The equations in Table 3 represent the estimated channel conditions for 2021 but some SDRs have gaps in discharge measurement information at various stages (i.e., a manual discharge measurement is required at one or more creek levels).

Table 4 lists major gaps in the manually measured flows. Manual flow measurements at each site should be continued over the next monitoring year to confirm that the SDR relationships remain valid and should target the observed gaps. Future discharge measurements should target these gaps (subject to 2021 flow values and field crew availability) to refine the SDRs and to be able to confidently extend them to capture the entire range of flow at each site.

Table 4: Recommended Upper Limit of Applicability Summary

Monitoring Station ID	Recommended Upper Limit of Applicability	Recommended Upper Limit of Applicability (m^3/s)	SDR Gaps
LC_LC1	2x highest discharge measurement	0.4	Entire range of flows to expand new SDR
LC_LC2	2x highest discharge measurement	6.9	Flows above 4 m^3/s (approx. corresponding to the staff gauge reading 0.92 m)
LC_LC3	2x highest discharge measurement	9.9	Flows above 5 m^3/s (approx. corresponding staff gauge reading 1.1 m)
LC_LC7	Top of weir	N/A	Entire range of flows to continue to confirm weir equation and explain measurement scatter
LC_LC9	2x highest discharge measurement	0.76	Flows above 0.4 m^3/s, below 0.08m^3/s, between 0.14 m^3/s and 0.22 m^3/s (approx. corresponding to the staff gauge reading above 0.36 m, below 0.18 m, and between 0.24 m and 0.3 m, respectively)
LC_LCDSSLCC	2x highest discharge measurement	21.5	Above 2 m^3/s (approx. corresponding to the stage above 0.46 m). Low flow, below 0.5 m^3/s (approx. corresponding to the stage below 0.325 m).
LC_SLC	2x highest discharge measurement	N/A	Entire range of flow
LC_WLC	Top of weir plate [a]	1.1	Entire range of flows to confirm weir is functioning as expected
LC_DC1	2x highest discharge measurement	3.5	Flows above 2.0 m^3/s (approx. corresponding staff gauge reading 0.6 m and higher)
LC_DCEF	2x highest discharge measurement	1.2	Flows above 0.6 m^3/s (approx. corresponding to the staff gauge reading above 1.1 m)
LC_DC3	2x highest discharge measurement	0.6	Entire range of flows

Monitoring Station ID	Recommended Upper Limit of Applicability	Recommended Upper Limit of Applicability (m^3/s)	SDR Gaps
LC_DC4	2x highest discharge measurement	1.1	Entire range of flows
LC_DCDS	2x highest discharge measurement	1.7	Flows above 0.5 m^3/s (approx. corresponding to the staff gauge reading above 0.35 m)
LC_SPDC	Maximum rating of flowmeter	1.9	N/A
LC_GRCK	Point at which flow measurements no longer correlate [b]	0.48	All range of flows
RG_CH1	2x highest discharge measurement	0.48	All range of flow to construct new SDR

Notes:
The SDR is invalid above the top of the weir plate. Manual measurements must be obtained to accurately estimate discharge values for water levels that overtop the weir plate.
Recommended limit of applicability has been lowered due to uncertainty at higher stages.

5. Average Monthly Discharge

A list of average daily discharge values for each site is included in the corresponding appendices. Average monthly discharges are summarized in Table 5.

Table 5: Monthly Average Discharge Summary

Monthly Average Discharge (m^3/s)											
Month	**LC1**	**LC2**	**LC3**	**WLC**	**LCDS SLCC**	**DC1**	**DC3**	**DC4**	**DCEF**	**DCDS**	**SPDC (Outlet)**
Jan	-	0.052	0.238	0.036	0.503	0.031	0.016	0.022	0.010	0.007	-
Feb	-	0.047	0.332	0.034	0.446	0.023	0.017	0.013	0.010	0.005	-
Mar	-	0.087	0.461	0.037	0.654	0.114	0.052	0.079	0.049	0.072	0.074
Apr	0.307	0.158	0.605	0.036	0.941	0.261	0.129	0.194	0.097	0.145	0.139
May	1.097	0.938	2.506	0.082	2.974	0.862	0.293	0.567	0.301	0.514	0.327
Jun	1.570	1.159	3.287	0.144	3.519	0.583	0.163	0.410	0.209	0.379	0.222
Jul	0.346	0.292	1.177	0.077	1.723	0.162	0.088	0.129	0.053	0.093	0.118
Aug	0.236	0.268	0.665	-	1.355	0.105	0.079	0.081	0.031	0.081	0.099
Sep	0.107	0.145	0.540	-	0.967	0.069	0.059	0.050	0.016	0.049	0.075
Oct	0.037	0.084	0.386	0.046	0.723	0.055	0.045	0.035	0.013	0.043	0.063
Nov	0.071	0.095	0.497	0.045	1.016	0.096	0.067	0.074	0.024	0.070	0.090
Dec	0.066	0.092	0.538	0.042	1.136	0.105	0.064	0.083	0.022	0.064	0.082

Notes:
Monthly average only provided if more than 24 days of data are available in a month.

6. Recommendations

Recommendations, to be performed by Teck, KWL or other consultants, for the continuation of the hydrometric monitoring program include:

1. Continue to obtain manual discharge measurements at all sites including sites with rated structures (a minimum of three per year). Specific recommendations for sites include:
    a. Obtain five or more manual discharge measurements at LC_LC1 throughout the range of the station water levels.
    b. Obtain five or more manual discharge measurements at LC_LC3 to confirm the SDR and/or refine the SDR.
    c. Obtain a minimum of six manual discharge measurements at LC_SLC to reconstruct the SDR.
    d. Obtain five or more manual discharge measurements at LC_LCDSSLC to confirm the SDR and/or refine the SDR.
    e. Obtain three manual discharge measurements at LC_GRCK at all flows to confirm the SDR and/or refine the SDR.
    f. Obtain manual discharge measurements to the nearest millimetre for staff gauge readings at LC_UC over the entire range of flows to develop an SDR.
    g. Obtain a minimum of seven manual discharge measurements at RG_CH1 to develop the SDR.
2. In general, when possible, target gaps in SDR shown in Table 4 when scheduling manual discharge measurements. This will assist in refining the SDR and in validating extrapolated discharge measurements.
3. Refine field procedures to be consistent with Teck's *Flow Monitoring Protocol* (2017) and to improve the accuracy of stage measurements (see Section 2.3).
4. Inspect wires/lines in the kiosks for wear and tear during site visits to prevent degradation of equipment.
5. Assess site conditions at LC_UC and confirm they are or are not suitable for developing an SDR at that location. Modify the measurement technique and site as required to improve measurement conditions and staff gauge readings as required.
6. Re-activate the SPDC Flowmeters (KWL will support) in 2022.
7. Continue documenting and submitting monthly updates to KWL of site activities to update offsets etc. as quickly as possible. This will improve the QA/QC process and provide improved preliminary data.
8. Compare manual measurements against the existing SDRs while in the field and inform KWL of any changes that may be starting to appear.
9. Complete an annual level tie-in survey that ties the staff gauges to local benchmarks at all stations to confirm the staff gauge is stable (KWL will complete during the annual site visit).
10. Continue to have monthly data reviews completed by KWL (or a qualified professional). This will assist with diagnosing problems and improve the availability of data by reducing station downtime.
11. Purchase and maintain a small inventory of equipment for future repair of stations. This will minimize the time stations are inactive due to equipment malfunction.

Report Submission

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Statement of Limitations

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Revision History

Revision #	Date	Status	Revision	Author
0	March 30, 2022	Final		MAC
A	March 14, 2022	Draft		MAC

Proudly certified as a leader in quality management under Engineers and Geoscientists BC's OQM Program from 2013 to 2021.

APEGA Permit # P07929

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consulting engineers

Appendix A

LC1

Station Details			
Station Name:	Line Creek upstream MSA North Pit	**Reporting Year:**	**2021**
Site ID:	**LC_LC1**	**Station Type:**	Year-Round Continuous Data
EMS:	**E216142**	**Teck Mine:**	Line Creek Operation

Station Description:	LC1 is located on Line Creek in a location upstream of mine influence. The station consists a of a real-time water level sensor and logger, along with a staff gauge.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	C
Rationale for Data Grade Recommendation (RSFMP)	Consistent with Compliance Monitoring (Q10 flow) data use.

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - April 16, 2021	M	Water level sensor dry for some periods, ice cover in channel
April 16 - June, 3 2021	B	Station operating as expected, old SDR valid
June 4th-July 12th, 2021	E	Station operating as expected, New SDR Valid, Flows >0.4 m3/s are Grade E
July 13th-August 16th, 2021	B	Station operating as expected, New SDR Valid, Flows <0.4 m3/s are Grade B
August 17th- August 25th, 2021	E	Station operating as expected, New SDR Valid, Flows >0.4 m3/s are Grade E
August 26th-October 15th, 2021	B	Station operating as expected, New SDR Valid, Flows <0.4 m3/s are Grade B
October 16 - December 31, 2021	E	Station operating as expected, ice effects possible, ice obvious effected data removed

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 31, 2021	-	-	-	-	-	-	No Flow taken, Ice Cover
February 28, 2021	-	-	-	-	-	-	No Flow taken, Ice Cover
April 21, 2021	0.270	-	E	0.245	-	-	Calculated Discharge
April 27, 2021	0.250	-	E	0.174	-	-	Calculated Discharge
May 4, 2021	0.300	-	E	0.373	-	-	Calculated Discharge
May 11, 2021	0.320	-	E	0.473	-	-	Calculated Discharge
May 18, 2021	0.620	-	E	3.214	-	-	Calculated Discharge
May 25, 2021	0.430	-	E	1.210	-	-	Calculated Discharge
June 21, 2021	0.550	-	E	1.349	-	-	Calculated Discharge
June 28, 2021	0.482	-	E	0.672	-	-	Calculated Discharge
July 7, 2021	0.430	-	E	0.344	-	-	Calculated Discharge
July 12, 2021	0.435	0.379	E	0.369	0.010	2.6%	KWL Measurement, 25 panels, max 9%
July 12, 2021	0.450	-	E	0.453	-	-	Calculated Discharge
August 3, 2021	0.355	-	B	0.089	-	-	Calculated Discharge
August 10, 2021	0.355	-	B	0.089	-	-	Calculated Discharge
September 14, 2021	0.360	-	B	0.099	-	-	Calculated Discharge
September 22, 2021	0.350	0.073	B	0.079	-0.006	-7.9%	LCO Measurement, 23 Panels, Max 9%
October 25, 2021	0.325	-	B	0.041	-	-	Calculated Discharge
November 4, 2021	0.320	-	B	0.035	-	-	Calculated Discharge
November 4, 2021	0.320	0.037	B	0.035	0.002	6.3%	LCO Measurement, 22 Panels, Max 9%
December 2, 2021	0.370	0.124	B	0.123	0.001	0.7%	LCO Measurement, 20 Panels, Max 10%
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
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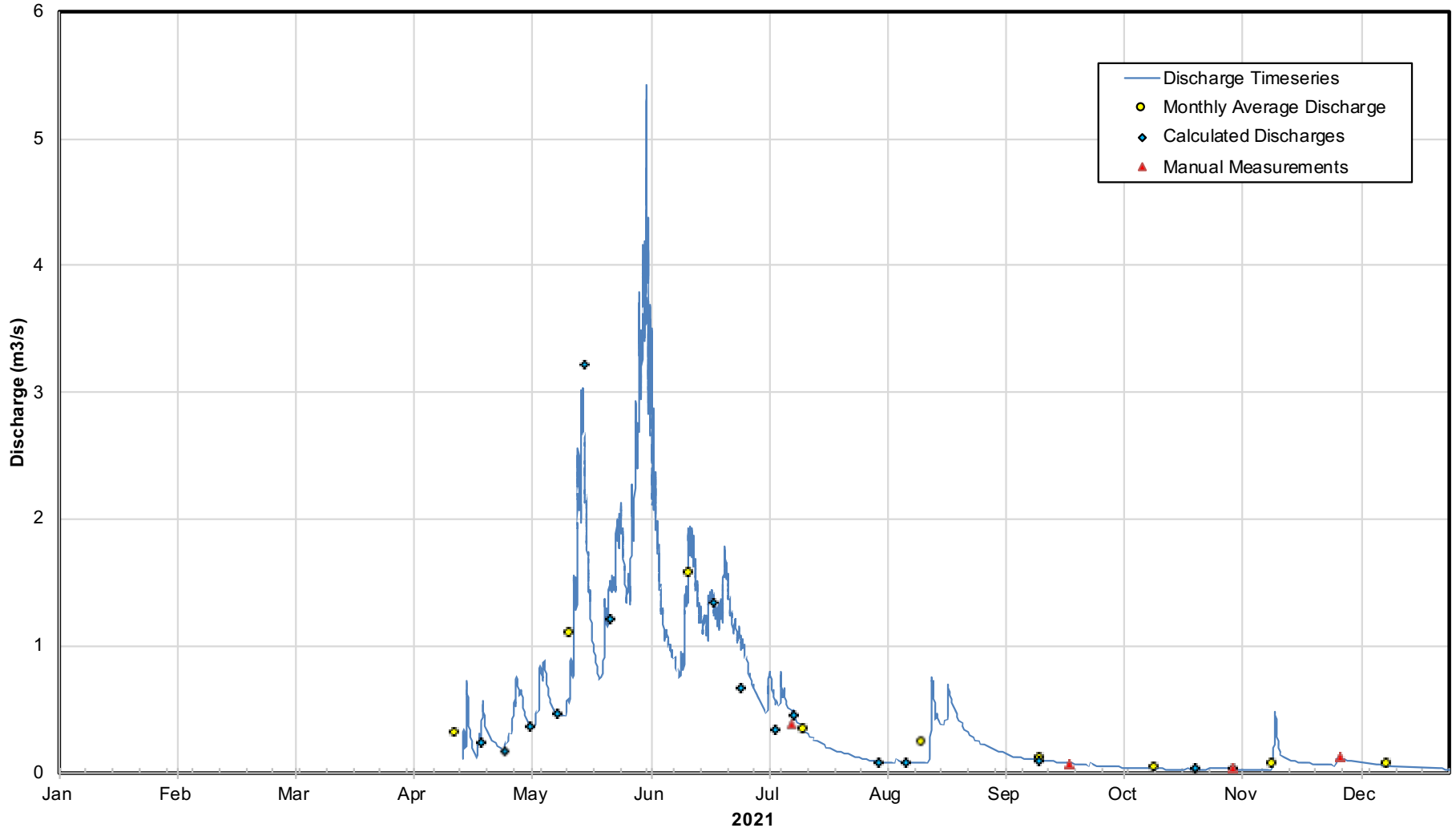
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

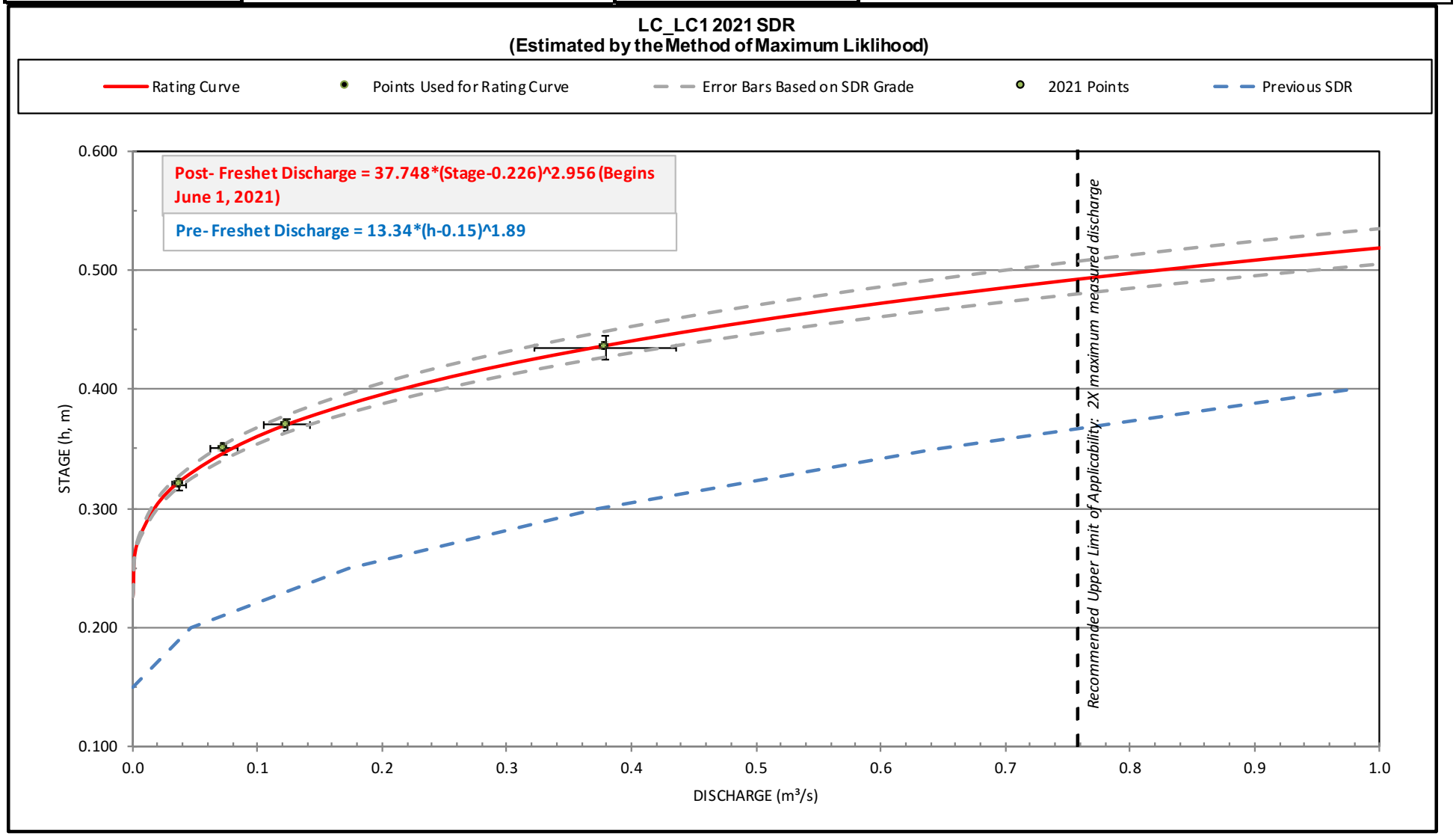
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
#N/A	#N/A	#N/A	0.31	1.10	1.57	0.35	0.24	0.11	0.04	0.07	0.07

LC_LC1 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	B
Reason For Change	Hydraulic Control Shift During Freshet	**Data Grade Rational:**	Limited measurement points all focused at the lower end of the SDR, Grade B up to 0.4 m^3/s, Grade E above 0.4 m^3/s		



LC_LC1
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	*	*	*	*	0.642	2.884	0.719	0.098	0.202 PK	0.054	0.039	0.092 PK
2	*	*	*	*	0.548	3.445	0.637	0.097	0.188	0.053	0.036	0.125
3	*	*	*	*	0.426	4.018 PK	0.571	0.090	0.178	0.051	0.030	0.101
4	*	*	*	*	0.369	3.210	0.515	0.088	0.166	0.049	0.029	0.094
5	*	*	*	*	0.383	2.567	0.534	0.086	0.154	0.047	0.032	0.090
6	*	*	*	*	0.583	1.955	0.720 PK	0.084	0.143	0.045	0.032	*
7	*	*	*	*	0.810	1.403	0.584	0.082	0.134	0.044	0.031	*
8	*	*	*	*	0.775	1.136	0.563	0.099	0.127	0.043	0.030	*
9	*	*	*	*	0.589	1.044	0.653	0.090	0.119	0.041	0.029	*
10	*	*	*	*	0.512	0.947	0.555	0.089	0.113	0.040	0.027	*
11	*	*	*	*	0.464	0.853	0.500	0.086	0.114	0.039	0.026	0.069
12	*	*	*	*	0.450	0.804	0.451	0.084	0.109	0.037	0.027	0.064
13	*	*	*	*	0.474	0.984	0.404	0.084	0.105	0.037	0.025	0.059
14	*	*	*	*	0.660	1.512	0.363	0.082	0.102	0.034	0.039	0.057
15	*	*	*	*	0.997	1.807	0.329	0.080	0.099	0.033	0.343 PK	0.053
16	*	*	*	0.289	1.680	1.598	0.301	0.080	0.097	0.033	0.194	*
17	*	*	*	0.347	2.393 PK	1.294	0.274	0.559 PK	0.094	0.032	0.120	*
18	*	*	*	0.362	2.508	1.193	0.250	0.486	0.093	0.030	0.107	*
19	*	*	*	0.183	1.645	1.163	0.232	0.411	0.090	0.027	0.099	*
20	*	*	*	0.170	1.133	1.373	0.214	0.383	0.086	0.027	0.088	*
21	*	*	*	0.351	0.891	1.321	0.199	0.513	0.082	0.027	0.083	*
22	*	*	*	0.415	0.758	1.240	0.185	0.597	0.079	0.026	0.083	*
23	*	*	*	0.313	0.966	1.307	0.173	0.506	0.076	0.034	0.084	*
24	*	*	*	0.264	1.245	1.624	0.161	0.441	0.072	0.029	0.079	*
25	*	*	*	0.232	1.472	1.353	0.152	0.385	0.068	0.030	0.073	*
26	*	*	*	0.204	1.559	1.167	0.142	0.335	0.065	0.027	0.070	*
27	*	*	*	0.202	1.915	1.108	0.134	0.304	0.062	0.026	0.065	0.034
28	*	*	*	0.258	1.827	1.047	0.125	0.278	0.067	0.027	0.068	0.033
29	*		*	0.361	1.462	0.953	0.117	0.252	0.058	0.052 PK	0.068	0.032
30	*		*	0.642 PK	1.623	0.828	0.111	0.233	0.056	0.037	0.062	0.032
31	*		*		2.215		0.104	0.218		0.034		0.031
Mean	---	---	---	**0.306**	**1.096**	**1.571**	**0.354**	**0.236**	**0.107**	**0.037**	**0.071**	**0.064**
Maximum	---	---	---	**0.642**	**2.508**	**4.018**	**0.720**	**0.597**	**0.202**	**0.054**	**0.343**	**0.125**
Minimum	---	---	---	**0.170**	**0.369**	**0.804**	**0.104**	**0.080**	**0.056**	**0.026**	**0.025**	**0.031**
Peak 5-Minute	---	---	---	**0.782**	**3.037+**	**5.418**	**0.805**	**0.759**	**0.212**	**0.059**	**0.479**	**0.144**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix B

LC2

Station Details			
Station Name:	**Line Cr. U/S of Rock Drain**	**Reporting Year:**	**2021**
Site ID:	**LC_LC2**	**Station Type:**	Year-Round Continuous Data
EMS:	**200335**	**Teck Mine:**	Line Creek Operation
Station Description:	The station is located upstream of the Line Creek rock drain and LCDS LC2.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD data use.		

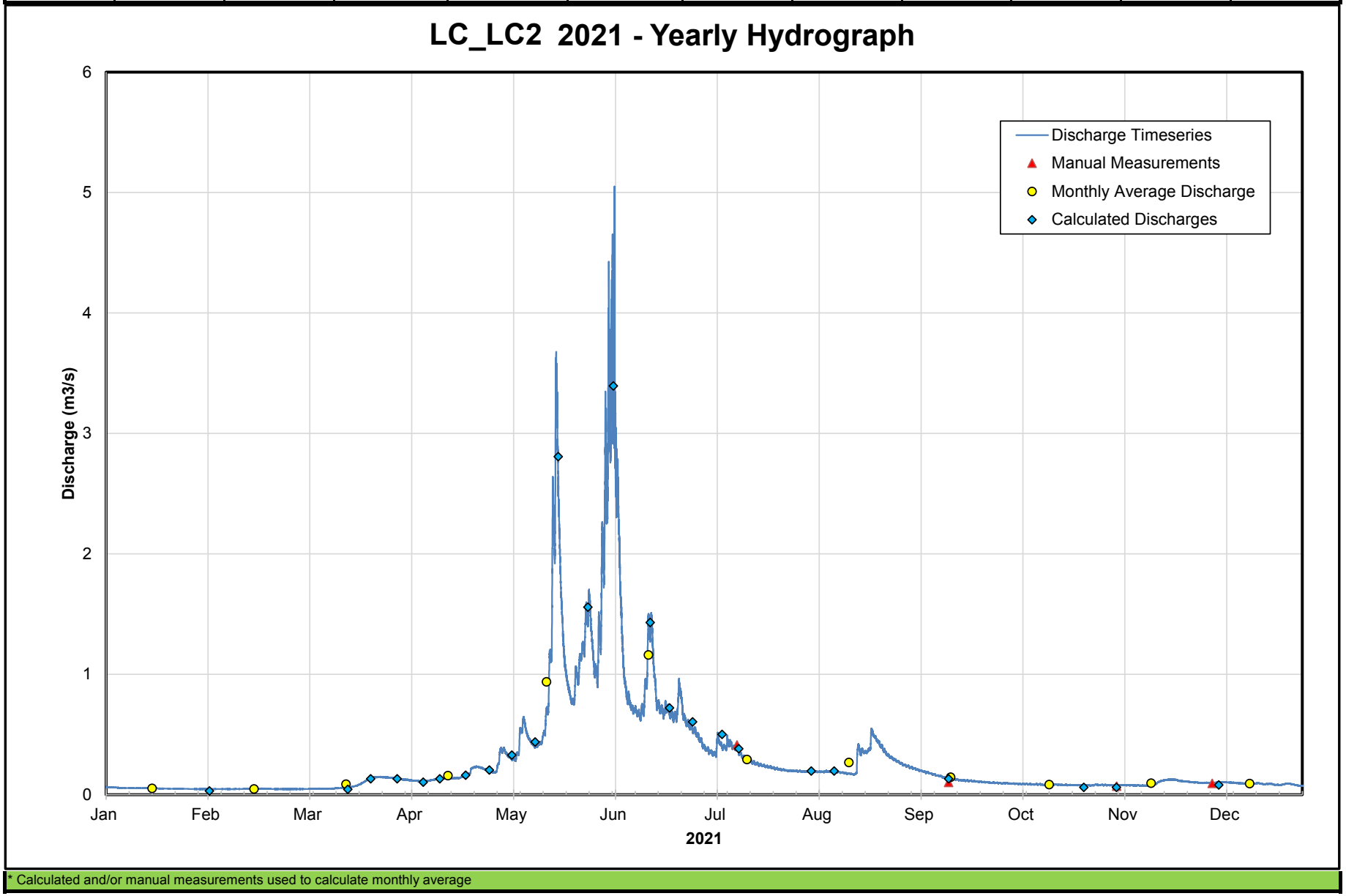
Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - Decem,ber 31, 2021	C	Station operating as expected, a lack of in channel ice confirmed by water temperature data

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
February 1, 2021	0.530	-	C	0.030	-	-	Calculated Discharge
March 15, 2021	0.540	-	C	0.044	-	-	Calculated Discharge
March 22, 2021	0.580	-	C	0.131	-	-	Calculated Discharge
March 30, 2021	0.580	-	C	0.131	-	-	Calculated Discharge
April 7, 2021	0.570	-	C	0.104	-	-	Calculated Discharge
April 12, 2021	0.580	-	C	0.131	-	-	Calculated Discharge
April 20, 2021	0.590	-	C	0.162	-	-	Calculated Discharge
April 27, 2021	0.602	-	C	0.204	-	-	Calculated Discharge
May 4, 2021	0.630	-	C	0.328	-	-	Calculated Discharge
May 11, 2021	0.650	-	C	0.438	-	-	Calculated Discharge
May 18, 2021	0.850	-	C	2.806	-	-	Calculated Discharge
May 27, 2021	0.770	-	C	1.556	-	-	Calculated Discharge
June 4, 2021	0.880	-	C	3.393	-	-	Calculated Discharge
June 15, 2021	0.760	-	C	1.430	-	-	Calculated Discharge
June 21, 2021	0.690	-	C	0.720	-	-	Calculated Discharge
June 28, 2021	0.675	-	C	0.604	-	-	Calculated Discharge
July 7, 2021	0.660	-	C	0.501	-	-	Calculated Discharge
July 12, 2021	0.635	0.412	B	0.354	0.058	14.2%	KWL Measurement, 26 panels, max 9%
July 12, 2021	0.640	-	C	0.381	-	-	Calculated Discharge
August 3, 2021	0.600	-	C	0.197	-	-	Calculated Discharge
August 10, 2021	0.600	-	C	0.197	-	-	Calculated Discharge
September 14, 2021	0.570	0.102	B	0.104	-0.001	-1.4%	LCO Measurement, 23 Panels, Max 8%
September 14, 2021	0.580	-	C	0.131	-	-	Calculated Discharge
October 25, 2021	0.550	-	C	0.061	-	-	Calculated Discharge
November 4, 2021	0.550	-	C	0.061	-	-	Calculated Discharge
November 4, 2021	0.550	0.071	B	0.061	0.011	15.0%	LCO Measurement, 26 Panels, Max 8%
December 3, 2021	0.560	0.094	B	0.080	0.013	14.2%	LCO Measurement, 23 Panels, Max 9%
December 5, 2021	0.560	-	C	0.080	-	-	Calculated Discharge
January 4, 2022	0.550	-	C	0.061	-	-	Calculated Discharge
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

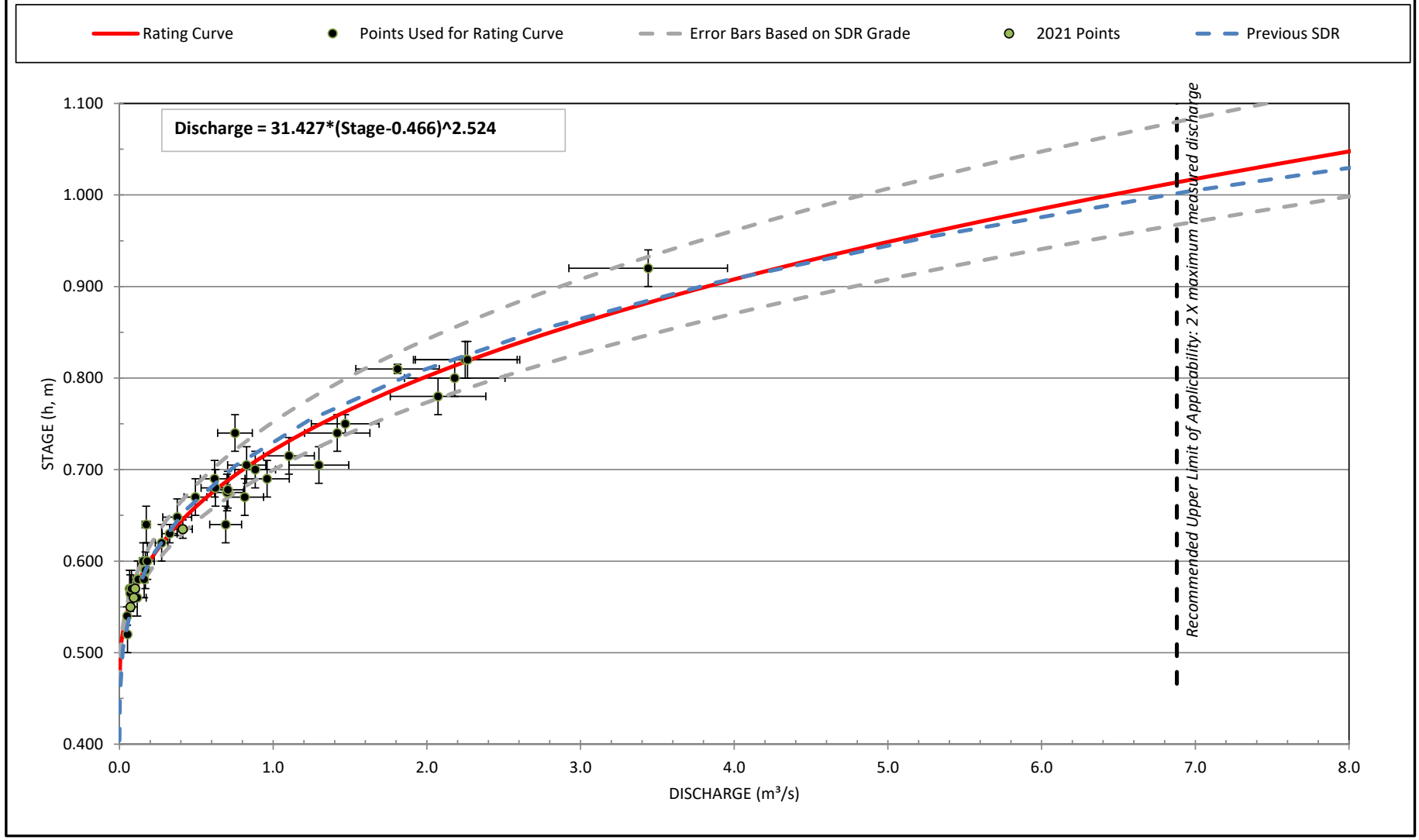
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.05	0.05	0.09	0.16	0.94	1.16	0.29	0.27	0.15	0.08	0.09	0.09



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	C
Reason For Change	Refinement of Existing SDR (lower end)	**Data Grade Rational:**	More scatter in SDR measurement points than acceptable for Grade B data.		

LC_LC2 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_LC2
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.060 PK	0.046	0.047	0.126	0.370	2.187	0.421	0.193	0.240 PK	0.096 PK	0.080	0.099
2	0.060	0.047	0.047	0.124	0.359	2.854	0.381	0.193	0.230	0.095	0.079	0.099
3	0.059	0.047	0.048	0.121	0.319	3.452	0.366	0.191	0.222	0.093	0.078	0.097
4	0.058	0.047	0.048	0.118	0.299	3.392 PK	0.346	0.190	0.212	0.092	0.079	0.100
5	0.057	0.047	0.049	0.115	0.299	2.563	0.354	0.191	0.203	0.090	0.079	0.103
6	0.056	0.047	0.050	0.113	0.384	1.773	0.460 PK	0.190	0.194	0.088	0.079	0.104 PK
7	0.056	0.046	0.050	0.112	0.553	1.084	0.401	0.191	0.186	0.089	0.079	0.103
8	0.055	0.046	0.049	0.115	0.579	0.829	0.394	0.193	0.180	0.088	0.079	0.102
9	0.054	0.047	0.050	0.118	0.478	0.760	0.434	0.193	0.172	0.086	0.078	0.100
10	0.054	0.047	0.051	0.124	0.433	0.709	0.407	0.194	0.164	0.085	0.077	0.099
11	0.054	0.047	0.052	0.129	0.405	0.690	0.388	0.190	0.157	0.086	0.077	0.096
12	0.054	0.048	0.054	0.134	0.409	0.663	0.362	0.185	0.148	0.086	0.077	0.095
13	0.054	0.049	0.056	0.136	0.442	0.731	0.323	0.181	0.140	0.082	0.077	0.094
14	0.053	0.048	0.059	0.136	0.556	1.022	0.300	0.177	0.135	0.081	0.078	0.094
15	0.053	0.048	0.060	0.137	0.807	1.394	0.286	0.173	0.130	0.081	0.084	0.095
16	0.052	0.049	0.064	0.137	1.477	1.187	0.274	0.169	0.128	0.082	0.090	0.094
17	0.051	0.050	0.069	0.137	2.521 PK	0.807	0.263	0.283	0.124	0.082	0.107	0.096
18	0.051	0.050 PK	0.078	0.139	2.796	0.727	0.252	0.363	0.119	0.082	0.117	0.091
19	0.051	0.049	0.090	0.151	1.682	0.692	0.245	0.361	0.118	0.080	0.122	0.088
20	0.050	0.047	0.106	0.165	1.141	0.724	0.238	0.356	0.116	0.080	0.125 PK	0.089
21	0.050	0.047	0.123	0.177	0.924	0.689	0.231	0.424 PK	0.114	0.081	0.124	0.089
22	0.050	0.046	0.138	0.222	0.798	0.650	0.225	0.502	0.111	0.080	0.124	0.083
23	0.049	0.046	0.144	0.231	0.850	0.663	0.219	0.457	0.108	0.079	0.116	0.081
24	0.049	0.047	0.147	0.228	0.983	0.861	0.213	0.418	0.107	0.078	0.113	0.081
25	0.048	0.047	0.147 PK	0.220	1.160	0.704	0.208	0.377	0.104	0.078	0.110	0.086
26	0.048	0.047	0.145	0.209	1.266	0.605	0.205	0.340	0.102	0.078	0.107	0.091
27	0.047	0.047	0.143	0.199	1.517	0.574	0.200	0.316	0.099	0.077	0.104	0.089
28	0.047	0.047	0.140	0.189	1.443	0.550	0.199	0.298	0.099	0.079	0.102	0.083
29	0.047		0.137	0.190	1.086	0.519	0.197	0.282	0.098	0.081	0.100	0.079
30	0.046		0.134	0.286 PK	1.087	0.470	0.196	0.266	0.096	0.080	0.097	0.076
31	0.046		0.130		1.511		0.195	0.252		0.081		0.076
Mean	**0.052**	**0.047**	**0.087**	**0.158**	**0.933**	**1.151**	**0.296**	**0.267**	**0.145**	**0.084**	**0.095**	**0.092**
Maximum	**0.060**	**0.050**	**0.147**	**0.286**	**2.796**	**3.452**	**0.460**	**0.502**	**0.240**	**0.096**	**0.125**	**0.104**
Minimum	**0.046**	**0.046**	**0.047**	**0.112**	**0.299**	**0.470**	**0.195**	**0.169**	**0.096**	**0.077**	**0.077**	**0.076**
Peak 5-Minute	**0.069**	**0.052**	**0.151**	**0.378**	**3.679**	**5.050**	**0.516**	**0.549**	**0.253**	**0.100+**	**0.126+**	**0.106+**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix C

LCDS-LC2

LC_LCDSLC2

Summary Report
Year: 2021
Measurement: Preliminary Level (m)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	*	*	*	*	*	2.116	*	*	*	*	*	*
2	*	*	*	*	*	3.048	*	*	*	*	*	*
3	*	*	*	*	*	3.229	*	*	*	*	*	*
4	*	*	*	*	*	3.252 PK	*	*	*	*	*	*
5	*	*	*	*	*	3.069	*	*	*	*	*	*
6	*	*	*	*	*	2.621	*	*	*	*	*	*
7	*	*	*	*	*	1.612	*	*	*	*	*	*
8	*	*	*	*	*	0.427	*	*	*	*	*	*
9	*	*	*	*	*	*	*	*	*	*	*	*
10	*	*	*	*	*	*	*	*	*	*	*	*
11	*	*	*	*	*	*	*	*	*	*	*	*
12	*	*	*	*	*	*	*	*	*	*	*	*
13	*	*	*	*	*	*	*	*	*	*	*	*
14	*	*	*	*	*	*	*	*	*	*	*	*
15	*	*	*	*	*	0.123	*	*	*	*	*	*
16	*	*	*	*	*	0.283	*	*	*	*	*	*
17	*	*	*	*	0.814	*	*	*	*	*	*	*
18	*	*	*	*	2.500 PK	*	*	*	*	*	*	*
19	*	*	*	*	1.791	*	*	*	*	*	*	*
20	*	*	*	*	0.431	*	*	*	*	*	*	*
21	*	*	*	*	*	*	*	*	*	*	*	*
22	*	*	*	*	*	*	*	*	*	*	*	*
23	*	*	*	*	*	*	*	*	*	*	*	*
24	*	*	*	*	*	*	*	*	*	*	*	*
25	*	*	*	*	*	*	*	*	*	*	*	*
26	*	*	*	*	*	*	*	*	*	*	*	*
27	*	*	*	*	0.257	*	*	*	*	*	*	*
28	*	*	*	*	0.763	*	*	*	*	*	*	*
29	*		*	*	0.268	*	*	*	*	*	*	*
30	*		*	*	0.028	*	*	*	*	*	*	*
31	*		*		0.406		*	*		*		*
Mean	---	---	---	---	**0.806**	**1.978**	---	---	---	---	---	---
Maximum	---	---	---	---	**2.500**	**3.252**	---	---	---	---	---	---
Minimum	---	---	---	---	**0.028**	**0.123**	---	---	---	---	---	---
Peak 5-Minute	---	---	---	---	**2.719**	**3.351+**	---	---	---	---	---	---

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.


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Appendix D

LC3

Station Details			
Station Name:	**Line Cr. D/S of West Line Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_LC3**	**Station Type:**	Year-Round Continuous Data
EMS:	**200337**	**Teck Mine:**	
Station Description:	LC3 is located downstream of the Line Creek rock drain and the West Line Creek Confluence. The hydrometric station is located above a trapezoidal section of engineered concrete channel.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD and AWTF design data uses.		

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - March 15, 2021	E	Station operating as expected, potential ice effects, ice affected data removed
March 16 - October 31, 2021	C	Station operating as expected
November 1 - December 31, 2021	E	Station operating as expected, potential ice effects

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 5, 2021	0.250	-	C	0.252	-	-	Calculated Discharge
January 11, 2021	0.240	-	C	0.233	-	-	Calculated Discharge
January 25, 2021	0.260	-	C	0.273	-	-	Calculated Discharge
February 1, 2021	0.265	-	C	0.283	-	-	Calculated Discharge
February 8, 2021	0.270	-	C	0.294	-	-	Calculated Discharge
February 16, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
February 23, 2021	0.280	-	C	0.316	-	-	Calculated Discharge
February 24, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
February 25, 2021	0.290	-	C	0.339	-	-	Calculated Discharge
February 25, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
February 26, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
March 2, 2021	0.260	-	C	0.273	-	-	Calculated Discharge
March 9, 2021	0.280	-	C	0.316	-	-	Calculated Discharge
March 16, 2021	0.340	-	C	0.465	-	-	Calculated Discharge
March 23, 2021	0.370	-	C	0.550	-	-	Calculated Discharge
March 30, 2021	0.360	-	C	0.521	-	-	Calculated Discharge
April 5, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
April 13, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
April 20, 2021	0.360	-	C	0.521	-	-	Calculated Discharge
April 27, 2021	0.450	-	C	0.812	-	-	Calculated Discharge
May 4, 2021	0.560	-	C	1.255	-	-	Calculated Discharge
May 11, 2021	0.680	-	C	1.847	-	-	Calculated Discharge
May 18, 2021	0.940	-	C	3.519	-	-	Calculated Discharge
May 25, 2021	0.900	-	C	3.227	-	-	Calculated Discharge
June 1, 2021	0.940	-	C	3.519	-	-	Calculated Discharge
June 8, 2021	1.020	-	C	4.140	-	-	Calculated Discharge
June 15, 2021	0.820	-	C	2.681	-	-	Calculated Discharge
June 21, 2021	0.790	-	C	2.490	-	-	Calculated Discharge
June 29, 2021	0.800	-	C	2.553	-	-	Calculated Discharge
July 6, 2021	0.685	-	C	1.875	-	-	Calculated Discharge
July 12, 2021	0.560	-	C	1.255	-	-	Calculated Discharge
July 13, 2021	0.590	1.309	B	1.393	-0.084	-6.4%	KWL annual measurement , 23 panels, max 9%
July 20, 2021	0.440	-	C	0.777	-	-	Calculated Discharge

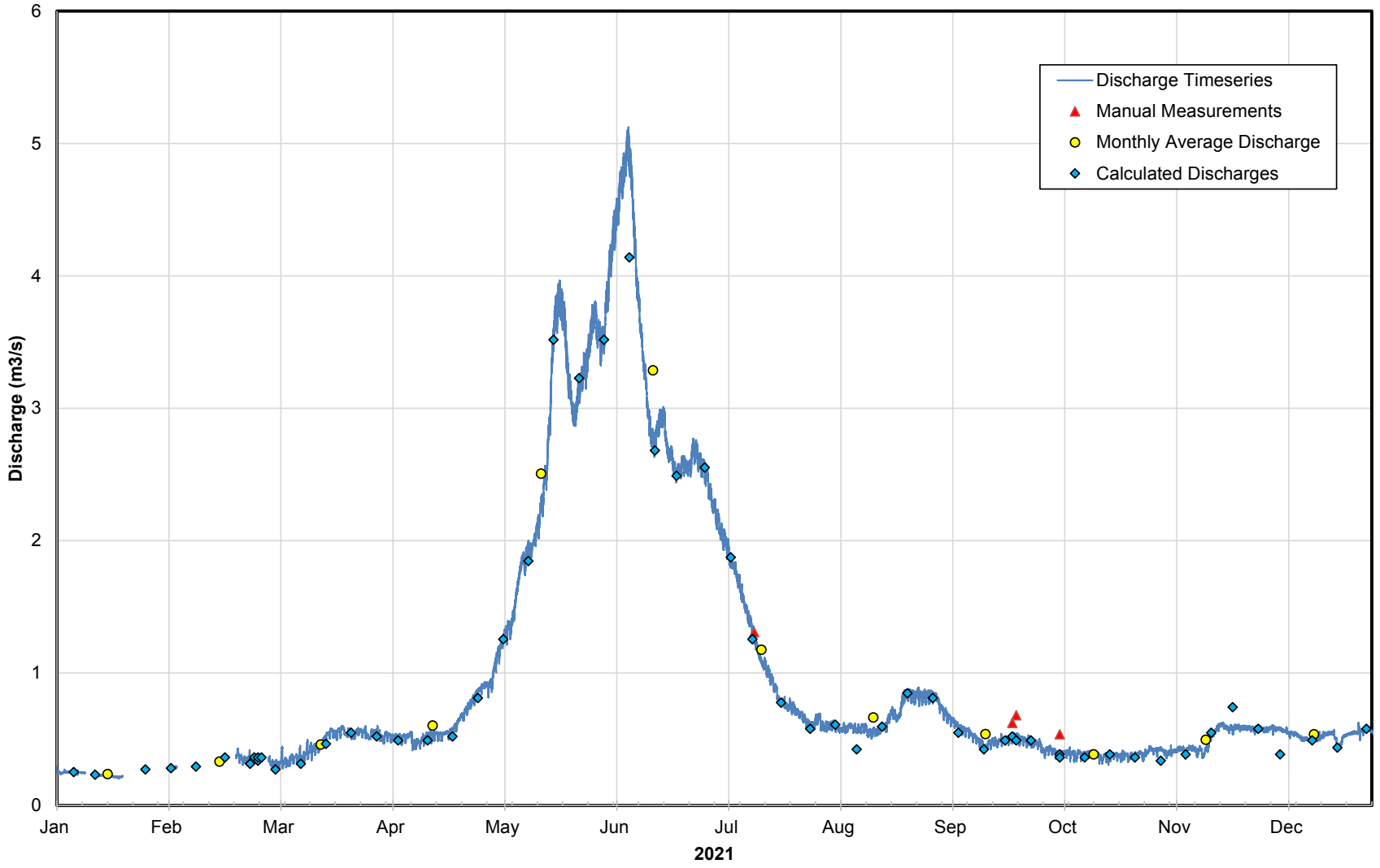
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
July 28, 2021	0.380	-	C	0.580	-	-	Calculated Discharge
August 4, 2021	0.390	-	C	0.611	-	-	Calculated Discharge
August 10, 2021	0.325	-	C	0.425	-	-	Calculated Discharge
August 17, 2021	0.385	-	C	0.596	-	-	Calculated Discharge
August 24, 2021	0.460	-	C	0.849	-	-	Calculated Discharge
August 31, 2021	0.450	-	C	0.812	-	-	Calculated Discharge
September 7, 2021	0.370	-	C	0.550	-	-	Calculated Discharge
September 14, 2021	0.325	-	C	0.425	-	-	Calculated Discharge
September 20, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
September 22, 2021	0.360	0.624	B	0.521	0.103	16.5%	LCO Measurement, 20 Panels, Max 7%, measurement reviewed, no explanation for variance from SDR
September 22, 2021	0.360	-	C	0.521	-	-	Calculated Discharge
September 23, 2021	0.345	0.682	B	0.479	0.203	29.8%	LCO Measurement, 20 Panels, Max 7%, measurement reviewed, no explanation for variance from SDR
September 23, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
September 27, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
October 5, 2021	0.310	-	C	0.387	-	-	Calculated Discharge
October 5, 2021	0.300	0.539	B	0.363	0.176	32.7%	LCO Measurement, 20 Panels, Max 8%, measurement reviewed, no explanation for variance from SDR
October 5, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
October 12, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
October 19, 2021	0.310	-	C	0.387	-	-	Calculated Discharge
October 26, 2021	0.300	-	C	0.363	-	-	Calculated Discharge
November 2, 2021	0.290	-	C	0.339	-	-	Calculated Discharge
November 9, 2021	0.310	-	C	0.387	-	-	Calculated Discharge
November 16, 2021	0.370	-	C	0.550	-	-	Calculated Discharge
November 22, 2021	0.430	-	C	0.742	-	-	Calculated Discharge
November 29, 2021	0.380	-	C	0.580	-	-	Calculated Discharge
December 5, 2021	0.310	-	C	0.387	-	-	Calculated Discharge
December 14, 2021	0.350	-	C	0.493	-	-	Calculated Discharge
December 21, 2021	0.330	-	C	0.438	-	-	Calculated Discharge
December 29, 2021	0.380	-	C	0.580	-	-	Calculated Discharge
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.24	0.33	0.46	0.60	2.51	3.29	1.18	0.67	0.54	0.39	0.50	0.54

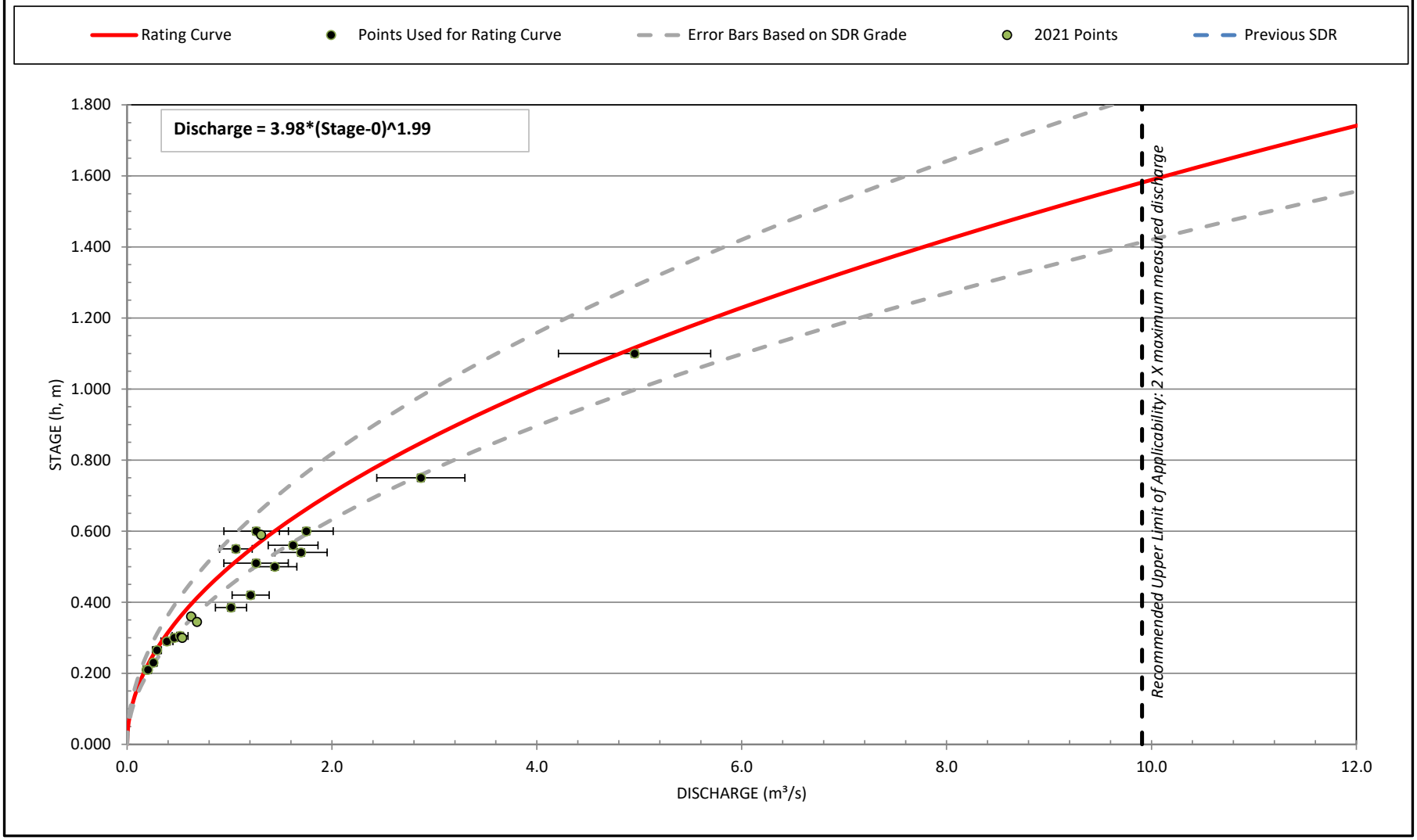
LC_LC3 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2014	**Updated from Previous Year:**	No	**SDR Data Grade:**	C
Reason For Change		**Data Grade Rational:**	Scatter in measurement points warrant grade C data. A new staff vertical gauge was installed in July 2021, it is expeceted that this staff gauge will be more accurate and allow for a mora accurate SDR revision in 2022.		

LC_LC3 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_LC3
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.251 PK	0.275	0.311	0.508	0.951	3.562	2.284 PK	0.596	0.813 PK	0.410	0.413	0.569
2	0.246	0.281	0.292	0.528	1.087	3.719	2.203	0.605	0.754	0.422 PK	0.426	0.577
3	0.254	0.291	0.310	0.516	1.172	3.849	2.106	0.600	0.704	0.416	0.408	0.589
4	0.253	*	0.349	0.518	1.261	3.889	2.026	0.601	0.675	0.393	0.388	0.578
5	0.251	*	0.329	0.512	1.307	3.890	1.960	0.577	0.646	0.385	0.403	0.580
6	0.250	*	0.330	0.502	1.343	3.898	1.837	0.579	0.626	0.397	0.412	0.564
7	0.249	*	0.360	0.514	1.459	3.888	1.800	0.568	0.589	0.395	0.426	0.559
8	0.248	*	0.357	0.534	1.655	4.498 PK	1.711	0.603	0.576	0.386	0.425	0.541
9	*	*	0.374	0.478	1.814	4.520	1.609	0.585	0.565	0.382	0.399	0.541
10	*	*	0.374	0.465	1.849	4.007	1.507	0.572	0.558	0.375	0.429	0.530
11	0.228	*	0.413	0.476	1.934	3.649	1.415	0.577	0.526	0.386	0.431	0.507
12	0.224	*	0.424	0.508	1.955	3.338	1.326	0.594	0.507	0.382	0.401	0.501
13	0.226	*	0.428	0.520	2.044	3.039	1.225	0.553	0.477	0.386	0.422	0.497
14	0.220	*	0.436	0.529	2.169	2.819	1.128	0.547	0.450	0.385	0.390	0.491
15	0.221	*	0.484	0.531	2.333	2.743	1.069	0.558	0.448	0.379	0.441	0.500
16	0.219	*	0.520	0.528	2.552	2.870	1.028	0.552	0.473	0.366	0.534	0.508
17	0.215	*	0.547	0.528	2.982	2.933	0.973	0.581	0.481	0.359	0.552	0.527
18	0.215	*	0.548	0.547	3.536	2.820	0.907	0.593	0.476	0.376	0.591	0.540
19	0.220	0.383	0.544	0.544	3.770	2.651	0.836	0.672	0.497	0.368	0.611 PK	0.545
20	*	0.376 PK	0.565	0.562	3.793 PK	2.614	0.775	0.703	0.500	0.376	0.594	0.536
21	*	0.345	0.564	0.597	3.630	2.519	0.758	0.664	0.502	0.376	0.579	0.460
22	*	0.333	0.551	0.658	3.271	2.540	0.749	0.714	0.507	0.364	0.578	0.474
23	*	0.371	0.545	0.684	3.046	2.580	0.737	0.825	0.521	0.387	0.591	0.525
24	*	*	0.532	0.726	2.958	2.552	0.715	0.837	0.503	0.368	0.586	0.538
25	*	*	0.564	0.762	3.138	2.593	0.689	0.827	0.493	0.376	0.589	0.546
26	*	*	0.554	0.810	3.246	2.689	0.665	0.824	0.481	0.381	0.585	0.550
27	*	*	0.546	0.855	3.309	2.623	0.632	0.838 PK	0.480	0.395	0.579	0.573 PK
28	*	0.356	0.518	0.885	3.510	2.568	0.610	0.823	0.470	0.372	0.572	0.562
29	*		0.561	0.909	3.684	2.518	0.609	0.818	0.468	0.392	0.587	0.573
30	*		0.548 PK	0.903 PK	3.626	2.407	0.651	0.819	0.442	0.423	0.578	0.567
31	0.276		0.522		3.507		0.624	0.827		0.416		0.551
Mean	**0.237**	**0.335**	**0.461**	**0.605**	**2.513**	**3.159**	**1.199**	**0.665**	**0.540**	**0.386**	**0.497**	**0.539**
Maximum	**0.276**	**0.383**	**0.565**	**0.909**	**3.793**	**4.520**	**2.284**	**0.838**	**0.813**	**0.423**	**0.611**	**0.589**
Minimum	**0.215**	**0.275**	**0.292**	**0.465**	**0.951**	**2.407**	**0.609**	**0.547**	**0.442**	**0.359**	**0.388**	**0.460**
Peak 5-Minute	**0.295**	**0.429**	**0.601**	**0.950**	**3.965**	**4.987**	**2.399**	**0.891**	**0.850**	**0.451**	**0.628**	**0.626**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.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Appendix E

LC7

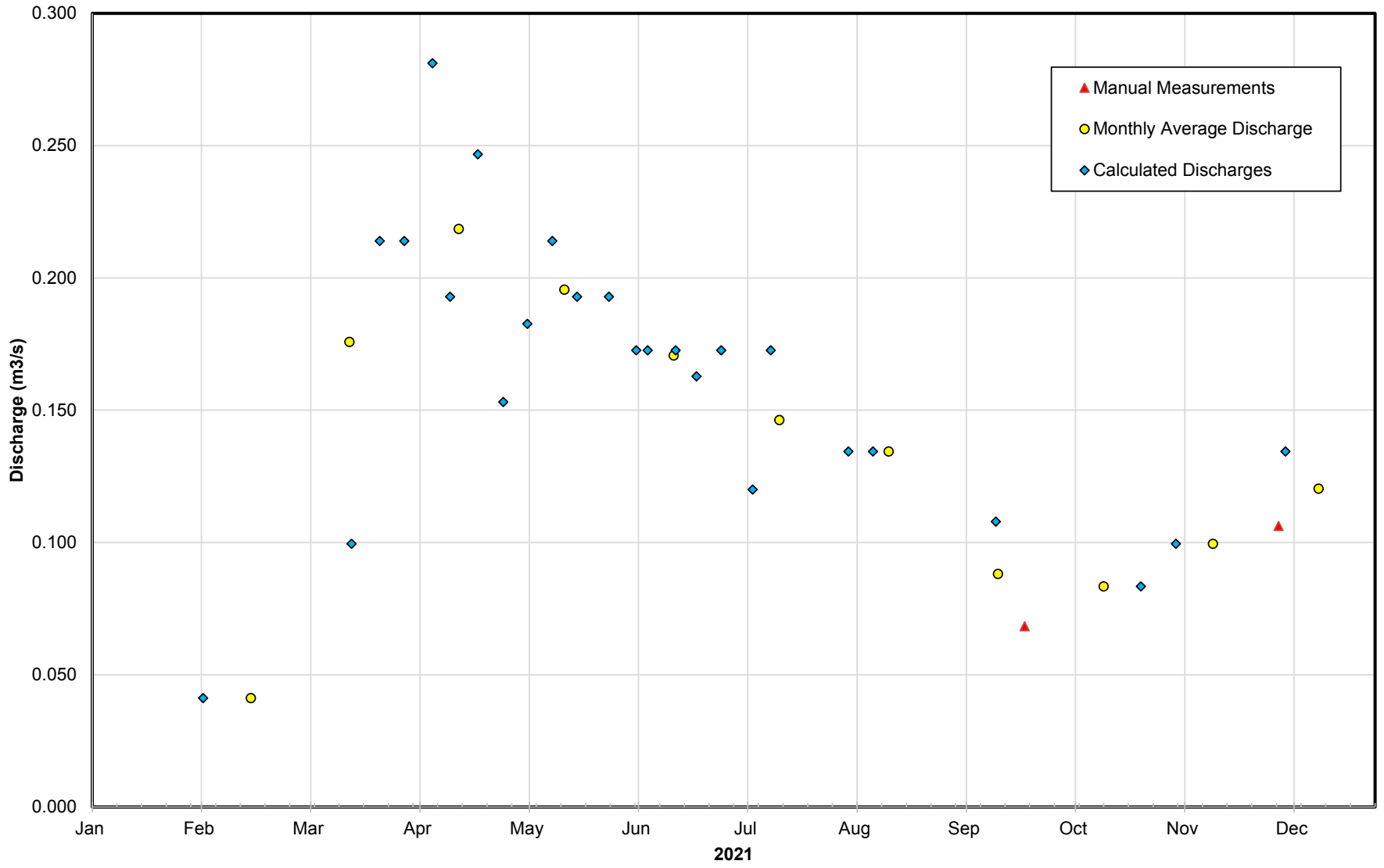
Station Details			
Station Name:	**MSA North Ponds Effluent to Line Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_LC7**	**Station Type:**	Manual Measurements
EMS:	**E216144**	**Teck Mine:**	Line Creek Operation
Station Description:	The LC7 site is the authorized discharge point located downstream of the MSA North Ponds which decant to a collector ditch located immediately upstream of the Line Creek Rock Drain. A concrete weir structure controls the flow and a staff gauge is affixed to the face of the structure. LC7 is a staff gauge site: no continuous water level data are collected at this site.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD data use.		

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
February 1, 2021	0.050	-	E	0.042	-	-	Calculated Discharge
March 15, 2021	0.090	-	E	0.102	-	-	Calculated Discharge
March 23, 2021	0.150	-	E	0.217	-	-	Calculated Discharge
March 30, 2021	0.150	-	E	0.217	-	-	Calculated Discharge
April 7, 2021	0.180	-	E	0.285	-	-	Calculated Discharge
April 12, 2021	0.140	-	E	0.196	-	-	Calculated Discharge
April 20, 2021	0.165	-	E	0.250	-	-	Calculated Discharge
April 27, 2021	0.120	-	E	0.156	-	-	Calculated Discharge
May 4, 2021	0.135	-	E	0.186	-	-	Calculated Discharge
May 11, 2021	0.150	-	E	0.217	-	-	Calculated Discharge
May 18, 2021	0.140	-	E	0.196	-	-	Calculated Discharge
May 27, 2021	0.140	-	E	0.196	-	-	Calculated Discharge
June 4, 2021	0.130	-	E	0.176	-	-	Calculated Discharge
June 7, 2021	0.130	-	E	0.176	-	-	Calculated Discharge
June 15, 2021	0.130	-	E	0.176	-	-	Calculated Discharge
June 21, 2021	0.125	-	E	0.166	-	-	Calculated Discharge
June 28, 2021	0.130	-	E	0.176	-	-	Calculated Discharge
July 7, 2021	0.102	-	E	0.122	-	-	Calculated Discharge
July 12, 2021	0.130	-	E	0.176	-	-	Calculated Discharge
August 3, 2021	0.110	-	E	0.137	-	-	Calculated Discharge
August 10, 2021	0.110	-	E	0.137	-	-	Calculated Discharge
September 14, 2021	0.095	-	E	0.110	-	-	Calculated Discharge
September 22, 2021	0.100	0.068	B	0.117	-0.048	-70.5%	LCO Measurement, 21 Panels, Max 10%, measurement reviewed, no clear reason for deviation from weir equation
October 25, 2021	0.080	-	E	0.110	-	-	Calculated Discharge
November 4, 2021	0.090	-	E	0.110	-	-	Calculated Discharge
December 3, 2021	0.110	0.106	B	0.134	-0.028	-26.5%	LCO Measurement, 22 Panels, Max 10%, measurement reviewed, no clear reason for deviation from weir equation
December 5, 2021	0.110	-	E	0.110	-	-	Calculated Discharge
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

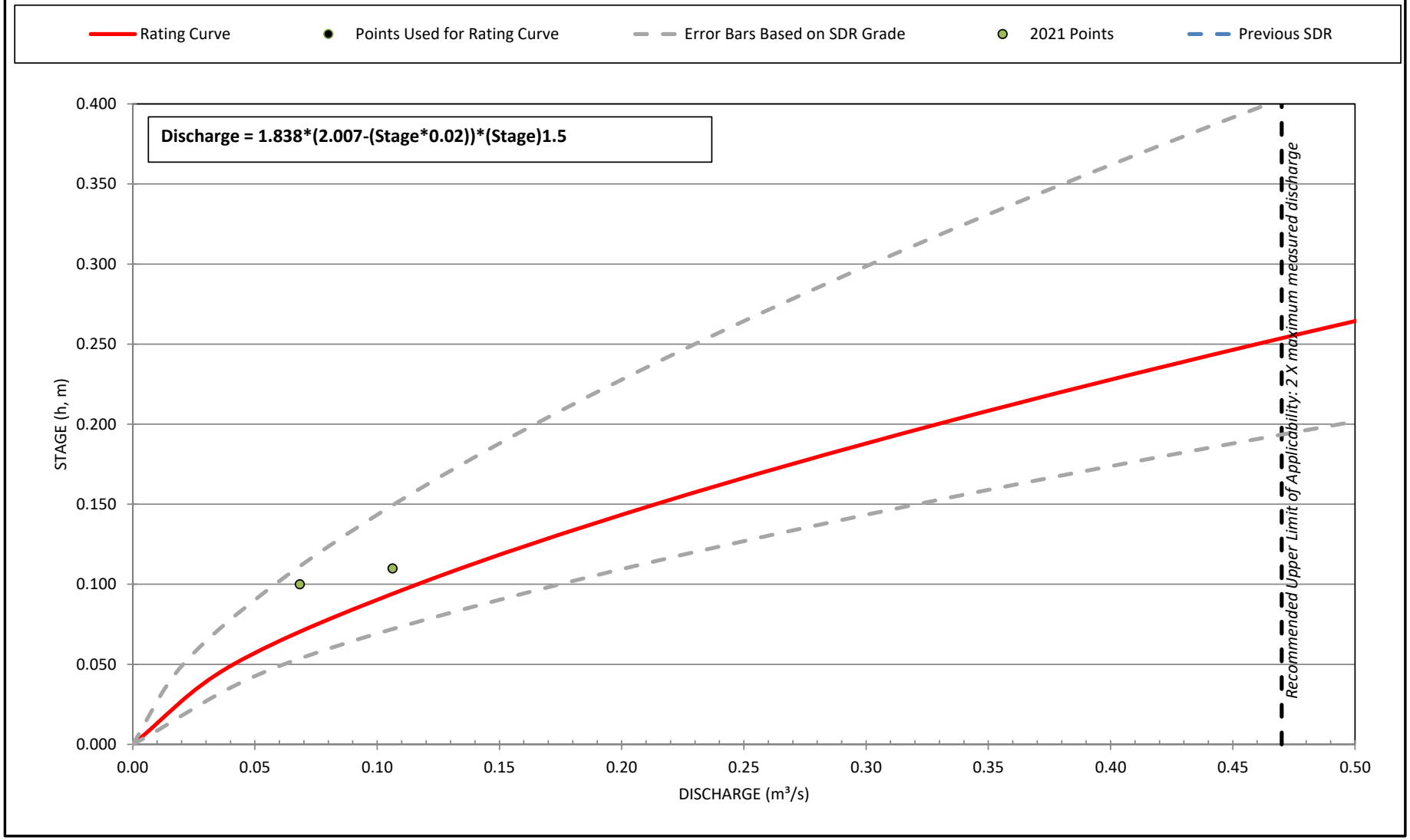
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
#N/A	0.04	0.18	0.22	0.20	0.17	0.15	0.13	0.09	0.08	0.10	0.12

LC_LC7 2021 - Yearly Hydrograph



Stage Discharge Relationship					
Year SDR Created:	2014	**Updated from Previous Year:**	No	**SDR Data Grade:**	E
Reason For Change		**Data Grade Rational:**	Rated structure (rectangular sharp crested weir) and equation, there is significant measurement scatter.		

LC_LC7 2021 SDR
(Estimated by the Method of Maximum Liklihood)



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Appendix F

LC9

Station Details			
Station Name:	**No Name Creek Pond Effluent to Line Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_LC9**	**Station Type:**	Manual Measurements
EMS:	**E221268**	**Teck Mine:**	Line Creek Operation
Station Description:	The LC9 is the authorized discharge point located at the spillway from the No Name Creek diversion and sediment pond to the Line Creek rock drain, upstream of the rock drain. A broad concrete weir structure regulates flow from the pond system. The staff gauge is located approximately 5 m downstream of the structure in a decant channel. LC9 is a staff gauge site: no continuous water level data are collected at this site.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD data use.		

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 31, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
February 28, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
March 31, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
July 1, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
August 1, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
September 1, 2021	-	0.000	B	-	-	-	No flow in channel verified by visit
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
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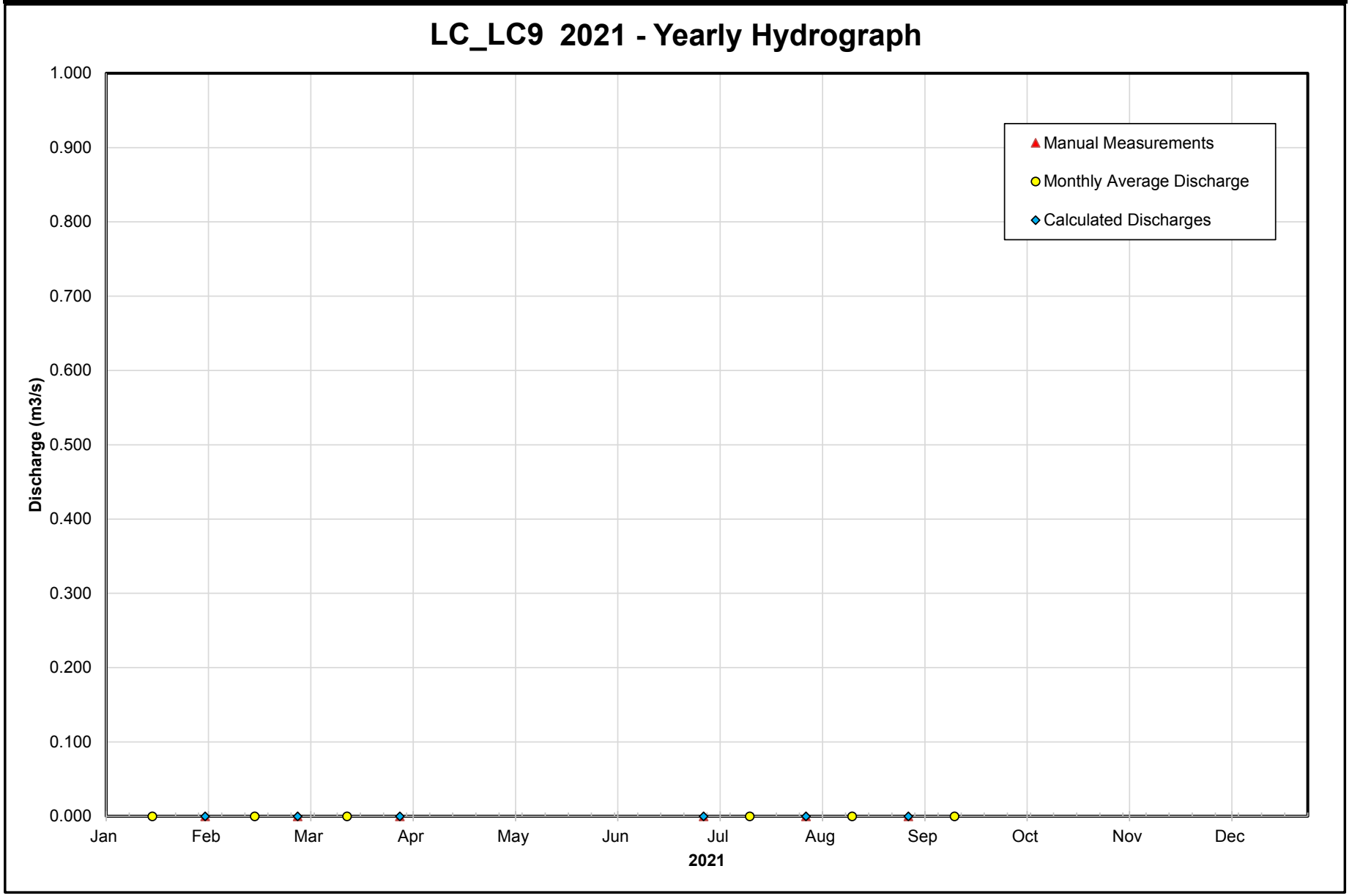
	-	-		-	-	-	
	-	-		-	-	-	

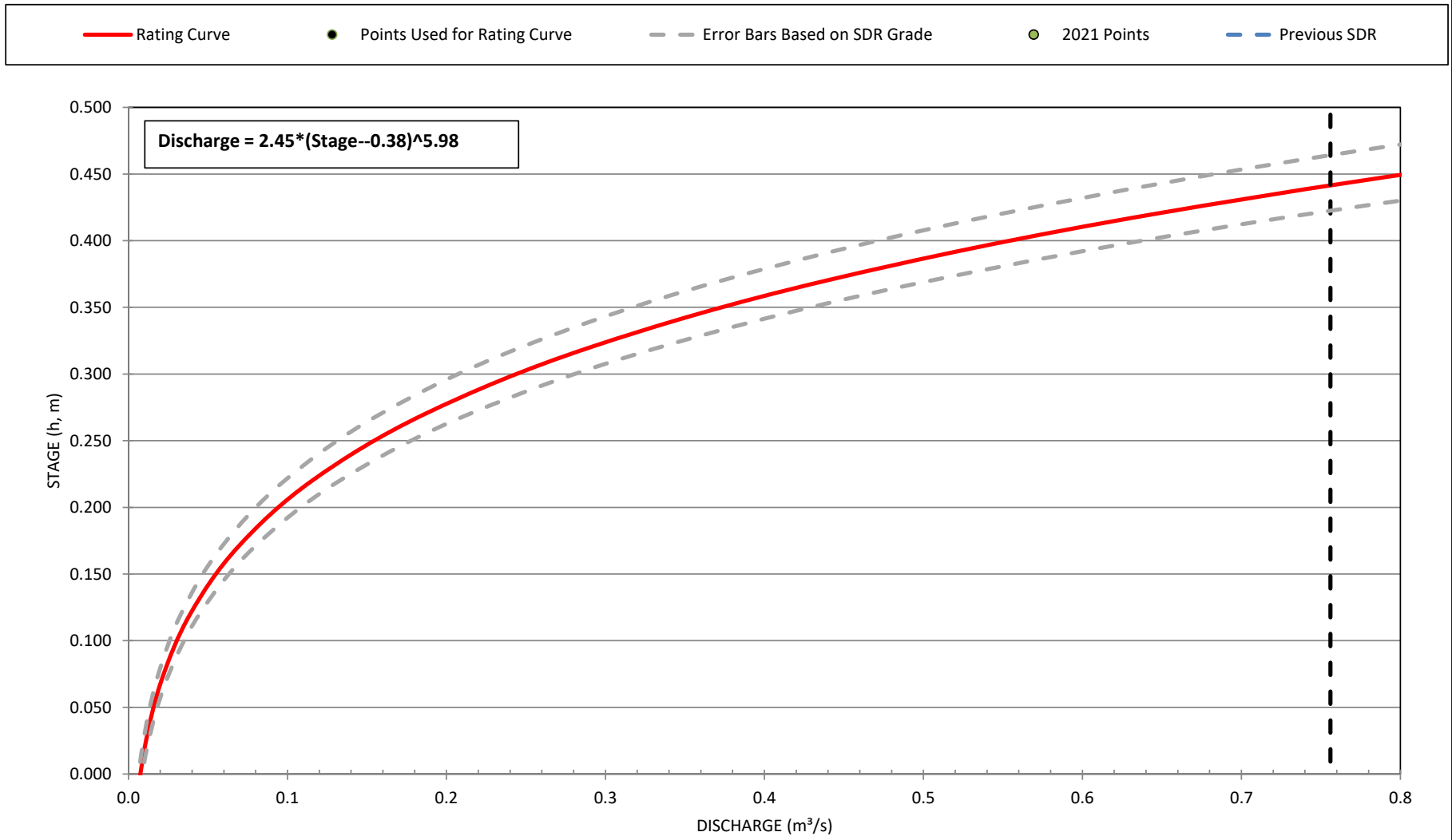
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.00	0.00	0.00	#N/A	#N/A	#N/A	0.00	0.00	0.00	#N/A	#N/A	#N/A



Stage Discharge Relationship					
Year SDR Created:	2018	**Updated from Previous Year:**	No	**SDR Data Grade:**	B
Reason For Change		**Data Grade Rational:**	The Station SDR is stable, no 2021 flows to validate		

LC_LC9 2021 SDR
(Estimated by the Method of Maximum Liklihood)



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Appendix G

LCDSSLCC

Station Details			
Station Name:	**Line Creek Immediately Downstream of South Line Creek confluence**	**Reporting Year:**	**2021**
Site ID:	**LC_LCDSSLC**	**Station Type:**	Year-Round Continuous Data
EMS:	**E297110**	**Teck Mine:**	Line Creek Operation

Station Description:	This station is located on Line Creek located immediately downstream of the South Line Creek Confluence. A permanent bubbler water level sensor and datalogger are present at the site.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD and RWQM data uses.

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - February 12, 2021	E	Station operating as expected, potential ice in channel
February 2 - 16, 2021	M	Pressure leak at sensor, data removed
February 16 - March 31, 2021	E	Station operating as expected, potential ice in channel
April 1 - October 31, 2021	E	Station operating as expected, new SDR warrants Grade E data
November 1 - December 24, 2021	E	Station operating as expected, potential ice in channel
December 24 - 31, 2021	M	Pressure leak at sensor, data removed

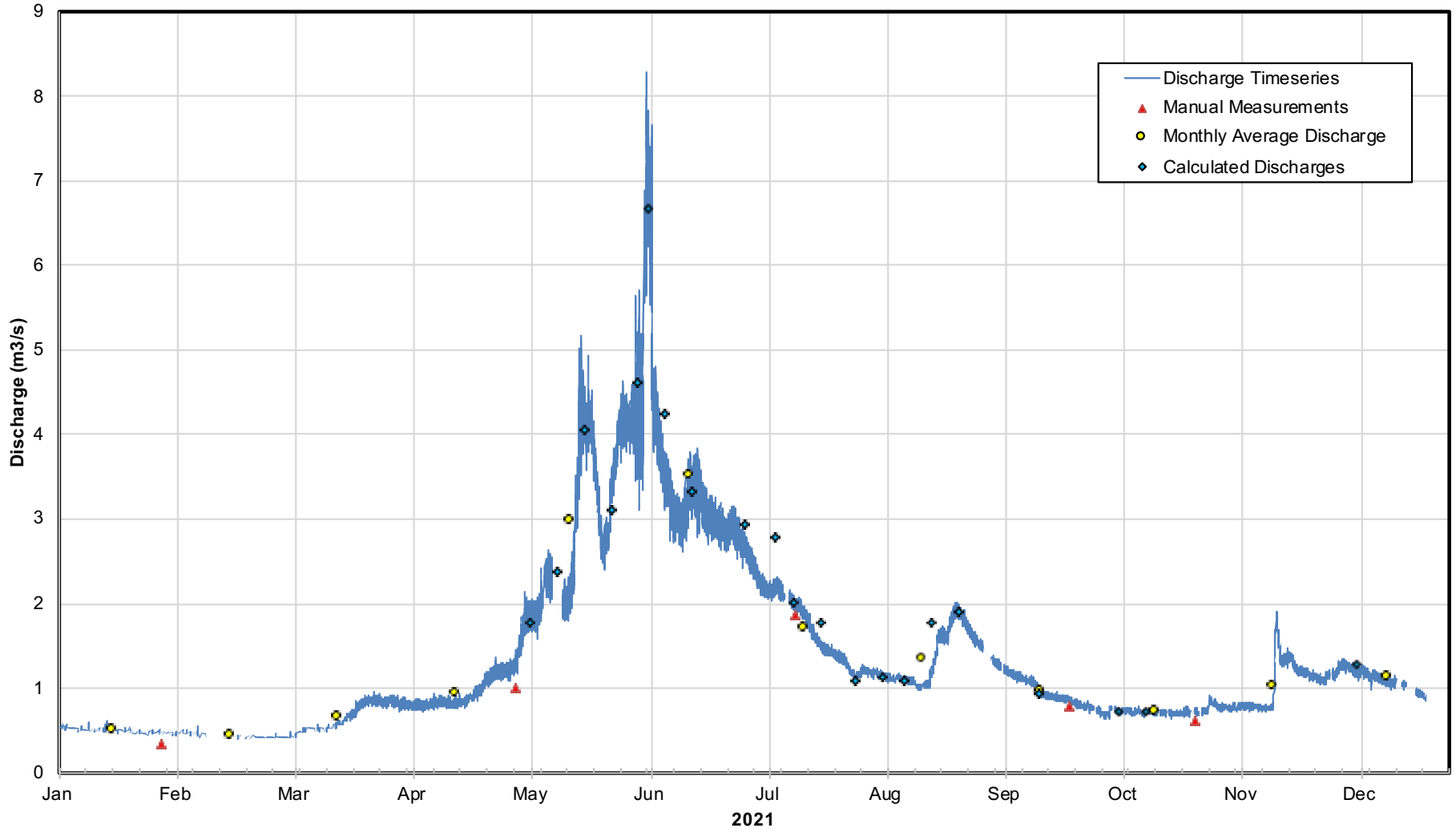
* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 27, 2021	-	0.337	B	-	-	-	LCO Measurement 24 Panels, Max 10%
April 30, 2021	-	0.997	B	-	-	-	LCO Measurement 21 Panels, Max 10%
May 4, 2021	0.370	-	E	1.784	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
May 11, 2021	0.420	-	E	2.387	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
May 18, 2021	0.530	-	E	4.061	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
May 25, 2021	0.471	-	E	3.103	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
June 1, 2021	0.560	-	E	4.602	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
June 4, 2021	0.660	-	E	6.679	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
June 8, 2021	0.540	-	E	4.237	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
June 15, 2021	0.485	-	E	3.317	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
June 29, 2021	0.460	-	E	2.940	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge
July 7, 2021	0.450	-	E	2.796	-	-	Calculated Discharge, Staff gauge reading converted to new staff gauge, staff gauge reviewed, potentially a misread as does not agree with sensor offset trend
July 12, 2021	0.390	-	E	2.014	-	-	Calculated Discharge, new staff gauge
July 13, 2021	0.395	1.855	B	2.073	-0.218	-11.8%	KWL annual measurement. 23 panels, 10%
July 19, 2021	0.370	-	E	1.784	-	-	Calculated Discharge, new staff gauge
July 28, 2021	0.300	-	E	1.098	-	-	Calculated Discharge, new staff gauge
August 4, 2021	0.305	-	E	1.141	-	-	Calculated Discharge, new staff gauge, staff gauge reviewed, potentially a misread as does not agree with sensor offset trend
August 10, 2021	0.300	-	E	1.098	-	-	Calculated Discharge, new staff gauge
August 17, 2021	0.370	-	E	1.784	-	-	Calculated Discharge, new staff gauge
August 24, 2021	0.380	-	E	1.897	-	-	Calculated Discharge, new staff gauge
September 14, 2021	0.280	-	E	0.935	-	-	Calculated Discharge, new staff gauge
September 22, 2021	0.270	0.788	B	0.858	-0.070	-8.9%	LCO Measurement 21 Panels, Max 10%
October 5, 2021	0.250	-	E	0.716	-	-	Calculated Discharge, new staff gauge
October 12, 2021	0.250	-	E	0.716	-	-	Calculated Discharge, new staff gauge
October 25, 2021	0.220	0.623	B	0.530	0.093	14.9%	LCO Measurement 21 Panels, Max 9%
December 6, 2021	0.320	-	E	1.275	-	-	Calculated Discharge, new staff gauge

* Grades A, B, C, E and U based on the BC RISC Standards Document.

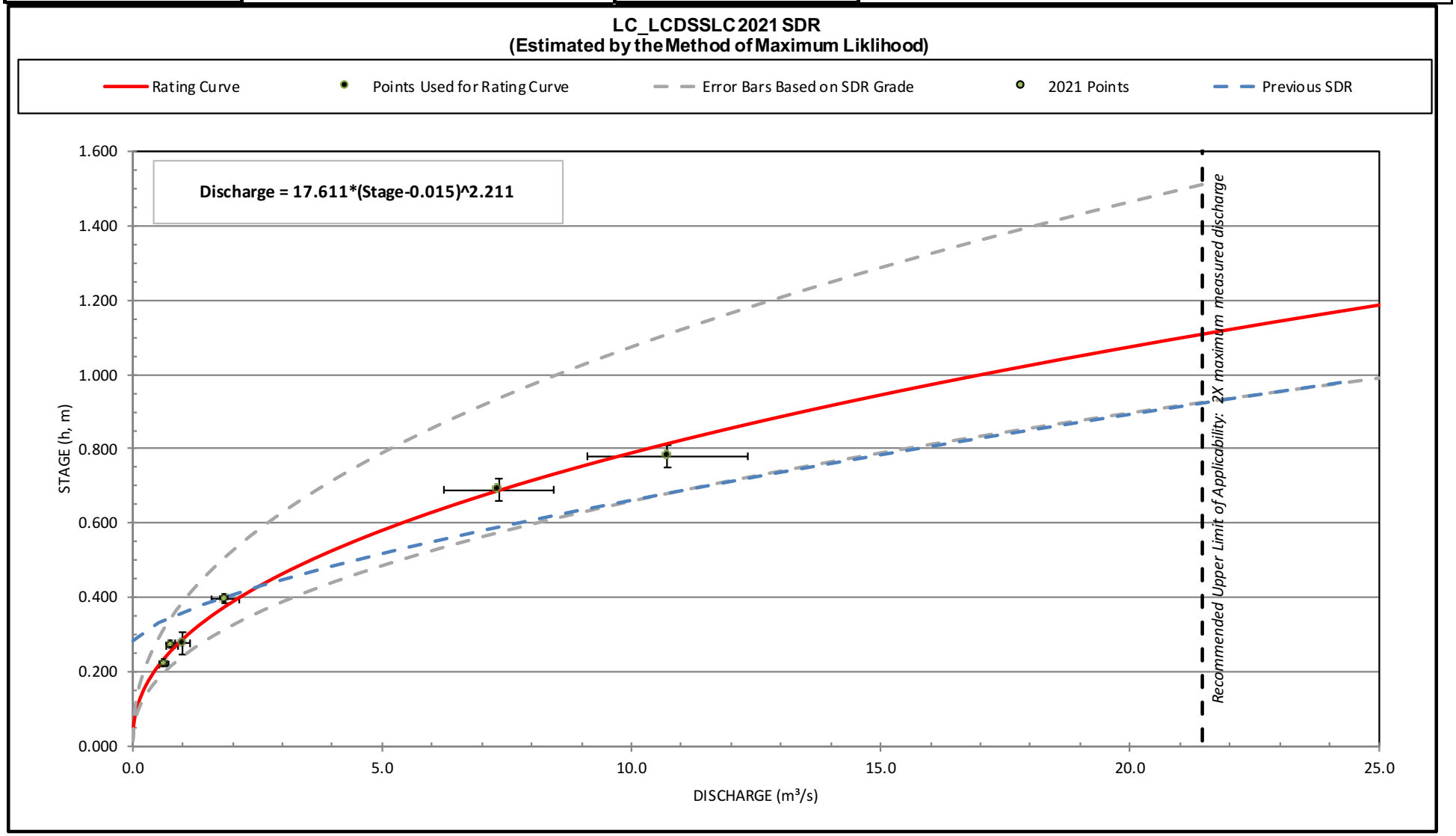
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.50	0.45	0.65	0.94	2.97	3.52	1.72	1.35	0.97	0.72	1.02	1.14

LC_LCDSSLC 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	E
Reason For Change	Clear change in trend	**Data Grade Rational:**	Limited number of 2021 points available to construct new SDR		



LC_LCDSSLC

Summary Report
Year: 2021
Measurement: Preliminary Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.542	0.477	0.429	0.800	1.477	4.679	2.469 PK	1.190	*	0.672	0.771	1.187
2	0.526	0.483	0.441	0.800	1.726	4.358	2.363	1.184	1.321 PK	0.684	0.772	1.265
3	0.534	0.478	0.446	0.790	1.834	6.521 PK	2.275	1.175	1.293	0.740	0.764	1.280 PK
4	0.527	0.473	0.463	0.795	1.844	6.850	2.212	1.163	1.264	0.742	0.774	1.256
5	0.528	0.473	0.489	0.803	1.843	4.996	2.165	1.140	1.215	0.722	0.760	1.234
6	0.522	0.471 PK	0.517	0.777	1.894	4.181	2.148	1.132	1.196	0.727	0.781	1.200
7	0.516	0.457	0.528	0.800	2.081	3.816	2.201	1.120	1.176	0.732	0.781	1.186
8	0.523	0.463	0.529	0.820	2.320	3.536	2.179	1.135	1.140	0.726	0.775	1.209
9	0.520	*	0.526	0.823	2.311	3.401	2.127	1.125	1.122	0.721	0.776	1.173
10	0.497	*	0.529	0.831	2.296	3.166	*	1.113	1.104	0.725	0.769	1.131
11	0.507	*	0.527	0.830	*	3.059	2.058	1.094	1.092	0.705	0.766	1.153
12	0.511	*	0.534	0.824	1.969	2.971	1.993	1.092	1.082	0.698	0.765	1.130
13	0.549 PK	*	0.544	0.818	1.969	3.026	1.988	1.042	1.060	0.706	0.760	1.111
14	0.506	*	0.567	0.816	2.072	3.211	1.943	1.015	0.976	0.710	0.777	1.093
15	0.502	*	0.593	0.830	2.370	3.370	1.853	1.042	0.925	0.708	1.450 PK	1.072
16	0.501	0.437	0.617	0.834	3.115	3.409	1.761	1.044	0.907	0.703	1.513	1.055
17	0.505	0.433	0.654	0.846	4.124 PK	3.386	1.653	1.190	0.897	0.708	1.335	1.054
18	0.500	0.424	0.681	0.884	4.300	3.227	1.586	1.390	0.894	0.704	1.358	1.042
19	0.514	0.429	0.720	0.910	4.198	3.031	1.514	1.617	0.885	0.702	1.356	1.038
20	0.486	0.431	0.789	0.948	4.081	3.016	1.475	1.621	0.877	0.703	1.267	*
21	0.482	0.433	0.820	0.990	3.548	3.002	1.450	1.614	0.868	0.699	1.206	*
22	0.475	0.432	0.845	1.075	3.012	2.962	1.420	1.789	0.858	0.705	1.196	0.962
23	0.470	0.430	0.845	1.112	2.664	2.924	1.387	1.909 PK	0.835	0.721	1.178	0.933
24	0.479	0.424	0.861 PK	1.161	2.788	2.846	1.362	1.911	0.809	0.703	1.149	0.913
25	0.486	0.427	0.853	1.201	3.252	2.864	1.339	1.834	0.795	0.721	1.143	*
26	0.480	0.428	0.840	1.184	3.606	2.924	1.265	1.770	0.780	0.715	1.116	*
27	0.483	0.429	0.832	1.212	4.023	2.860	1.186	1.682	0.775	0.725	1.083	*
28	0.478	0.425	0.844	1.202	4.195	2.750	1.162	1.594	0.756	0.723	1.093	*
29	0.479		0.830	1.236	4.177	2.689	1.164	1.533	0.740	0.845 PK	1.146	*
30	0.477		0.820	1.297 PK	4.134	2.591	1.217	1.498	0.722	0.826	1.166	*
31	0.475		0.802		4.249		1.206	*		0.775		*
Mean	**0.503**	**0.446**	**0.655**	**0.942**	**2.916**	**3.521**	**1.737**	**1.359**	**0.978**	**0.722**	**1.018**	**1.122**
Maximum	**0.549**	**0.483**	**0.861**	**1.297**	**4.300**	**6.850**	**2.469**	**1.911**	**1.321**	**0.845**	**1.513**	**1.280**
Minimum	**0.470**	**0.424**	**0.429**	**0.777**	**1.477**	**2.591**	**1.162**	**1.015**	**0.722**	**0.672**	**0.760**	**0.913**
Peak 5-Minute	**0.626**	**0.548**	**0.959**	**1.459**	**5.164**	**8.287**	**2.665**	**2.023**	**1.388**	**0.917**	**1.917**	**1.348**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.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Appendix H

SLC

Station Details			
Station Name:	**South Line Creek West Side of Main Rock Drain**	**Reporting Year:**	**2021**
Site ID:	**LC_SLC**	**Station Type:**	Manual Measurements
EMS:	**E282149**	**Teck Mine:**	Line Creek Operation
Station Description:	The South Line Creek site is located about 500 m upstream of the confluence with Line Creek near the old South Line Creek settling ponds. In 2018 a new staff gauge was installed approximately 400 m downstream of the old gauge. Manual measurements and staff gauge readings have been obtained at the new location to develop a new SDR.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by MAD and AWTF Design data uses.		

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
April 29, 2021	-	0.279	B	-	-	-	LCO Measurement, 22 Panels, Max9%
May 18, 2021	1.000	-	C	3.881	-	-	Calculated Discharge, old staff gauge
May 25, 2021	0.953	-	C	3.209	-	-	Calculated Discharge, old staff gauge
June 1, 2021	1.030	-	C	4.351	-	-	Calculated Discharge, old staff gauge
June 8, 2021	0.890	-	C	2.424	-	-	Calculated Discharge, old staff gauge
June 15, 2021	0.930	-	C	2.907	-	-	Calculated Discharge, old staff gauge
July 6, 2021	0.770	-	C	1.276	-	-	Calculated Discharge, old staff gauge
July 12, 2021	0.178	0.493	B	0.402	0.091	18.4%	KWL Measurement, 21 Panels, Max9%
August 17, 2021	0.160	-	E	0.335	-	-	Calculated Discharge, new staff gauge
August 24, 2021	0.188	-	E	0.440	-	-	Calculated Discharge, new staff gauge
August 31, 2021	0.140	-	E	0.269	-	-	Calculated Discharge, new staff gauge
September 7, 2021	0.120	-	E	0.212	-	-	Calculated Discharge, new staff gauge
September 22, 2021	0.143	0.234	B	0.279	-0.044	-18.9%	LCO Measurement, 21 Panels, Max 10%
October 12, 2021	0.085	-	E	0.130	-	-	Calculated Discharge, new staff gauge
October 19, 2021	0.080	-	E	0.120	-	-	Calculated Discharge, new staff gauge
October 26, 2021	0.090	-	E	0.140	-	-	Calculated Discharge, new staff gauge
November 2, 2021	0.090	-	E	0.140	-	-	Calculated Discharge, new staff gauge
November 4, 2021	-	0.166	B	-	-	-	LCO Measurement, 22 Panels, Max9%
November 9, 2021	0.080	-	E	0.120	-	-	Calculated Discharge, new staff gauge
December 6, 2021	0.140	-	E	0.269	-	-	Calculated Discharge, new staff gauge
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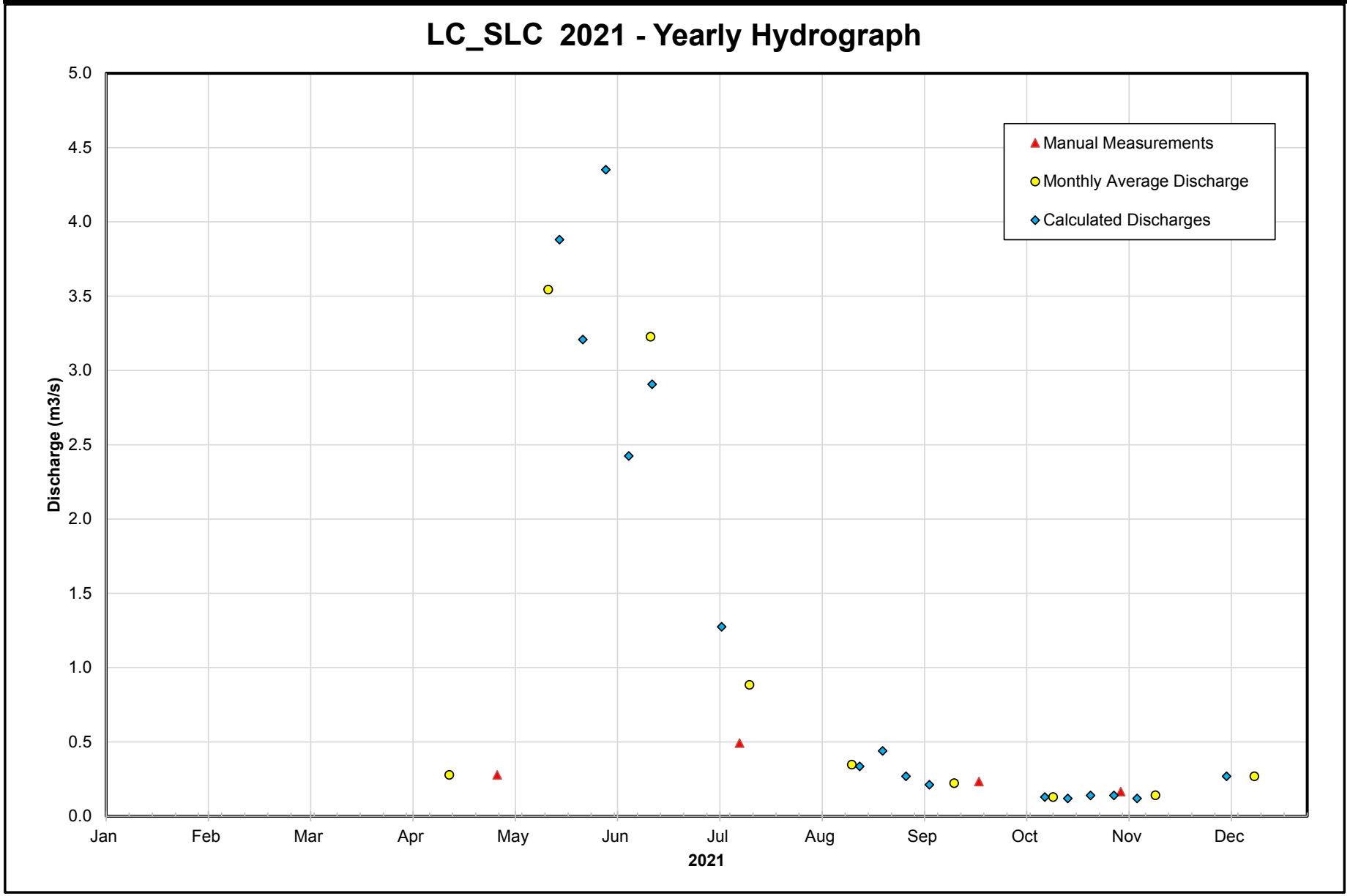
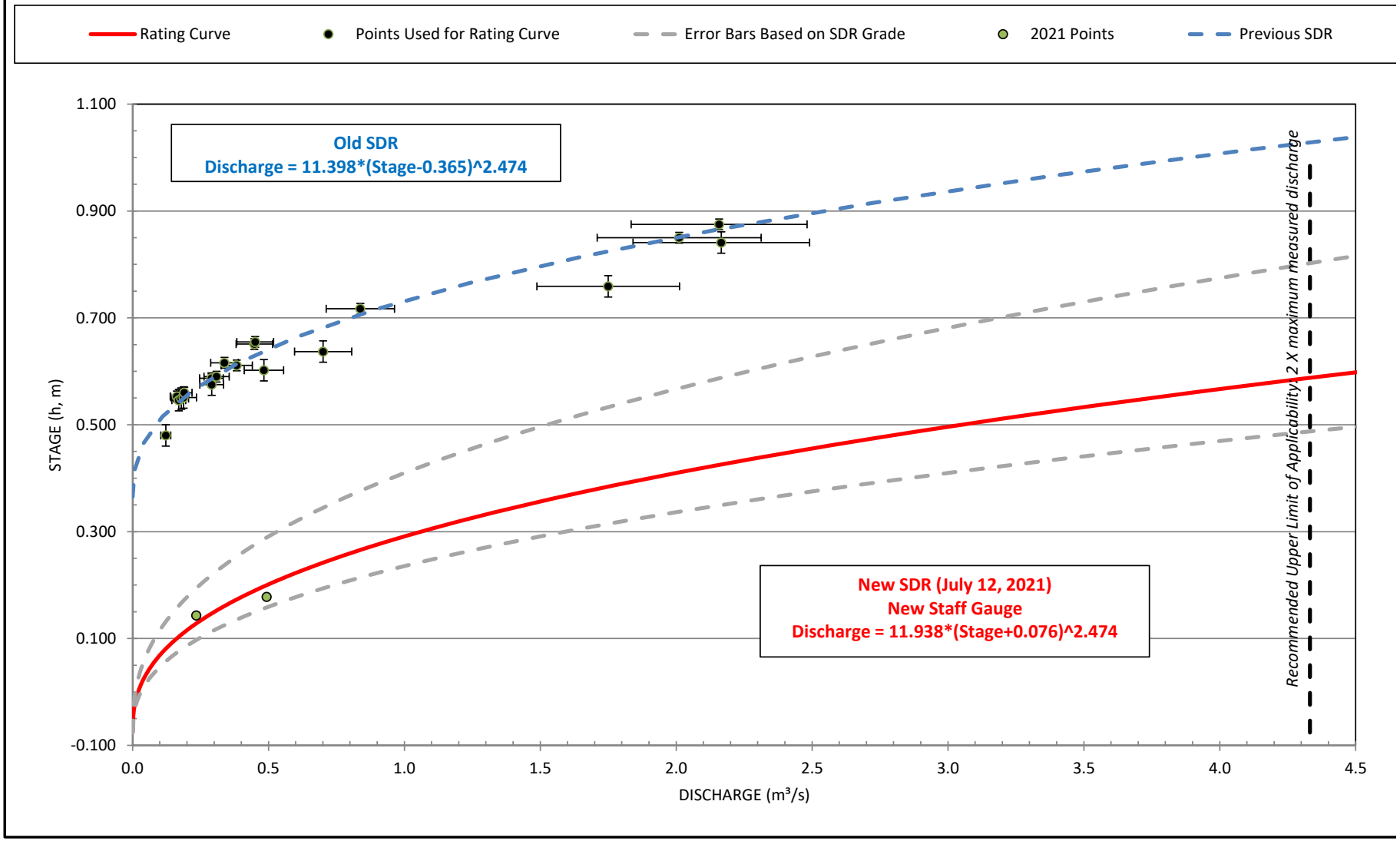
* Grades A, B, C, E and U based on the BC RISC Standards Document.							

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
#N/A	#N/A	#N/A	0.28	3.55	3.23	0.88	0.35	0.22	0.13	0.14	0.27



Stage Discharge Relationship					
Year SDR Created:	N/A	**Updated from Previous Year:**	No	**SDR Data Grade:**	E
Reason For Change		**Data Grade Rational:**	Only two measurement points with associated staff gauge readings, shift applied but data lack of points warrants Grade E. Assume shift occurred during freshet		

LC_SLC 2021 SDR
(Estimated by the Method of Maximum Liklihood)



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Appendix I

WLC

Station Details			
Station Name:	**West Line Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_WLC**	**Station Type:**	Year-Round Continuous Data
EMS:	**E261958**	**Teck Mine:**	Line Creek Operation
Station Description:	The West Line Creek (WLC) hydrometric station is located at a concrete structure downstream of the West Line Creek rock drain, and immediately upstream of the active wastewater treatment (AWTF) intake. Flow at WLC passes through a rated 120° V-notch weir.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	The site should achieve Grade B data to be consistent with the MAD data use (don't require Grade A data for AWTF operations because this is to understand how much flow may be bypassing treatment, not for the operation of the AWTF)		

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - August 10, 2021	B	Station Operating as expected
August 10 - October 11, 2021	M	Missing data, Logger failure
October 12 - December 31, 2021	B	Station Operating as expected

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 5, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
January 11, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
January 25, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 1, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 8, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 16, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 24, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 25, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
February 26, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
March 10, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
March 15, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
March 22, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
March 29, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
April 6, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
April 12, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
April 20, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
April 27, 2021	0.580	-	B	0.029	-	-	Calculated Discharge
May 4, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
May 11, 2021	0.620	-	B	0.049	-	-	Calculated Discharge
May 17, 2021	0.670	-	B	0.084	-	-	Calculated Discharge
May 26, 2021	0.700	-	B	0.110	-	-	Calculated Discharge
June 4, 2021	0.800	-	B	0.230	-	-	Calculated Discharge
June 10, 2021	0.750	-	B	0.163	-	-	Calculated Discharge
June 14, 2021	0.740	-	B	0.152	-	-	Calculated Discharge
June 21, 2021	0.705	-	B	0.115	-	-	Calculated Discharge
June 28, 2021	0.690	-	B	0.101	-	-	Calculated Discharge
July 6, 2021	0.675	-	B	0.088	-	-	Calculated Discharge
July 12, 2021	0.672	0.075	E	0.086	-0.011	-14.1%	KWL Measurement, 13 Panels, max flow 35%, low quality discharge measurement due to channel conditions
July 20, 2021	0.652	-	B	0.070	-	-	Calculated Discharge
July 28, 2021	0.630	-	B	0.055	-	-	Calculated Discharge
August 4, 2021	0.639	-	B	0.061	-	-	Calculated Discharge
August 10, 2021	0.639	-	B	0.061	-	-	Calculated Discharge
August 16, 2021	0.625	-	B	0.052	-	-	Calculated Discharge

* Grades A, B, C, E and U based on the BC RISC Standards Document.

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
August 24, 2021	0.635	-	B	0.059	-	-	Calculated Discharge
August 30, 2021	0.625	-	B	0.052	-	-	Calculated Discharge
September 9, 2021	0.625	-	B	0.052	-	-	Calculated Discharge
September 14, 2021	0.620	-	B	0.049	-	-	Calculated Discharge
September 20, 2021	0.615	-	B	0.047	-	-	Calculated Discharge
September 27, 2021	0.625	-	B	0.052	-	-	Calculated Discharge
October 5, 2021	0.610	-	B	0.044	-	-	Calculated Discharge
October 14, 2021	0.605	-	B	0.041	-	-	Calculated Discharge
October 18, 2021	0.605	-	B	0.041	-	-	Calculated Discharge
October 25, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
November 1, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
November 8, 2021	0.610	-	B	0.044	-	-	Calculated Discharge
November 16, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
November 22, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
November 29, 2021	0.610	-	B	0.044	-	-	Calculated Discharge
December 5, 2021	0.610	-	B	0.044	-	-	Calculated Discharge
December 14, 2021	0.590	-	B	0.034	-	-	Calculated Discharge
December 21, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
December 29, 2021	0.600	-	B	0.039	-	-	Calculated Discharge
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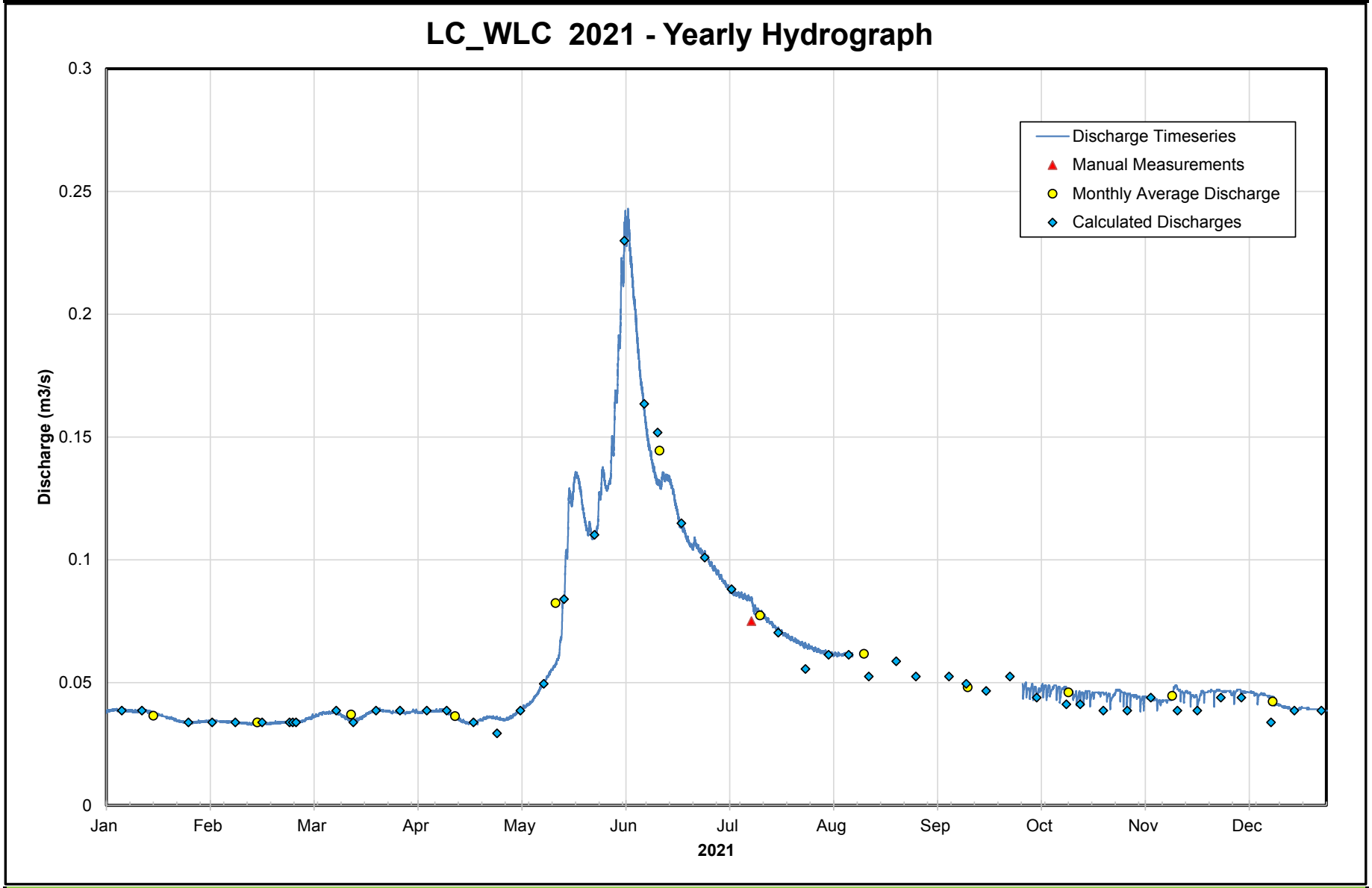
* Grades A, B, C, E and U based on the BC RISC Standards Document.							

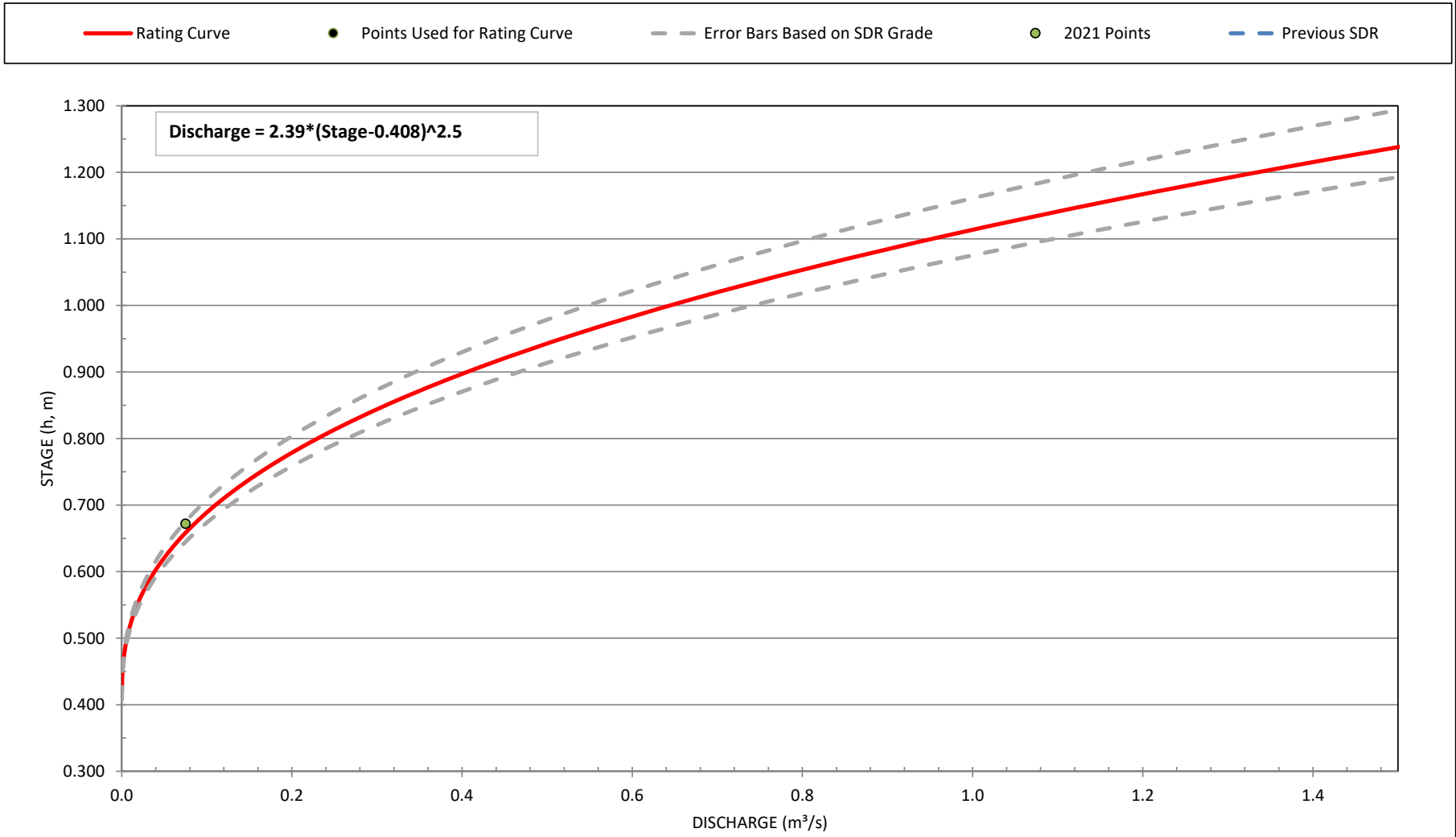
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September*	October	November	December
0.04	0.03	0.04	0.04	0.08	0.14	0.08	0.06	0.05	0.05	0.04	0.04



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2012	**Updated from Previous Year:**	No	**SDR Data Grade:**	B
Reason For Change		**Data Grade Rational:**	Engineered structure, 120° degree V-Notch Weir		

LC_WLC 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_WLC
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.038	0.034	0.035	0.038	0.036	0.154	0.096 PK	0.063 PK	*	0.047	0.044	0.047
2	0.039	0.034 PK	0.035	0.038 PK	0.037	0.175	0.094	0.063	*	0.048 PK	0.044	0.046
3	0.039	0.034	0.036	0.038	0.038	0.205	0.092	0.062	*	0.047	0.045	0.045
4	0.039 PK	0.034	0.036	0.038	0.039	0.227	0.091	0.062	*	0.047	0.044	0.047 PK
5	0.039	0.034	0.037	0.038	0.040	0.235 PK	0.089	0.061	*	0.046	0.043	0.047
6	0.039	0.034	0.038	0.038	0.041	0.223	0.087	0.061	*	0.047	0.043	0.046
7	0.039	0.034	0.038	0.038	0.042	0.205	0.086	0.061	*	0.047	0.044	0.046
8	0.038	0.034	0.038	0.038	0.043	0.188	0.086	0.061	*	0.047	0.043	0.046
9	0.038	0.034	0.038	0.038	0.045	0.173	0.085	0.061	*	0.047	0.043	0.045
10	0.038	0.034	0.038	0.039	0.048	0.161	0.085	0.061	*	0.048	0.042	0.044
11	0.039	0.034	0.037	0.039	0.050	0.150	0.084	0.061	*	0.047	0.042	0.045
12	0.039	0.033	0.036	0.038	0.052	0.143	0.083	*	*	0.046	0.043	0.045
13	0.038	0.033	0.036	0.037	0.054	0.136	0.080	*	*	0.048	0.043	0.045
14	0.038	0.033	0.035	0.037	0.056	0.132	0.079	*	*	0.047	0.043	0.044
15	0.037	0.033	0.034	0.036	0.059	0.131	0.078	*	*	0.046	0.047 PK	0.042
16	0.037	0.033	0.035	0.035	0.066	0.134	0.076	*	*	0.045	0.048	0.041
17	0.036	0.033	0.035	0.034	0.085	0.134	0.075	*	*	0.044	0.046	0.040
18	0.036	0.033	0.036	0.034	0.107	0.131	0.074	*	*	0.045	0.045	0.040
19	0.036	0.033	0.037	0.033	0.125	0.125	0.072	*	*	0.045	0.046	0.040
20	0.036	0.034	0.038	0.033	0.130	0.119	0.071	*	*	0.046	0.045	0.039
21	0.035	0.034	0.038	0.034	0.134	0.114	0.070	*	*	0.045	0.045	0.039
22	0.034	0.034	0.039 PK	0.035	0.128	0.111	0.069	*	*	0.045	0.043	0.039
23	0.034	0.034	0.039	0.035	0.118	0.108	0.069	*	*	0.046	0.045	0.040
24	0.034	0.034	0.038	0.036	0.112	0.106	0.068	*	*	0.046	0.045	0.040
25	0.034	0.034	0.038	0.036	0.112	0.107	0.067	*	*	0.046	0.046	0.039
26	0.034	0.034	0.038	0.036	0.110	0.105	0.066	*	*	0.045	0.047	0.039
27	0.034	0.034	0.038	0.036	0.115	0.103	0.066	*	*	0.044	0.046	0.039
28	0.034	0.034	0.038	0.035	0.129	0.102	0.065	*	*	0.045	0.047	0.039
29	0.034		0.038	0.035	0.134	0.100	0.065	*	*	0.047	0.047	0.039
30	0.034		0.038	0.035	0.130	0.098	0.064	*	*	0.046	0.046	0.039
31	0.034		0.038		0.138 PK		0.063	*		0.045		0.038
Mean	**0.036**	**0.034**	**0.037**	**0.036**	**0.082**	**0.144**	**0.077**	**0.062**	**---**	**0.046**	**0.045**	**0.042**
Maximum	**0.039**	**0.034**	**0.039**	**0.039**	**0.138**	**0.235**	**0.096**	**0.063**	**---**	**0.048**	**0.048**	**0.047**
Minimum	**0.034**	**0.033**	**0.034**	**0.033**	**0.036**	**0.098**	**0.063**	**0.061**	**---**	**0.044**	**0.042**	**0.038**
Peak 5-Minute	**0.039**	**0.035+**	**0.040**	**0.039+**	**0.150**	**0.243**	**0.097+**	**0.064**	**---**	**0.050+**	**0.049+**	**0.047+**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix J

DC1

Station Details			
Station Name:	Dry Creek near mouth	**Reporting Year:**	**2021**
Site ID:	**LC_DC1**	**Station Type:**	Year-Round Continuous Data
EMS:	**E288270**	**Teck Mine:**	Line Creek Operation

Station Description:	The Dry Creek (DC1) hydrometric station is located upstream of the confluence of Dry Creek and the Fording River. This station was installed to monitor the flow regime of Dry Creek prior to development of mine operations in the headwaters of the watershed.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B
Rationale for Data Grade Recommendation (RSFMP)	Governed by RWQM data use.

Data Quality Assessment - Continuous Data

Data Range	Data Quality Assessment Grade*	Description
January 1 - March 31, 2021	E	Station operating as expected, periods of ice effects removed
April 1 - October 31, 2021	C	Station operating as expected
November 1 - December 31, 2021	E	Station operating as expected, periods of ice effects removed

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
April 6, 2021	0.370	-	C	0.187	-	-	Calculated Discharge
April 15, 2021	0.355	-	C	0.129	-	-	Calculated Discharge
April 20, 2021	0.399	-	C	0.326	-	-	Calculated Discharge
April 21, 2021	0.402	0.300	B	0.342	-0.042	-13.8%	LCO Measurement, 21 Panels, Max 9%
April 28, 2021	0.390	-	C	0.279	-	-	Calculated Discharge
May 4, 2021	0.440	-	C	0.571	-	-	Calculated Discharge
May 7, 2021	-	0.976	B	-	-	-	LCO Measurement, 21 Panels, Max 10%, no staff gauge reading
May 10, 2021	0.424	-	C	0.469	-	-	Calculated Discharge
May 17, 2021	0.488	-	C	0.925	-	-	Calculated Discharge
May 26, 2021	0.530	-	C	1.290	-	-	Calculated Discharge
June 1, 2021	0.520	-	C	1.199	-	-	Calculated Discharge
June 2, 2021	0.550	-	C	1.481	-	-	Calculated Discharge
June 8, 2021	0.460	-	C	0.710	-	-	Calculated Discharge
June 14, 2021	0.420	-	C	0.444	-	-	Calculated Discharge
June 16, 2021	-	0.354	B	-	-	-	LCO Measurement, 23 Panels, Max 8%
June 22, 2021	0.390	-	C	0.279	-	-	Calculated Discharge
June 29, 2021	0.385	-	C	0.255	-	-	Calculated Discharge
July 5, 2021	0.370	-	C	0.187	-	-	Calculated Discharge
July 14, 2021	0.355	-	C	0.129	-	-	Calculated Discharge
July 20, 2021	0.350	-	C	0.111	-	-	Calculated Discharge
July 29, 2021	0.366	-	C	0.171	-	-	Calculated Discharge
August 3, 2021	0.370	-	C	0.187	-	-	Calculated Discharge
August 6, 2021	0.329	0.138	B	0.049	0.088	64.2%	LCO Measurement, 20 Panels, Max 10%, Measurement reviewed, trapidly falling stage (pumping acrtivity) potential for misread staff gauge
August 9, 2021	0.356	-	C	0.132	-	-	Calculated Discharge
August 17, 2021	0.370	-	C	0.187	-	-	Calculated Discharge
August 24, 2021	0.359	-	C	0.143	-	-	Calculated Discharge
August 30, 2021	0.340	-	C	0.079	-	-	Calculated Discharge
September 2, 2021	0.345	0.099	B	0.095	0.004	4.4%	KWL Measurement, 22 Panels, none over 9%
September 8, 2021	0.340	-	C	0.079	-	-	Calculated Discharge
September 12, 2021	0.335	-	C	0.065	-	-	Calculated Discharge
September 21, 2021	0.320	-	C	0.029	-	-	Calculated Discharge
* Grades A, B, C, E and U based on the BC RISC Standards Document.							

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
September 27, 2021	0.330	-	C	0.052	-	-	Calculated Discharge
October 12, 2021	0.330	-	C	0.052	-	-	Calculated Discharge
October 26, 2021	0.330	-	C	0.052	-	-	Calculated Discharge
October 27, 2021	0.325	0.065	B	-	-	-	LCO Measurement, 25 Panels, Max 8%, potential for ice in channel, calculated discharge removed
November 3, 2021	0.330	-	C	0.052	-	-	Calculated Discharge
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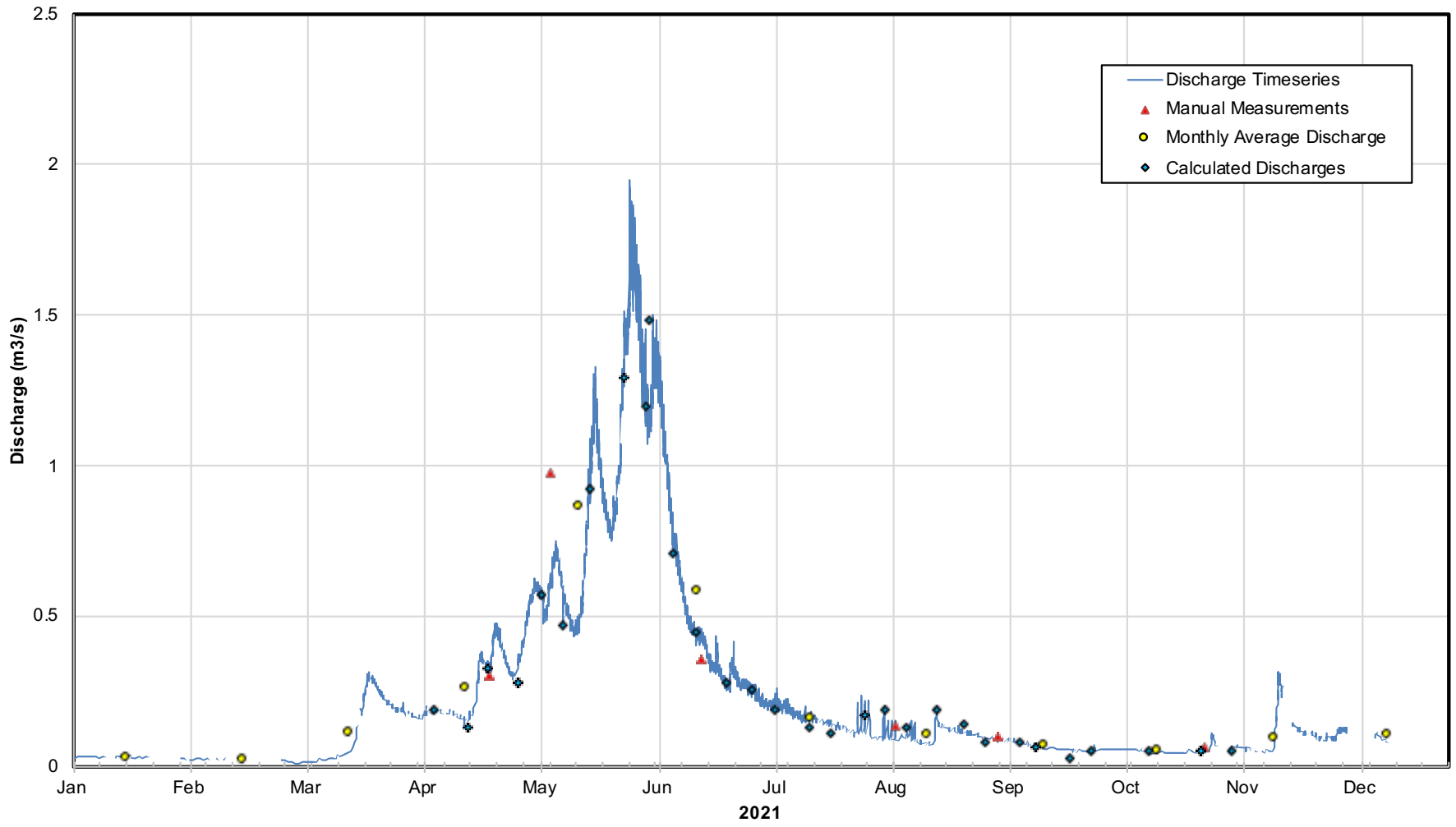
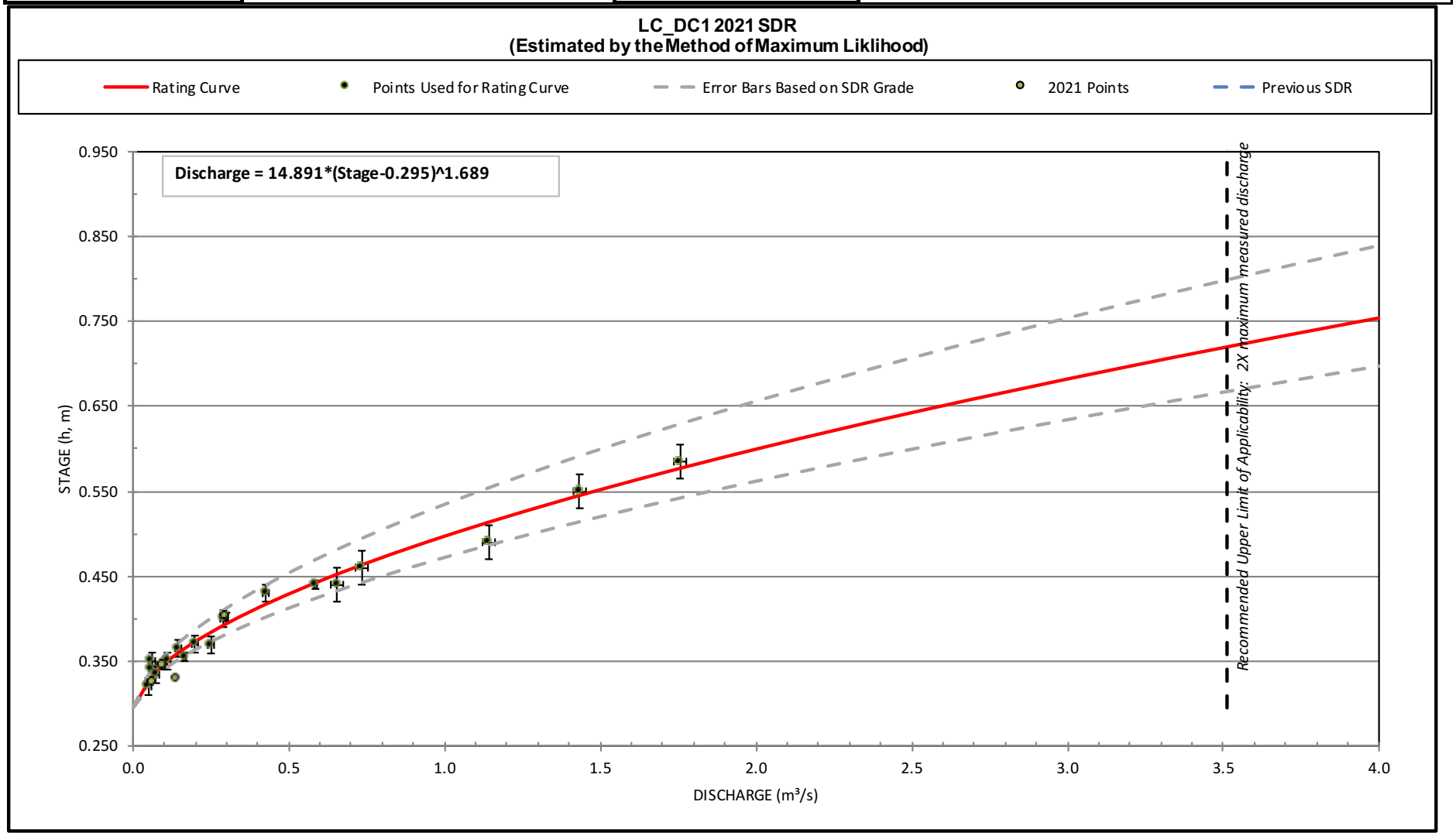
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.03	0.02	0.11	0.26	0.86	0.58	0.16	0.11	0.07	0.05	0.10	0.11



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2019	**Updated from Previous Year:**	No	**SDR Data Grade:**	C
Reason For Change		**Data Grade Rational:**	Some scatter in measurements		



LC_DC1
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.033	0.025	0.013	0.166	0.529	1.261	0.230	0.094	0.096 PK	0.058	*	0.108
2	0.033	0.025	0.014	0.164	0.580	1.155	0.217	0.095	0.093	0.058	0.051	0.122 PK
3	0.033	0.026	0.015	0.168	0.600	1.324 PK	0.210	0.116 PK	0.092	0.057	0.063	0.125
4	0.032	0.025	0.015	0.180	0.581	1.329	0.205	0.111	0.090	0.058	0.069	0.118
5	0.032	0.025	0.017	0.183	0.530	1.233	0.210	0.108	0.091	0.058	0.066	*
6	0.032	0.024	0.020	0.183	0.546	1.075	0.212 PK	0.105	0.089	0.058	0.062	*
7	0.031	0.027	0.023	0.184	0.635	0.921	0.199	0.085	0.086	0.059	0.060	*
8	0.031	0.026	0.025	0.180	0.708	0.791	0.199	0.102	0.082	0.058	0.059	*
9	0.031	0.025	0.027	0.179	0.671	0.715	0.193	0.099	0.079	0.055	0.055	*
10	*	0.027 PK	0.030	0.179	0.578	0.632	0.177	0.104	0.074	0.058	0.053	*
11	*	*	0.034	0.176	0.526	0.571	0.174	0.103	0.070	0.054	0.050	0.105
12	0.033	*	0.039	0.169	0.482	0.495	0.164	0.083	0.073	0.050	0.051	0.104
13	0.036	*	0.044	0.159	0.453	0.466	0.163	0.078	0.070	0.045	0.051	0.092
14	0.033	*	0.049	0.153	0.463	0.442	0.165	0.075	0.067	0.046	0.063	0.085
15	0.034 PK	*	0.057	0.160	0.543	0.435	0.167	0.073	0.062	0.048	0.190 PK	0.081
16	0.031	*	0.084	0.179	0.715	0.426	0.158	0.074	0.065	0.048	0.275	*
17	0.030	*	0.163	0.228	0.920	0.389	0.152	0.160	0.064	0.049	0.270	*
18	0.032	*	0.202	0.347	1.141	0.345	0.148	0.136	0.058	0.047	*	*
19	0.032	*	0.270 PK	0.351	1.145	0.335	0.146	0.131	0.058	0.047	0.145	*
20	0.032	*	0.294	0.332	0.977	0.356	0.141	0.127	0.057	0.047	0.134	*
21	*	*	0.284	0.357	0.875	0.302	0.137	0.124	0.056	0.046	0.123	*
22	*	*	0.261	0.446	0.803	0.280	0.133	0.120	0.055	0.048	0.114	*
23	*	*	0.237	0.436	0.798	0.283	0.129	0.123	0.053	0.053	0.112	*
24	*	*	0.222	0.390	0.866	0.331	0.125	0.115	0.054	0.050	0.112	*
25	*	0.024	0.209	0.348	1.024	0.297	0.118	0.111	0.053	0.052	0.104	*
26	*	0.019	0.198	0.315	1.305	0.275	0.114	0.109	0.051	0.051	0.098	*
27	*	0.014	0.189	0.306	1.450	0.272	0.132	0.106	0.053	0.052	0.089	*
28	*	0.013	0.187	0.332	1.736 PK	0.263	0.144	0.104	0.065	0.055	0.095	*
29	0.026		0.181	0.382	1.662	0.257	0.137	0.099	0.059	0.096 PK	0.098	*
30	0.024		0.172	0.453 PK	1.535	0.245	0.134	0.096	0.059	0.075	0.093	*
31	0.024		0.168		1.343		0.099	0.096		*		*
Mean	**0.031**	**0.023**	**0.121**	**0.260**	**0.862**	**0.583**	**0.162**	**0.105**	**0.069**	**0.054**	**0.100**	**0.104**
Maximum	**0.036**	**0.027**	**0.294**	**0.453**	**1.736**	**1.329**	**0.230**	**0.160**	**0.096**	**0.096**	**0.275**	**0.125**
Minimum	**0.024**	**0.013**	**0.013**	**0.153**	**0.453**	**0.245**	**0.099**	**0.073**	**0.051**	**0.045**	**0.050**	**0.081**
Peak 5-Minute	**0.043**	**0.032**	**0.316**	**0.502**	**1.948**	**1.504**	**0.260**	**0.200**	**0.103**	**0.110**	**0.316**	**0.135**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix K

DCEF

Station Details			
Station Name:	**East Tributary of Dry Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_DCEF**	**Station Type:**	Year-Round Continuous Data
EMS:	**E288274**	**Teck Mine:**	
Station Description:	The Dry Creek East Fork (DCEF) hydrometric station is located on a tributary to Dry Creek known as East Fork. The hydrometric station is located immediately downstream of the Dry Creek Forest Service Road (FSR) bridge about 110 m upstream of the confluence with Dry Creek.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.		

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - 8, 2021	M	Data outage
January 8 - March 31, 2021	E	Station operating as expected, potential ice in channel
April 1 - June 3, 2021	C	Station operating as expected, Previous SDR (Grade C) used to calculate discharge
June 4 - October 31, 2021	E	Station operating as expected, Shift to previous SDR (Grade E) used to calculate discharge
November 1 - 17, 2021	E	Station operating as expected, potential ice in channel and shift to SDR
November 17- December 12, 2021	M	Ice affected data removed
December 12 - 25, 2021	E	Station operating as expected, potential ice in channel and shift to SDR
December 25 - 31, 2021	M	Ice affected data removed

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
February 2, 2021	0.790	-	C	0.001	-	-	Calculated Discharge
March 16, 2021	0.880	-	C	0.035	-	-	Calculated Discharge
April 5, 2021	0.835	-	C	0.009	-	-	Calculated Discharge
May 4, 2021	0.950	-	C	0.136	-	-	Calculated Discharge
June 1, 2021	1.000	-	C	0.268	-	-	Calculated Discharge
July 5, 2021	0.860	-	C	0.064	-	-	Calculated Discharge
July 14, 2021	0.840	0.036	C	0.042	-0.006	-16.2%	KWL Measurement, 17 Panels, Max Panel 14%
August 3, 2021	0.840	-	E	0.042	-	-	Calculated Discharge
September 13, 2021	0.800	-	E	0.014	-	-	Calculated Discharge
October 12, 2021	0.785	-	E	0.008	-	-	Calculated Discharge
October 20, 2021	0.798	0.015	C	0.013	0.003	17.0%	KWL Measurement, 16 Panels, Max Panel 23%
December 8, 2021	0.810	0.019	B	0.019	0.000	-1.8%	Teck Measurement, 22 Panels, Max Panel 9%
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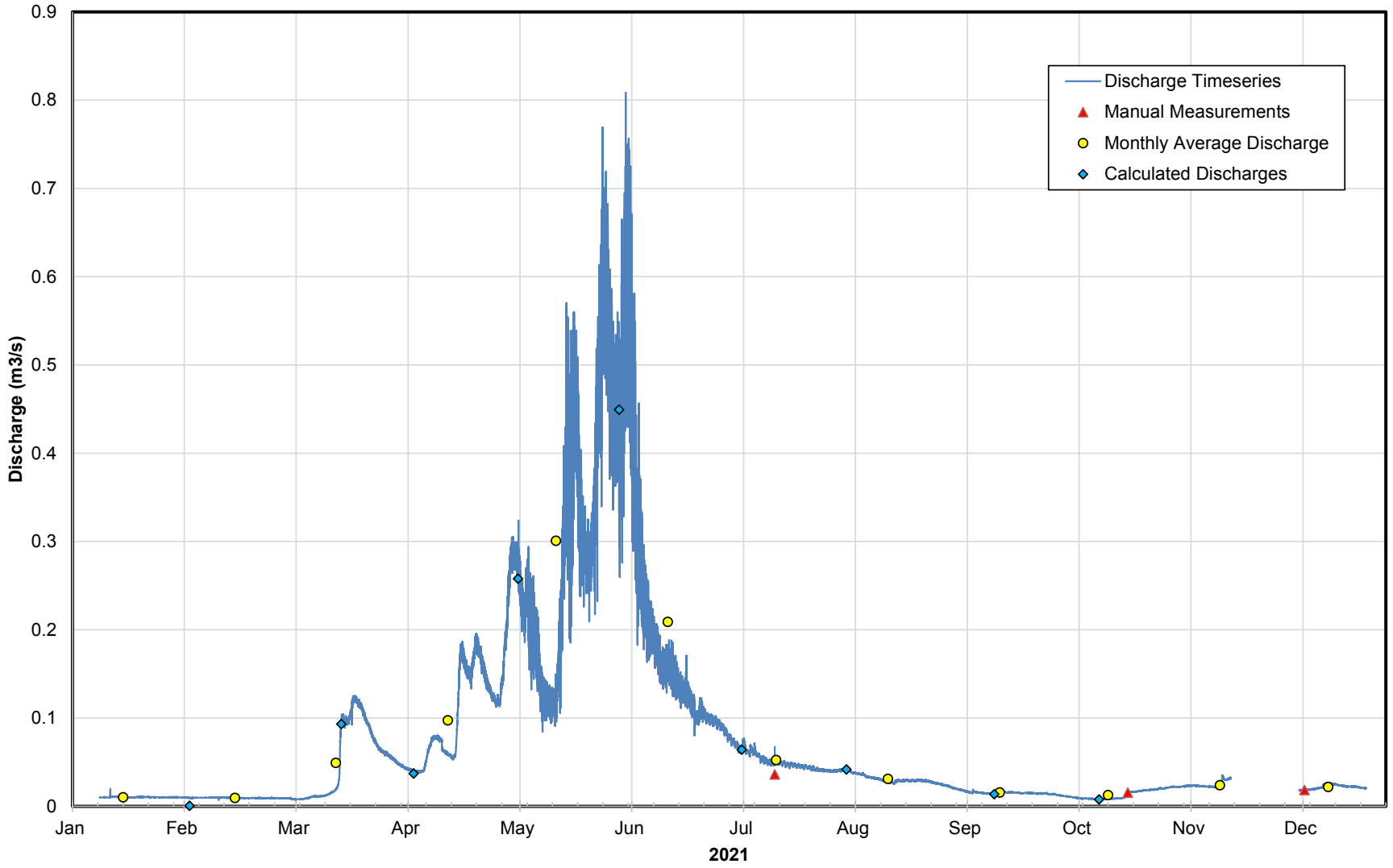
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.010	0.010	0.049	0.097	0.301	0.209	0.053	0.031	0.016	0.013	0.024	0.022

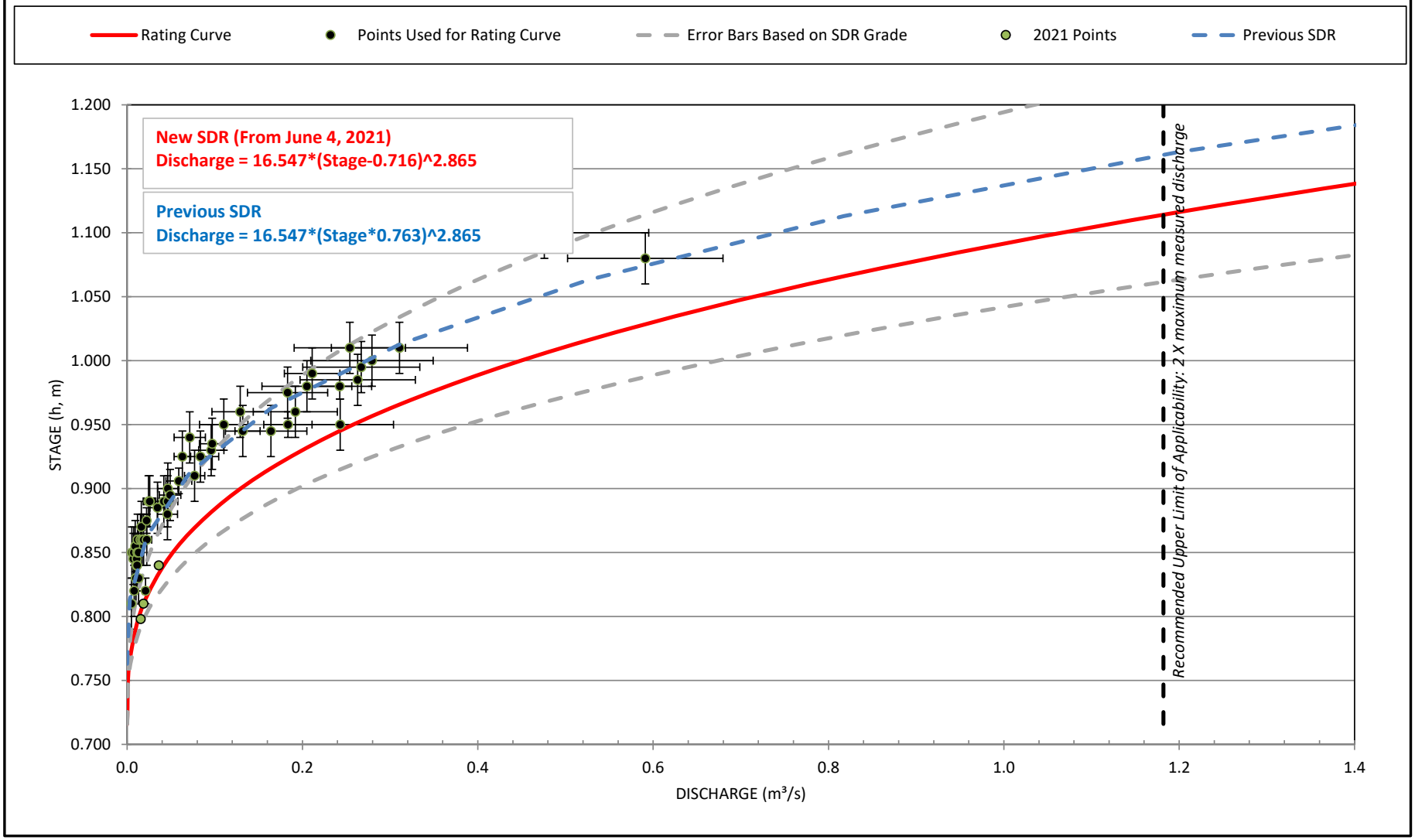
LC_DCEF 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	E
Reason For Change	Clear change in trend	**Data Grade Rational:**	Significant scatter in measurement points, change in channel post freshet warrants SDR change, due to lack of measurements a shift was applied, a new SDR will be created in 2022.		

LC_DCEF 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_DCEF

Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	*	0.001	0.000	0.013	0.108	0.259	0.083 PK	0.040	0.021 PK	0.012	0.022	*
2	*	0.001	0.000	0.012	0.147	0.294	0.078	0.041	0.020	0.012	0.022	*
3	*	0.001	0.000	0.011	0.152	0.349	0.074	0.041 PK	0.019	0.011	0.022	*
4	*	0.001	0.000	0.010	0.144	0.576 PK	0.070	0.039	0.018	0.011	0.022	*
5	*	0.001	0.000	0.010	0.121	0.435	0.070	0.038	0.017	0.010	0.023	*
6	*	0.001	0.000	0.010	0.114	0.309	0.069	0.037	0.016	0.009	0.023	*
7	*	0.001	0.001	0.010	0.116	0.278	0.064	0.036	0.016	0.009	0.023	0.018
8	0.001	0.001	0.001	0.011	0.099	0.236	0.064	0.035	0.016	0.009	0.023	0.019
9	0.001	0.001	0.001	0.019	0.084	0.208	0.062	0.033	0.015	0.009	0.023	0.019
10	0.001	0.001	0.001	0.025	0.067	0.199	0.056	0.032	0.015	0.008	0.022	0.019
11	0.001 PK	0.001 PK	0.001	0.027	0.052	0.182	0.055	0.031	0.014	0.008	0.022	0.020
12	0.001	0.001	0.001	0.027	0.050	0.169	0.052	0.031	0.014	0.008	0.022	0.020
13	0.001	0.001	0.002	0.022	0.049	0.158	0.051	0.029	0.014	0.008	0.022	0.023
14	0.001	0.001	0.002	0.019	0.049	0.159	0.050	0.028	0.015	0.008	0.022	0.025 PK
15	0.001	0.001	0.004	0.018	0.066	0.161	0.049	0.027	0.016	0.009	0.029 PK	0.025
16	0.001	0.001	0.031	0.016	0.110	0.155	0.048	0.026	0.016	0.009	0.030	0.025
17	0.001	0.000	0.036	0.031	0.199	0.142	0.047	0.029	0.016	0.009	0.031	0.024
18	0.001	0.000	0.038	0.075	0.227	0.135	0.047	0.029	0.016	0.009	*	0.023
19	0.001	0.000	0.046 PK	0.077	0.225	0.131	0.047	0.029	0.015	0.010	*	0.023
20	0.001	0.000	0.050	0.069	0.280	0.132	0.046	0.029	0.015	0.014	*	0.022
21	0.001	0.000	0.048	0.067	0.199	0.122	0.045	0.029	0.015	0.016	*	0.022
22	0.001	0.000	0.043	0.083	0.171	0.109	0.044	0.029	0.015	0.016	*	0.022
23	0.001	0.000	0.037	0.085	0.154	0.105	0.044	0.029	0.015	0.017	*	0.021
24	0.001	0.000	0.032	0.076	0.149	0.112	0.043	0.029	0.015	0.018	*	0.021
25	0.001	0.000	0.026	0.065	0.182	0.104	0.043	0.028	0.014	0.018	*	0.021
26	0.001	0.000	0.023	0.058	0.266	0.101	0.042	0.028	0.014	0.018	*	*
27	0.001	0.000	0.020	0.052	0.328 PK	0.100	0.040	0.027	0.014	0.019	*	*
28	0.001	0.000	0.019	0.049	0.363	0.098	0.040	0.026	0.014	0.019	*	*
29	0.001		0.018	0.052	0.335	0.095	0.040	0.025	0.014	0.020	*	*
30	0.001		0.016	0.073 PK	0.277	0.089	0.040	0.024	0.013	0.020	*	*
31	0.001		0.015		0.266		0.040	0.023		0.021 PK		*
Mean	**0.001**	**0.001**	**0.017**	**0.039**	**0.166**	**0.190**	**0.053**	**0.031**	**0.016**	**0.013**	**0.024**	**0.022**
Maximum	**0.001**	**0.001**	**0.050**	**0.085**	**0.363**	**0.576**	**0.083**	**0.041**	**0.021**	**0.021**	**0.031**	**0.025**
Minimum	**0.001**	**0.000**	**0.000**	**0.010**	**0.049**	**0.089**	**0.040**	**0.023**	**0.013**	**0.008**	**0.022**	**0.018**
Peak 5-Minute	**0.003**	**0.001**	**0.052+**	**0.096**	**0.501**	**0.754**	**0.090**	**0.043**	**0.023**	**0.021**	**0.035**	**0.026+**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix L

DC3

Station Details			
Station Name:	**Dry Creek upstream of East Tributary Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_DC3**	**Station Type:**	Year-Round Continuous Data
EMS:	**E288273**	**Teck Mine:**	Line Creek Operation
Station Description:	DC3 is located on Dry Creek immediately upstream of the head pond/intake for the Dry Creek Settling Ponds.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by AWTF design data use.		

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - 21, 2021	E	Station operating as expected, ice in channel
January 21 -26, 2021	M	Ice affected data removed
January 26 - February 8, 2021	E	Station operating as expected, ice in channel
February 8 - 20, 2021	M	Ice affected data removed
February 20, March 31, 2021	E	Station operating as expected, ice in channel
April 1 - June 5, 2021	C	Station operating as expected, previous SDR used to calculate discharge
June 6 - October 15, 2021	C	Station operating as expected, post-freshet SDR used to calculate discharge
October 16 - 28, 2021	M	Ice affected data removed
October 28- December 27, 2021	E	Station operating as expected, ice in channel
December 27 -31, 2021	M	Ice affected data removed

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 6, 2021	0.100	-	E	-	-	-	Ice in channel, calculated discharge removed
January 12, 2021	0.090	-	E	-	-	-	Ice in channel, calculated discharge removed
January 26, 2021	0.090	-	E	-	-	-	Ice in channel, calculated discharge removed
February 2, 2021	0.090	-	E	-	-	-	Ice in channel, calculated discharge removed
March 11, 2021	0.110	0.036	B	-	-	-	LCO measurement, 20 panels, max panel 10%, Ice in channel, calculated discharge removed
March 17, 2021	0.130	0.071	B	-	-	-	LCO measurement, 23 panels, max panel 10%, ice in channel, ca
March 18, 2021	0.140	0.088	B	-	-	-	LCO Measurement, 27 Panels, Max 9%, Ice in channel, calculated discharge removed
March 25, 2021	0.128	0.052	B	-	-	-	LCO Measurement, 21 Panels, Max 9%, ice in channel, calculated discharge removed
March 30, 2021	0.114	0.045	B	-	-	-	LCO Measurement, 26 Panels, Max 8%, ice in channel, calculated discharge removed
April 1, 2021	0.110	-	C	-	-	-	Calculated Discharge
April 5, 2021	0.130	0.051	B	0.063	-0.012	-23.6%	LCO measurement, 20 panels, max panel 9%, measurement QA'ed, no obvious explanation for variance from SDR
April 7, 2021	0.136	0.071	B	0.073	-0.001	-2.1%	LCO Measurement, 23 Panels, Max 9%
April 10, 2021	0.130	-	C	0.063	-	-	Calculated Discharge
April 11, 2021	0.130	-	C	0.063	-	-	Calculated Discharge
April 15, 2021	0.128	-	C	0.060	-	-	Calculated Discharge
April 19, 2021	0.188	-	C	0.178	-	-	Calculated Discharge
April 20, 2021	0.178	-	C	0.155	-	-	Calculated Discharge
April 21, 2021	0.196	0.135	B	0.198	-0.062	-46.1%	LCO Measurement, 24 Panels, Max 9%. Measurement reviewed, no clear reason for variation for SDR
April 27, 2021	0.248	-	C	0.344	-	-	Calculated Discharge
April 28, 2021	0.175	-	C	0.148	-	-	Calculated Discharge
May 4, 2021	0.228	-	C	0.284	-	-	Calculated Discharge
May 10, 2021	0.212	-	E	0.239	-	-	Calculated Discharge
May 17, 2021	0.252	-	E	0.357	-	-	Calculated Discharge
May 25, 2021	0.220	-	E	0.261	-	-	Calculated Discharge
June 1, 2021	0.232	-	C	0.296	-	-	Calculated Discharge
June 14, 2021	0.189	-	C	0.146	-	-	Calculated Discharge
June 15, 2021	0.188	-	C	0.144	-	-	Calculated Discharge
June 16, 2021	0.189	0.129	B	0.146	-0.017	-13.5%	LCO measurement, 20 panels, max panel 9%
June 22, 2021	0.175	-	C	0.118	-	-	Calculated Discharge

* Grades A, B, C, E and U based on the BC RISC Standards Document.

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
June 23, 2021	0.175	-	C	0.118	-	-	Calculated Discharge
June 24, 2021	0.180	-	C	0.128	-	-	Calculated Discharge
June 30, 2021	0.170	-	C	0.109	-	-	Calculated Discharge
July 5, 2021	0.168	-	C	0.105	-	-	Calculated Discharge
July 14, 2021	0.142	0.070	B	0.065	0.005	7.4%	KWL measurement, 23 panels, max panel 8%
July 15, 2021	0.157	-	C	0.087	-	-	Calculated Discharge
July 20, 2021	0.154	-	C	0.082	-	-	Calculated Discharge
July 27, 2021	0.146	-	C	0.070	-	-	Calculated Discharge
July 30, 2021	0.150	-	C	0.076	-	-	Calculated Discharge
August 3, 2021	0.146	-	C	0.070	-	-	Calculated Discharge
August 6, 2021	0.144	0.068	B	0.068	0.000	0.4%	LCO measurement, 23 panels, max panel 7%
August 9, 2021	0.148	-	C	0.073	-	-	Calculated Discharge
August 11, 2021	0.145	-	C	0.069	-	-	Calculated Discharge
August 17, 2021	0.172	-	C	0.113	-	-	Calculated Discharge
August 24, 2021	0.160	-	C	0.092	-	-	Calculated Discharge
August 30, 2021	0.150	-	C	0.076	-	-	Calculated Discharge
September 2, 2021	0.140	0.067	B	0.062	0.005	7.5%	LCO measurement, 20 panels, max panel 10%
September 8, 2021	0.135	-	C	0.056	-	-	Calculated Discharge
September 12, 2021	0.130	-	C	0.050	-	-	Calculated Discharge
September 21, 2021	0.130	-	C	0.050	-	-	Calculated Discharge
September 27, 2021	0.130	-	C	0.050	-	-	Calculated Discharge
October 6, 2021	0.120	-	C	0.039	-	-	Calculated Discharge
October 12, 2021	0.135	-	C	0.056	-	-	Calculated Discharge
October 18, 2021	0.120	-	C	0.039	-	-	Ice in channel, calculated discharge removed
October 26, 2021	0.122	-	C	0.041	-	-	Ice in channel, calculated discharge removed
October 27, 2021	0.122	0.039	B	0.041	-0.002	-4.8%	LCO measurement, 25 panels, max panel 8%, ice in channel, calculated discharge removed
November 3, 2021	0.122	-	C	0.041	-	-	Ice in channel, calculated discharge removed
November 8, 2021	0.120	-	C	-	-	-	Ice in channel, calculated discharge removed
November 15, 2021	0.185	-	C	-	-	-	Ice in channel, calculated discharge removed
November 23, 2021	0.150	-	C	-	-	-	Ice in channel, calculated discharge removed
* Grades A, B, C, E and U based on the BC RISC Standards Document.							

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
November 30, 2021	0.140	-	C	-	-	-	Ice in channel, calculated discharge removed
December 8, 2021	0.155	-	C	-	-	-	Ice in channel, calculated discharge removed
December 13, 2021	0.136	-	C	-	-	-	Ice in channel, calculated discharge removed
December 20, 2021	0.139	-	C	-	-	-	Ice in channel, calculated discharge removed
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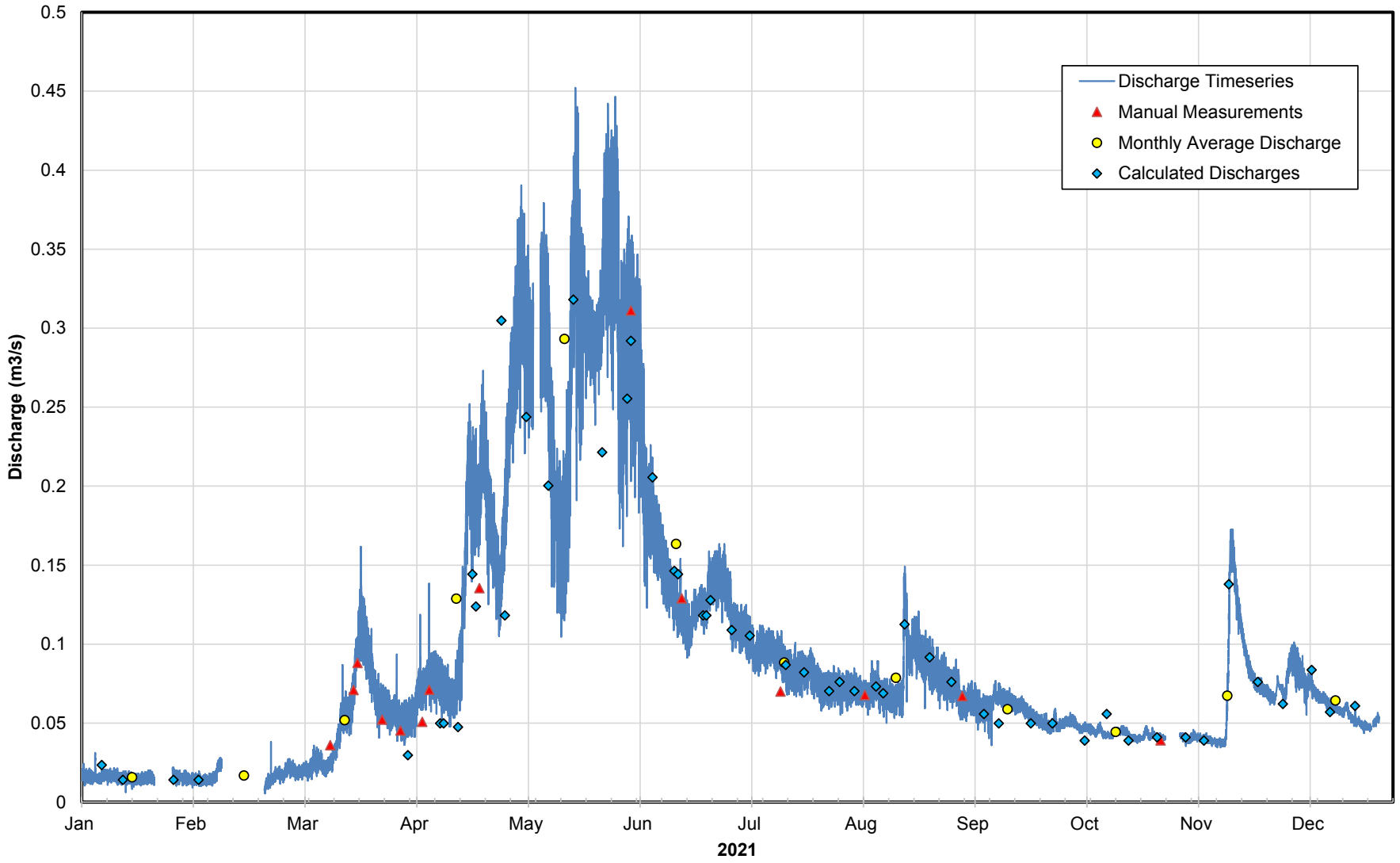
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.02	0.02	0.05	0.13	0.29	0.16	0.09	0.08	0.06	0.04	0.07	0.06

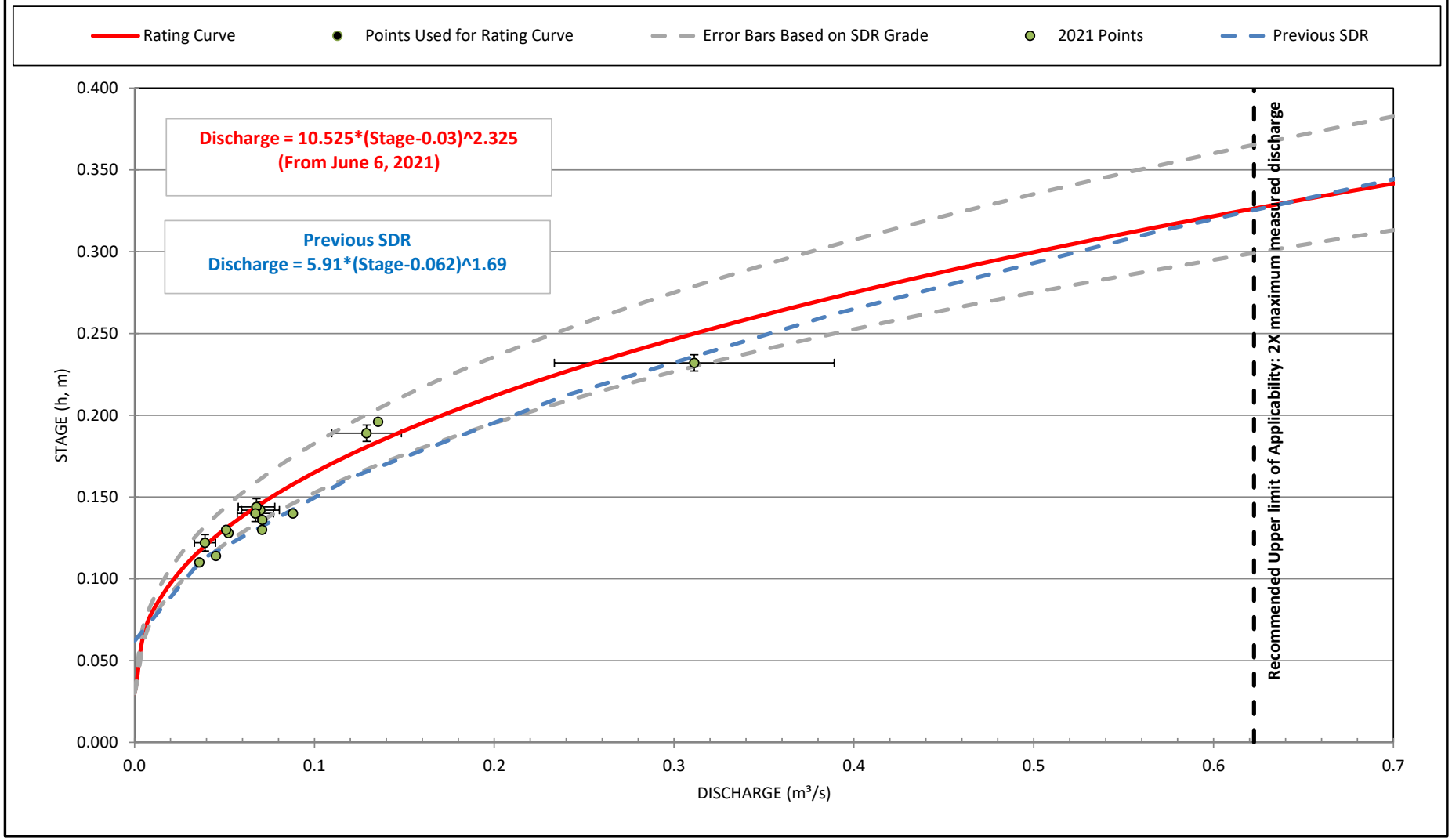
LC_DC3 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	C
Reason For Change	Clear change in trend	**Data Grade Rational:**	New SDR created with post freshet measurement points. Scatter in measurements warrant Grade C data.		

LC_DC3 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_DC3
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.017	0.015	0.019	0.053	0.289	0.292 PK	0.112 PK	0.073	0.067 PK	0.051	0.043	0.074
2	0.017	0.015	0.019	0.055	0.323	0.296	0.110	0.073	0.062	0.051 PK	0.041	0.089
3	0.017	0.014	0.020	0.060	0.328	0.276	0.109	0.073	0.063	0.051	0.040	0.092 PK
4	0.017 PK	0.014	0.020	0.074	0.307	0.278	0.110	0.072	0.066	0.048	0.040	0.086
5	0.015	0.014	0.021	0.075	0.286	0.238	0.101	0.070	0.065	0.046	0.042	0.083
6	0.016	0.015	0.026	0.076	0.282	0.184	0.096	0.070	0.063	0.047	0.041	0.075
7	0.017	0.019	0.026	0.081	*	0.183	0.095	0.068	0.060	0.047	0.041	0.075
8	0.017	0.025	0.025	0.083	0.319	0.182	0.099	0.075	0.060	0.046	0.040	0.075
9	0.016	*	0.022	0.082	0.316	0.170	0.097	0.073	0.059	0.044	0.040	0.069
10	0.017	*	0.024	0.078	0.289	0.163	0.097	0.070	0.061	0.047	0.039	0.067
11	0.015	*	0.027	0.075	0.220	0.152	0.099	0.068	0.067	0.044	0.038	0.066
12	0.015	*	0.034	0.071	0.187	0.143	0.094	0.068	0.068	0.043	0.038	0.064
13	0.015	*	0.045	0.066	0.170	0.139	0.095	0.066	0.066	0.042	0.038	0.062
14	0.014	*	0.055	0.068	0.167	0.132	0.090	0.067	0.065	0.044	0.043	0.061
15	0.014	*	0.056	0.079	0.195	0.121	0.086	0.068	0.065	0.045	0.108	0.059
16	0.014	*	0.058	0.104	0.255	0.120	0.085	0.067	0.062	0.045	0.161 PK	0.057
17	0.015	*	0.074	0.154	0.349	0.116	0.083	0.115 PK	0.061	0.045	0.135	0.058
18	0.015	*	0.098	0.208	0.370 PK	0.110	0.083	0.098	0.061	0.043	0.116	0.058
19	0.016	*	0.118 PK	0.196	0.310	0.113	0.084	0.099	0.060	0.041	0.103	0.053
20	0.015	0.008	0.111	0.189	0.319	0.122	0.085	0.101	0.057	0.040	0.090	0.052
21	0.014	0.012	0.095	0.200	0.307	0.125	0.083	0.097	0.055	0.040	0.082	0.051
22	*	0.014 PK	0.084	0.229	0.290	0.123	0.086	0.089	0.054	0.041	0.077	0.049
23	*	0.016	0.070	0.195	0.286	0.126	0.080	0.092	0.052	0.044	0.075	0.048
24	*	0.018	0.062	0.177	0.293	0.138	0.075	0.087	0.050	0.042	0.073	0.047
25	*	0.017	0.064	0.162	0.321	0.143	0.074	0.084	0.049	0.043	0.071	0.050
26	0.018	0.018	0.061	0.146	0.366	0.145	0.074	0.083	0.048	0.042	0.069	0.052
27	0.016	0.023	0.056	0.147	0.367	0.142	0.073	0.078	0.048	0.041	0.067	0.052
28	0.016	0.021	0.058	0.185	0.363	0.142	0.073	0.078	0.051	0.041	0.067	*
29	0.015		0.055	0.231	0.352	0.134	0.074	0.075	0.048	*	0.073	*
30	0.015		0.054	0.265 PK	0.261	0.114	0.074	0.074	0.049	*	0.070	*
31	0.015		0.052		0.272		0.073	0.074		*		*
Mean	**0.016**	**0.016**	**0.052**	**0.129**	**0.292**	**0.162**	**0.089**	**0.079**	**0.059**	**0.044**	**0.067**	**0.064**
Maximum	**0.018**	**0.025**	**0.118**	**0.265**	**0.370**	**0.296**	**0.112**	**0.115**	**0.068**	**0.051**	**0.161**	**0.092**
Minimum	**0.014**	**0.008**	**0.019**	**0.053**	**0.167**	**0.110**	**0.073**	**0.066**	**0.048**	**0.040**	**0.038**	**0.047**
Peak 5-Minute	**0.031**	**0.038**	**0.162**	**0.301**	**0.452**	**0.371**	**0.126**	**0.149**	**0.084**	**0.056**	**0.173+**	**0.101**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix M

DC4

Station Details			
Station Name:	Dry Creek LC_DC4	**Reporting Year:**	**2021**
Site ID:	**LC_DC4**	**Station Type:**	Year-Round Continuous Data
EMS:	**#N/A**	**Teck Mine:**	Line Creek Operation

Station Description:	DC4 is located on Dry Creek between DCDS and DC1.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	#N/A
Rationale for Data Grade Recommendation (RSFMP)	#N/A

Data Quality Assessment - Continuous Data

Data Range	Data Quality Assessment Grade*	Description
January 1 - May 28 (mid-freshet peak), 2021	E	Station operating as expected, staff gauge shifting and potential ice in channel (Jan 1-Mar 31)
May 29 - October 15, 2021	C	Station operating as expected, staff gauge shifting
October 16 - November 27, 2021	E	Station operating as expected, potential ice in channel
November 28 -December 31, 2021	M	Ice affected data removed

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 6, 2021	0.050	-	E	-	-	-	Calculated Measurement removed due to presence of ice in channel
February 23, 2021	0.040	-	E	-	-	-	Calculated Measurement removed due to presence of ice in channel
April 6, 2021	0.110	-	E	0.121	-	-	Calculated Measurement, period of shifting staff gauge
April 20, 2021	0.192	-	E	0.328	-	-	Calculated Measurement, period of shifting staff gauge
June 24, 2021	0.173	-	C	0.273	-	-	Calculated Measurement
June 29, 2021	0.148	-	C	0.207	-	-	Calculated Measurement
July 14, 2021	0.119	0.151	B	0.140	0.011	7.3%	KWL Measurement, 23 Panels, Max 8%
July 14, 2021	0.113	-	C	0.128	-	-	Calculated Measurement
August 10, 2021	0.113	-	C	0.128	-	-	Calculated Measurement
August 17, 2021	0.123	-	C	0.149	-	-	Calculated Measurement
August 24, 2021	0.108	-	C	0.117	-	-	Calculated Measurement, period of shifting staff gauge
August 30, 2021	0.083	-	C	0.073	-	-	Calculated Measurement
September 8, 2021	0.082	-	C	0.071	-	-	Calculated Measurement
September 12, 2021	0.073	-	C	0.057	-	-	Calculated Measurement
September 21, 2021	0.073	-	C	0.057	-	-	Calculated Measurement
October 6, 2021	0.063	-	C	0.043	-	-	Calculated Measurement
October 13, 2021	0.053	-	C	0.031	-	-	Calculated Measurement
October 26, 2021	0.053	-	C	0.031	-	-	Calculated Measurement
November 3, 2021	0.063	-	C	0.043	-	-	Calculated Measurement
November 8, 2021	0.053	-	C	0.031	-	-	Calculated Measurement
November 16, 2021	0.148	-	C	0.207	-	-	Calculated Measurement
December 8, 2021	0.083	0.113	B	-	-	-	Teck Measurement, 21 Panels, Max 8%, calculated discharge removed due to ice in channel
December 14, 2021	0.087	-	E	-	-	-	Calculated Measurement removed due to presence of ice in channel
December 20, 2021	0.073	-	E	-	-	-	Calculated Measurement removed due to presence of ice in channel
December 30, 2021	0.089	-	E	-	-	-	Calculated Measurement removed due to presence of ice in channel
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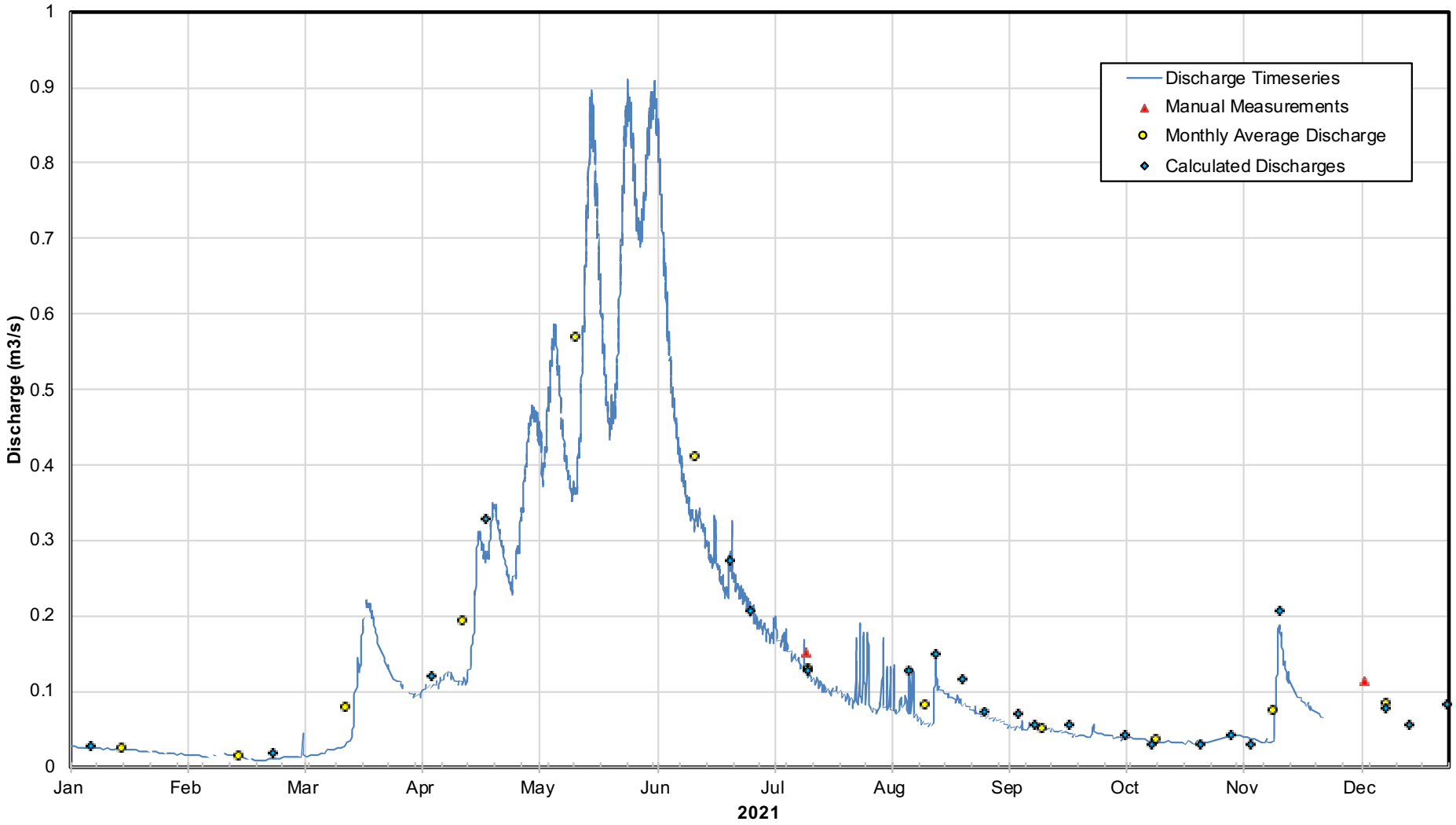
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December*
0.02	0.01	0.08	0.19	0.57	0.41	0.13	0.08	0.05	0.04	0.07	0.08

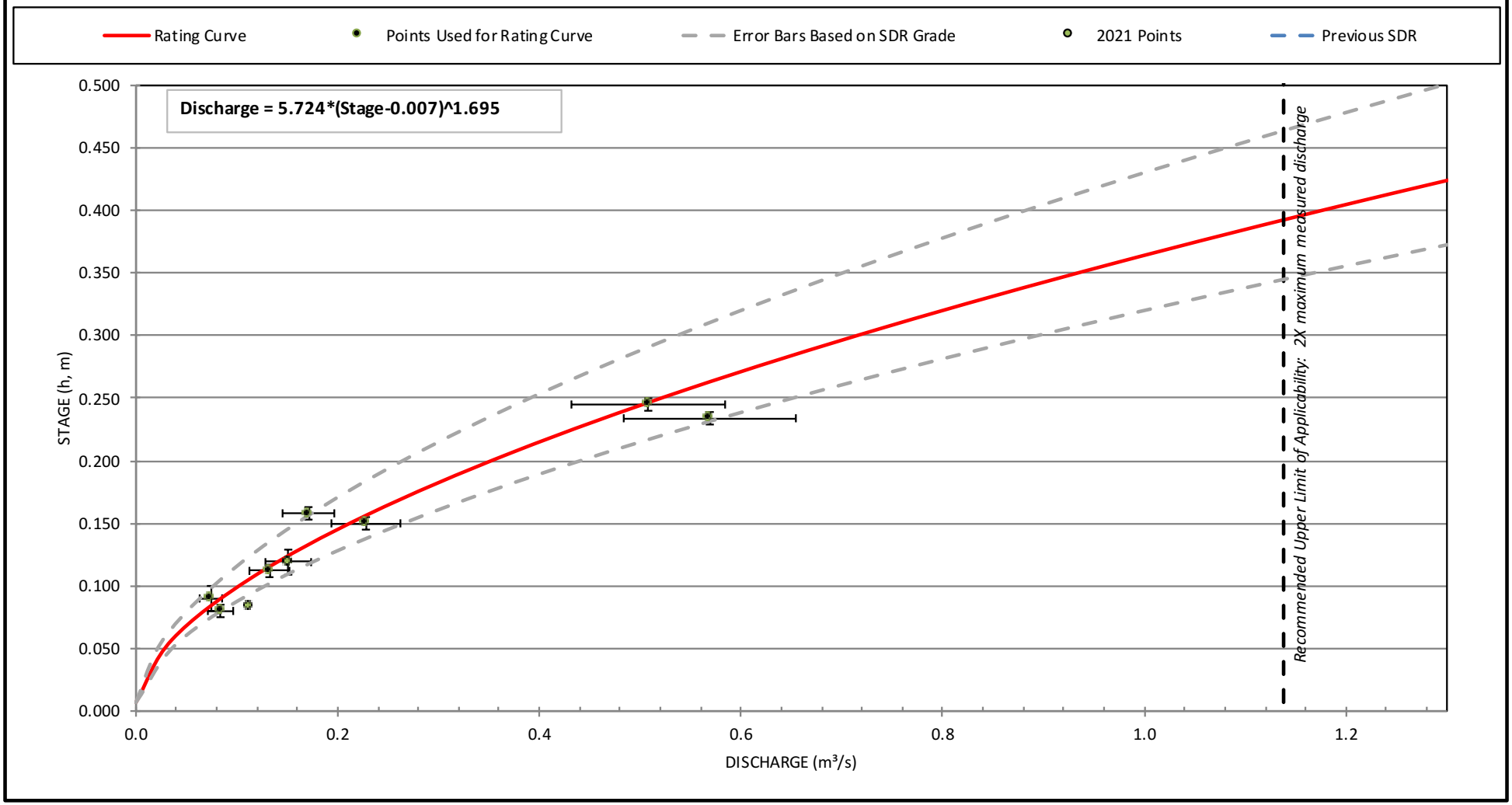
LC_DC4 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2020	**Updated from Previous Year:**	No	**SDR Data Grade:**	C
Reason For Change		**Data Grade Rational:**	Staff Gauge shift of 0.027 m occurred in 2021 and only 2 measurements performed in 2021.		

LC_DC4 2021 SDR
(Estimated by the Method of Maximum Liklihood)



LC_DC4
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.028	0.016	0.014	0.096	0.413	0.753	0.195 PK	0.075	0.064 PK	0.043 PK	*	*
2	0.028	0.016	0.015	0.094	0.461	0.826	0.187	0.078	0.062	0.042	*	*
3	0.027 PK	0.015	0.016	0.096	0.469	0.874	0.181	0.099 PK	0.060	0.041	0.041	*
4	0.026	0.015	0.015	0.105	0.449	0.873 PK	0.174	0.094	0.058	0.040	0.041	*
5	0.026	0.015	0.016	0.108	0.411	0.801	0.176	0.091	0.055	0.039	0.041	*
6	0.025	0.015	0.017	0.107	0.425	0.699	0.178	0.089	0.053	0.039	0.040	*
7	0.025	0.015	0.018	0.111	0.500	0.602	0.166	0.071	0.052	0.040	0.039	*
8	0.024	0.015	0.019	0.114	0.567	0.524	0.165	0.082	0.052	0.039	0.038	*
9	0.024	*	0.021	0.117	0.546	0.471	0.160	0.081	0.050	0.036	0.036	*
10	0.024	0.018 PK	0.022	0.124	0.477	0.429	0.148	0.086	0.050	0.038	0.035	*
11	0.024	0.017	0.024	0.122	0.421	0.392	0.145	0.086	0.054	0.036	0.034	*
12	0.024	0.017	0.025	0.118	0.390	0.365	0.138	0.066	0.055	0.034	0.034	*
13	0.025	0.015	0.027	0.114	0.365	0.342	0.136	0.062	0.053	0.032	0.033	*
14	0.024	0.014	0.030	0.112	0.377	0.329	0.127	0.060	0.051	0.032	0.037	*
15	0.023	0.012	0.035	0.119	0.448	0.331	0.120	0.057	0.050	0.034	0.114	*
16	0.022	0.011	0.056	0.137	0.590	0.326	0.116	0.056	0.050	0.034	0.176 PK	*
17	0.022	0.010	0.114	0.184	0.743	0.307	0.112	0.114	0.049	0.034	0.142	*
18	0.022	0.009	0.146	0.288	0.856	0.287	0.108	0.103	0.047	0.034	0.120	*
19	0.022	0.008	0.188 PK	0.297	0.794	0.274	0.106	0.100	0.047	0.033	0.111	*
20	0.022	0.008	0.216	0.280	0.673	0.290	0.102	0.096	0.046	0.033	0.101	*
21	0.022	0.009	0.204	0.290	0.574	0.256	0.101	0.093	0.045	0.031	0.093	*
22	0.021	0.010	0.184	0.341	0.495	0.241	0.101	0.089	0.043	0.030	0.087	*
23	0.020	0.011	0.161	0.335	0.461	0.238	0.098	0.090	0.042	0.034	0.083	*
24	0.018	0.012	0.149	0.307	0.475	0.270	0.094	0.085	0.042	0.032	0.078	*
25	0.018	0.012	0.138	0.281	0.550	0.245	0.090	0.081	0.041	0.033	0.075	*
26	0.018	0.013	0.127	0.254	0.698	0.234	0.087	0.077	0.039	0.032	0.072	*
27	0.018	0.013	0.117	0.241	0.835	0.227	0.103	0.076	0.040	0.032	0.068	*
28	0.018	0.014	0.114	0.264	0.873 PK	0.219	0.113	0.074	0.049	0.032	0.066	*
29	0.018		0.109	0.300	0.814	0.211	0.109	0.069	0.044	*	*	*
30	0.017		*	0.354 PK	0.736	0.203	0.108	0.067	0.043	*	*	*
31	0.017		0.097		0.709		0.079	0.065		*		*
Mean	**0.022**	**0.013**	**0.081**	**0.194**	**0.568**	**0.415**	**0.130**	**0.081**	**0.050**	**0.035**	**0.071**	**---**
Maximum	**0.028**	**0.018**	**0.216**	**0.354**	**0.873**	**0.874**	**0.195**	**0.114**	**0.064**	**0.043**	**0.176**	**---**
Minimum	**0.017**	**0.008**	**0.014**	**0.094**	**0.365**	**0.203**	**0.079**	**0.056**	**0.039**	**0.030**	**0.033**	**---**
Peak 5-Minute	**0.029**	**0.019**	**0.222**	**0.389**	**0.911**	**0.908**	**0.206**	**0.170**	**0.067**	**0.044**	**0.187**	**---**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

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Appendix N

DCDS

Station Details			
Station Name:	**Dry Creek downstream of sedimentation ponds**	**Reporting Year:**	**2021**
Site ID:	**LC_DCDS**	**Station Type:**	Year-Round Continuous Data
EMS:	**E295210**	**Teck Mine:**	Line Creek Operation
Station Description:	The Dry Creek Downstream of Settling Ponds (DCDS) site is located immediately downstream of the Dry Creek Settling Ponds. This location captures flow from DCEF, the Dry Creek Settling Ponds and any flow bypassing the settling ponds via the head pond spillway.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.		

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 -21, 2021	E	Station operating as expected, potential ice in channel
January 21 - 28, 2021	M	Ice affected data removed
January 28 - February 9, 2021	E	Station operating as expected, potential ice in channel
February 9 - March 6, 2021	M	Ice affected data removed
March 6 - 16, 2021	E	Station operating as expected, potential ice in channel
March 16 - 18, 2021	M	Station outage
March 18 - June 22, 2021	B	Station operating as expected
June 22 - July 15, 2021	M	Station sensor dry, no valid stage data recorded
July 15 - October 31, 2021	B	Station operating as expected
November 1 - December 3, 2021	E	Station operating as expected, potential ice in channel

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 6, 2021	0.150	-	E	-	-	-	Calculated Discharge, value removed due to ice in channel
January 12, 2021	0.150	-	E	-	-	-	Calculated Discharge, value removed due to ice in channel
February 2, 2021	0.145	-	E	-	-	-	Calculated Discharge, value removed due to ice in channel
March 5, 2021	0.150	0.028	B	0.031	-0.003	-9.9%	LCO Measurement, 26 Panels, Max 9%
March 6, 2021	0.160	-	E	0.038	-	-	Calculated Discharge
March 9, 2021	-	0.028	B	-	-	-	LCO Measurement, 23 Panels, Max 8%
March 19, 2021	-	0.161	B	-	-	-	LCO Measurement, 21 Panels, Max 9%
March 24, 2021	-	0.106	B	-	-	-	LCO Measurement, 24 Panels, Max 9%
March 31, 2021	-	0.054	B	-	-	-	LCO Measurement, 23 Panels, Max 8%
April 7, 2021	-	0.073	B	-	-	-	LCO Measurement, 22 Panels, Max 10%
April 9, 2021	0.200	-	B	0.077	-	-	Calculated Discharge
April 13, 2021	0.200	-	B	0.077	-	-	Calculated Discharge
April 19, 2021	0.286	0.228	B	0.225	0.003	1.1%	LCO Measurement, 20 Panels, Max 10%
April 20, 2021	0.280	-	B	0.212	-	-	Calculated Discharge
April 26, 2021	0.250	-	B	0.151	-	-	Calculated Discharge
May 4, 2021	0.330	-	B	0.343	-	-	Calculated Discharge
May 10, 2021	0.302	-	B	0.264	-	-	Calculated Discharge
May 18, 2021	0.450	-	B	0.840	-	-	Calculated Discharge
May 25, 2021	0.370	-	B	0.478	-	-	Calculated Discharge
May 27, 2021	0.450	0.821	B	0.840	-0.019	-2.3%	KWL measurement, 21 panels, 9% max
June 1, 2021	0.410	-	B	0.643	-	-	Calculated Discharge
June 2, 2021	0.430	0.828	B	0.737	0.091	11.0%	LCO Measurement, 20 Panels, Max 7%
June 2, 2021	0.430	-	B	0.737	-	-	Calculated Discharge
June 8, 2021	0.322	-	B	0.319	-	-	Calculated Discharge
June 8, 2021	0.322	-	B	0.319	-	-	Calculated Discharge
June 15, 2021	0.274	-	B	0.198	-	-	Calculated Discharge
June 16, 2021	0.315	0.258	C	0.299	-0.041	-15.8%	LCO Measurement, 20 Panels, Max 8%
June 22, 2021	0.270	-	B	0.190	-	-	Calculated Discharge
June 29, 2021	0.250	-	B	0.151	-	-	Calculated Discharge
June 30, 2021	0.245	-	B	0.142	-	-	Calculated Discharge
July 5, 2021	0.225	-	B	0.110	-	-	Calculated Discharge
July 13, 2021	0.218	-	B	0.100	-	-	Calculated Discharge
July 13, 2021	0.245	-	B	0.142	-	-	Calculated Discharge

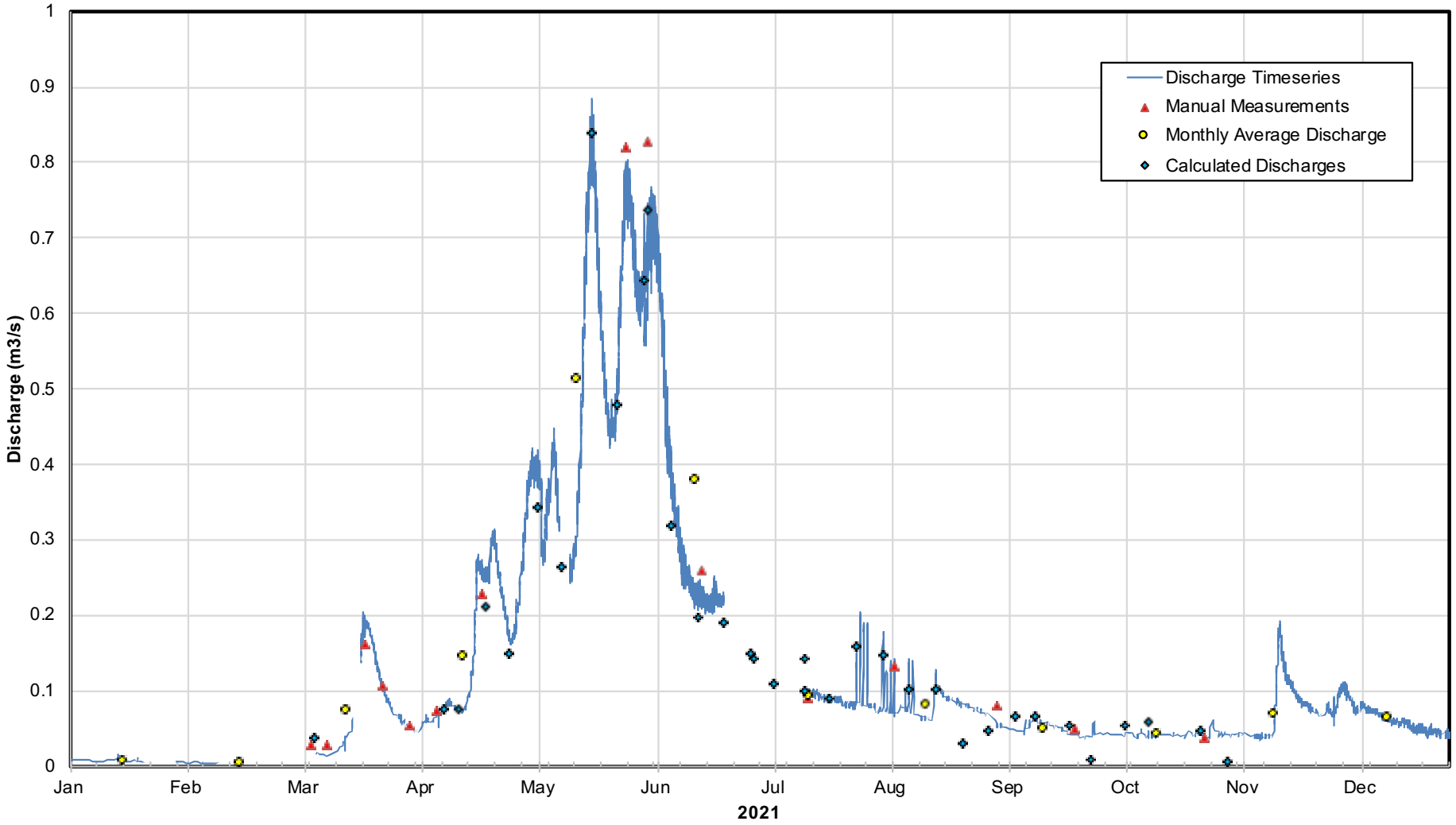
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
July 14, 2021	0.214	0.089	B	0.094	-0.005	-6.0%	KWL measurement, 22 panels, 9% max
July 20, 2021	0.210	-	B	0.089	-	-	Calculated Discharge
July 27, 2021	0.254	-	B	0.158	-	-	Calculated Discharge
August 3, 2021	0.248	-	B	0.147	-	-	Calculated Discharge
August 6, 2021	0.234	0.134	B	0.124	0.010	7.6%	LCO Measurement, 21 Panels, Max 10%
August 10, 2021	0.220	-	B	0.103	-	-	Calculated Discharge
August 17, 2021	0.220	-	B	0.103	-	-	Calculated Discharge
August 24, 2021	0.150	-	B	0.031	-	-	Calculated Discharge, potentially misread, contrary to station sensor offset trend
August 31, 2021	0.170	-	B	0.046	-	-	Calculated Discharge
September 2, 2021	0.190	0.082	B	0.065	0.016	19.9%	LCO Measurement, 23 Panels, Max 8%, measurement reviewed, no obvious reason for variance from SDR
September 7, 2021	0.190	-	B	0.065	-	-	Calculated Discharge
September 12, 2021	0.190	-	B	0.065	-	-	Calculated Discharge
September 21, 2021	0.180	-	B	0.055	-	-	Calculated Discharge
September 23, 2021	0.180	0.050	B	0.055	-0.005	-10.0%	LCO Measurement, 23 Panels, Max 8%
September 27, 2021	0.100	-	B	0.008	-	-	Calculated Discharge, potentially misread, contrary to station sensor offset trend
October 6, 2021	0.180	-	B	0.055	-	-	Calculated Discharge
October 12, 2021	0.185	-	B	0.060	-	-	Calculated Discharge
October 26, 2021	0.170	-	B	0.046	-	-	Calculated Discharge
October 27, 2021	0.180	0.037	B	0.055	-0.018	-48.3%	LCO Measurement, 22 Panels, Max 9%, measurement reviewed, no obvious reason for variance from SDR
November 2, 2021	0.095	-	B	0.007	-	-	Calculated Discharge, staff gauge reviewed, potentially misread, contrary to station sensor offset trend
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

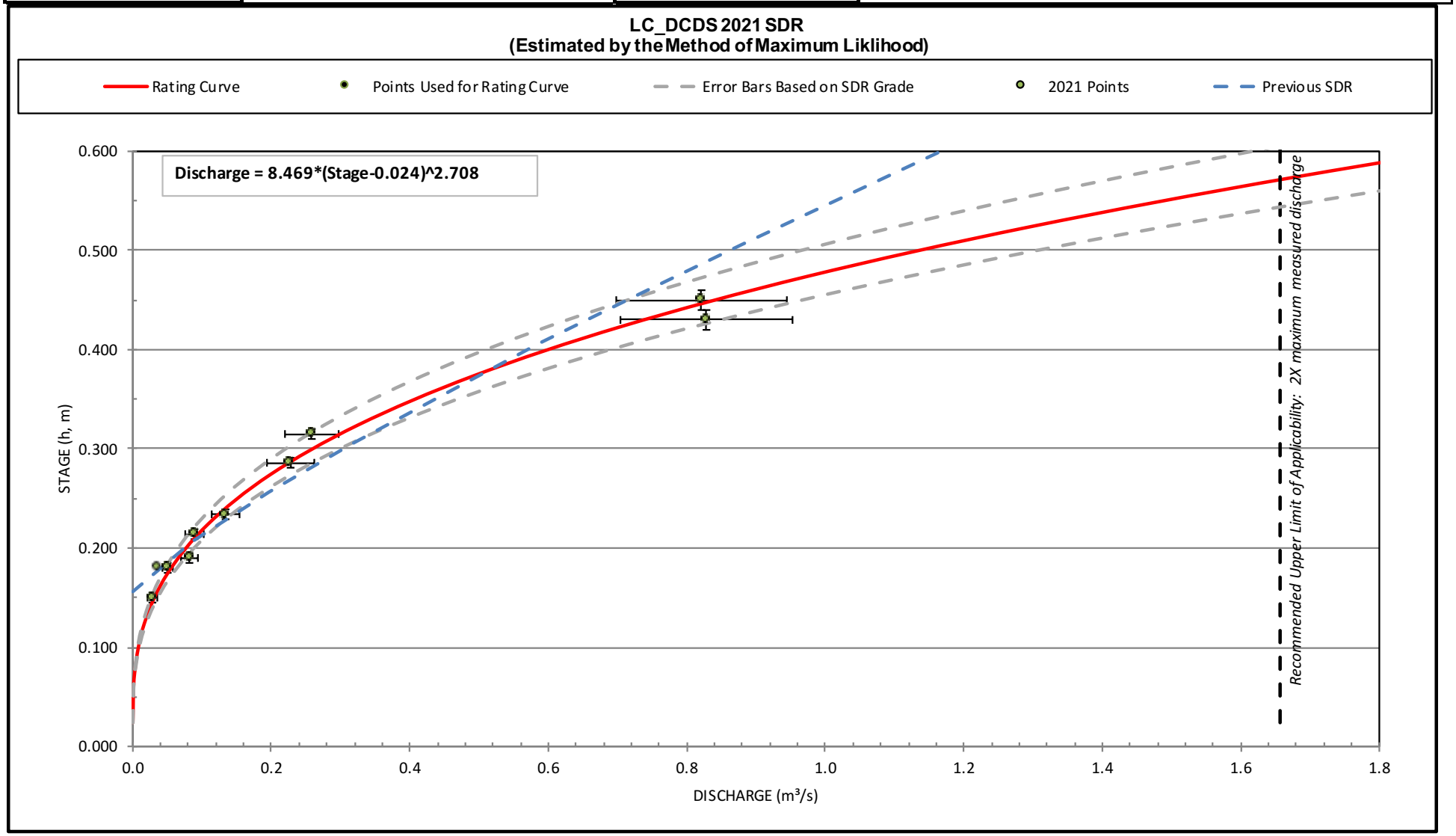
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.007	0.005	0.07	0.14	0.51	0.38	0.09	0.08	0.05	0.04	0.07	0.06

LC_DCDS 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	B
Reason For Change	New Staff gauge installed	**Data Grade Rational:**	Good agreement between measurement points and SDR		



LC_DCDS
Summary Report
Year: 2021
Measurement: Final Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.008	0.005	*	0.049	0.342	0.631	*	0.078	*	0.043	0.041	0.088
2	0.009	0.006	*	0.048	0.392	0.689	*	0.074	0.056	0.044	0.042	0.102 PK
3	0.009	0.006	*	0.051	0.395	0.711 PK	*	0.096 PK	0.054	0.043	0.042	0.104
4	0.008	0.005	*	0.059	0.390	0.707	*	0.091	0.053	0.042	0.042	0.093
5	0.008	0.005	*	0.060	0.325	0.652	*	0.088	0.050	0.041	0.044	0.083
6	0.008	0.005	0.017	0.060	0.316	0.551	*	0.095	0.050	0.044	0.043	0.075
7	0.007	0.005	0.017	0.065	0.359	0.448	*	0.071	0.049	0.045	0.043	0.077
8	0.007	0.005	0.016	0.068	0.410	0.390	*	0.080	0.047	0.042	0.042	0.080
9	0.008	0.008 PK	0.015	0.076	0.360	0.346	*	0.082	0.046	0.040	0.040	0.076
10	0.008	*	0.017	0.084	0.318	0.309	*	0.090	0.049	0.044	0.039	0.073
11	0.008	*	0.018	0.083	*	0.272	*	0.088	0.058	0.042	0.038	0.073
12	0.008	*	0.021	0.079	0.270	0.261	*	0.068	0.063 PK	0.040	0.039	0.070
13	0.010 PK	*	0.026	0.076	0.270	0.245	*	0.066	0.060	0.040	0.039	0.066
14	0.007	*	0.034	0.076	0.312	0.234	0.095	0.064	0.058	0.041	0.046	0.064
15	0.007	*	0.042	0.085	0.416	0.226	0.099	0.063	0.057	0.043	0.118	0.062
16	0.007	*	0.056	0.105	0.588	0.226	0.096	0.062	0.055	0.043	0.170 PK	0.060
17	0.008	*	*	0.161	0.750	0.219	0.094	0.106	0.054	0.042	0.131	0.056
18	0.007	*	0.157	0.258	0.822 PK	0.217	0.092	0.100	0.052	0.041	0.115	0.059
19	0.007	*	0.181 PK	0.260	0.760	0.219	0.091	0.095	0.051	0.041	0.107	0.058
20	0.006	*	0.185	0.255	0.647	0.226	0.089	0.091	0.049	0.041	0.096	0.055
21	0.006	*	0.170	0.260	0.553	0.220	0.089	0.088	0.044	0.040	0.089	0.051
22	*	*	0.146	0.297	0.482	0.222	0.089	0.085	0.043	0.041	0.084	0.049
23	*	*	0.121	0.277	0.450	*	0.086	0.086	0.042	0.045	0.080	0.050
24	*	*	0.104	0.242	0.456	*	0.084	0.083	0.040	0.042	0.076	0.048
25	*	*	0.090	0.213	0.522	*	0.082	0.081	0.039	0.042	0.073	0.046
26	*	*	0.079	0.181	0.658	*	0.081	0.079	0.039	0.041	0.070	0.048
27	*	*	0.069	0.170	0.750	*	0.097	0.077	0.041	0.040	0.067	0.045
28	0.006	*	0.066	0.190	0.749	*	0.113 PK	0.075	0.047	0.040	0.073	0.044
29	0.006		0.061	0.228	0.705	*	0.103	0.072	0.043	0.059 PK	0.074	0.042
30	0.005		0.054	0.283 PK	0.639	*	0.110	0.070	0.043	0.048	0.074	0.043
31	0.005		0.052		0.616		0.080	*		0.041		0.041
Mean	**0.007**	**0.006**	**0.073**	**0.147**	**0.501**	**0.374**	**0.093**	**0.081**	**0.049**	**0.043**	**0.069**	**0.064**
Maximum	**0.010**	**0.008**	**0.185**	**0.297**	**0.822**	**0.711**	**0.113**	**0.106**	**0.063**	**0.059**	**0.170**	**0.104**
Minimum	**0.005**	**0.005**	**0.015**	**0.048**	**0.270**	**0.217**	**0.080**	**0.062**	**0.039**	**0.040**	**0.038**	**0.041**
Peak 5-Minute	**0.015**	**0.009+**	**0.204**	**0.328**	**0.885**	**0.768**	**0.204**	**0.180**	**0.069**	**0.064+**	**0.192**	**0.111+**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.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Appendix O

SPDC

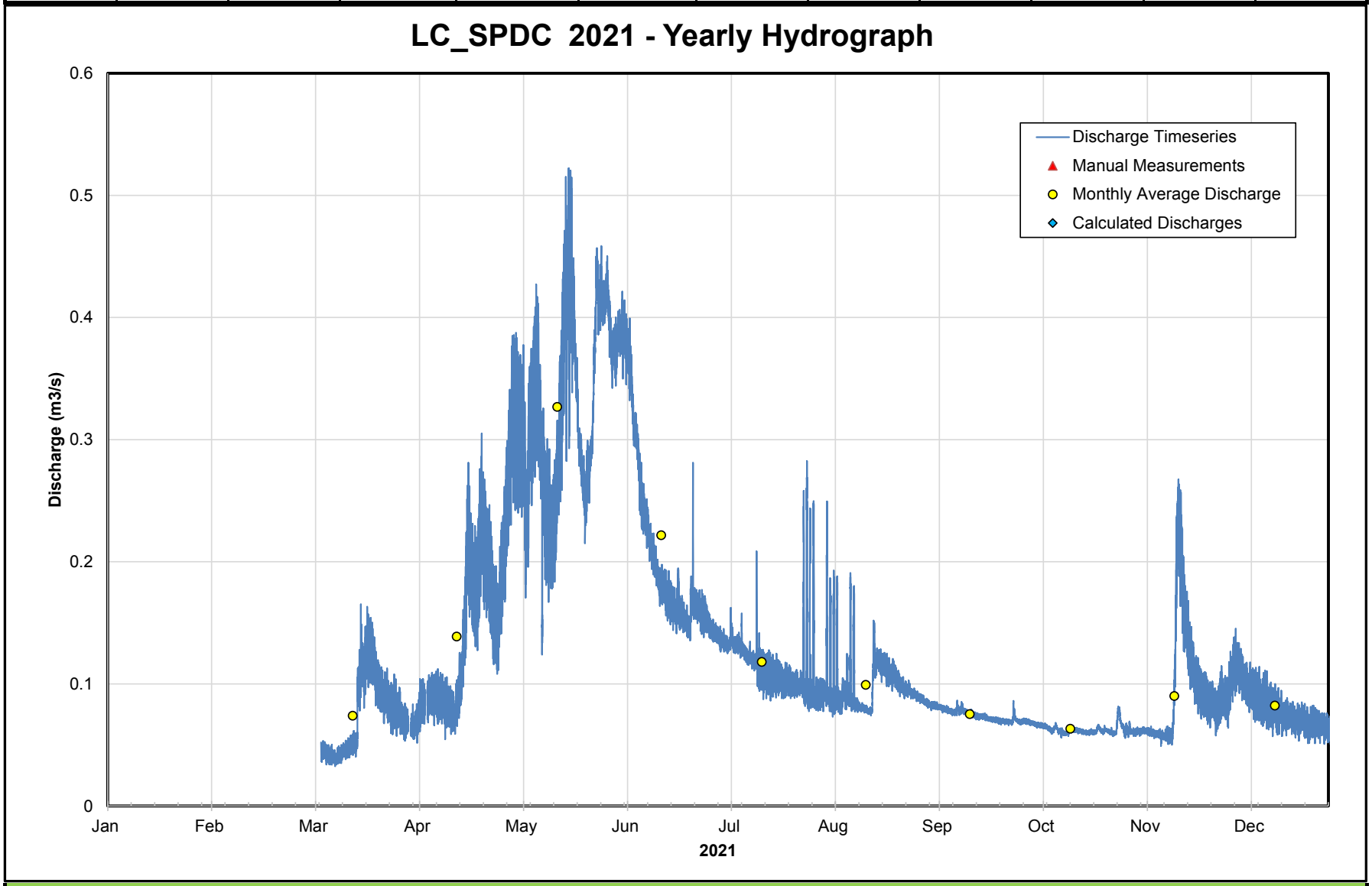
Station Details			
Station Name:	**Dry Creek Sed. Ponds effluent to Dry Creek via the return channel**	**Reporting Year:**	**2021**
Site ID:	**LC_SPDC**	**Station Type:**	Year-Round Continuous Data
EMS:	**E295211**	**Teck Mine:**	Line Creek Operation

Station Description:	The Setting Ponds at Dry Creek (SPDC) hydrometric station is located on the discharge pipe of the Dry Creek Settling Ponds.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 20217 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.

Data Quality Assessment - Continuous Data		
Data Range	**Data Quality Assessment Grade***	**Description**
January 1 - March 5, 2021	M	Flowmeter not operational due to upgrades to the Dry Creek Settling Pond infrastructure power supply
March 5 - December 31, 2021	E	Flowmeters at site active, but a data set was been created from two different flow meters. Combining the datasets warrants Grade E data.

* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
#N/A	#N/A	0.07	0.14	0.33	0.22	0.12	0.10	0.08	0.06	0.09	0.08



* Calculated and/or manual measurements used to calculate monthly average

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Appendix P

GRCK

Station Details			
Station Name:	**Grace Creek upstream of the CP rail tracks**	**Reporting Year:**	**2021**
Site ID:	**LC_GRCK**	**Station Type:**	Manual Measurements
EMS:	**E288275**	**Teck Mine:**	Line Creek Operation
Station Description:	The Grace Creek staff gauge is located approximately 1.5 km up the Grace Creek FSR (accessed via Fording Mine Road FSR) upstream of the CP rail tracks.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.		

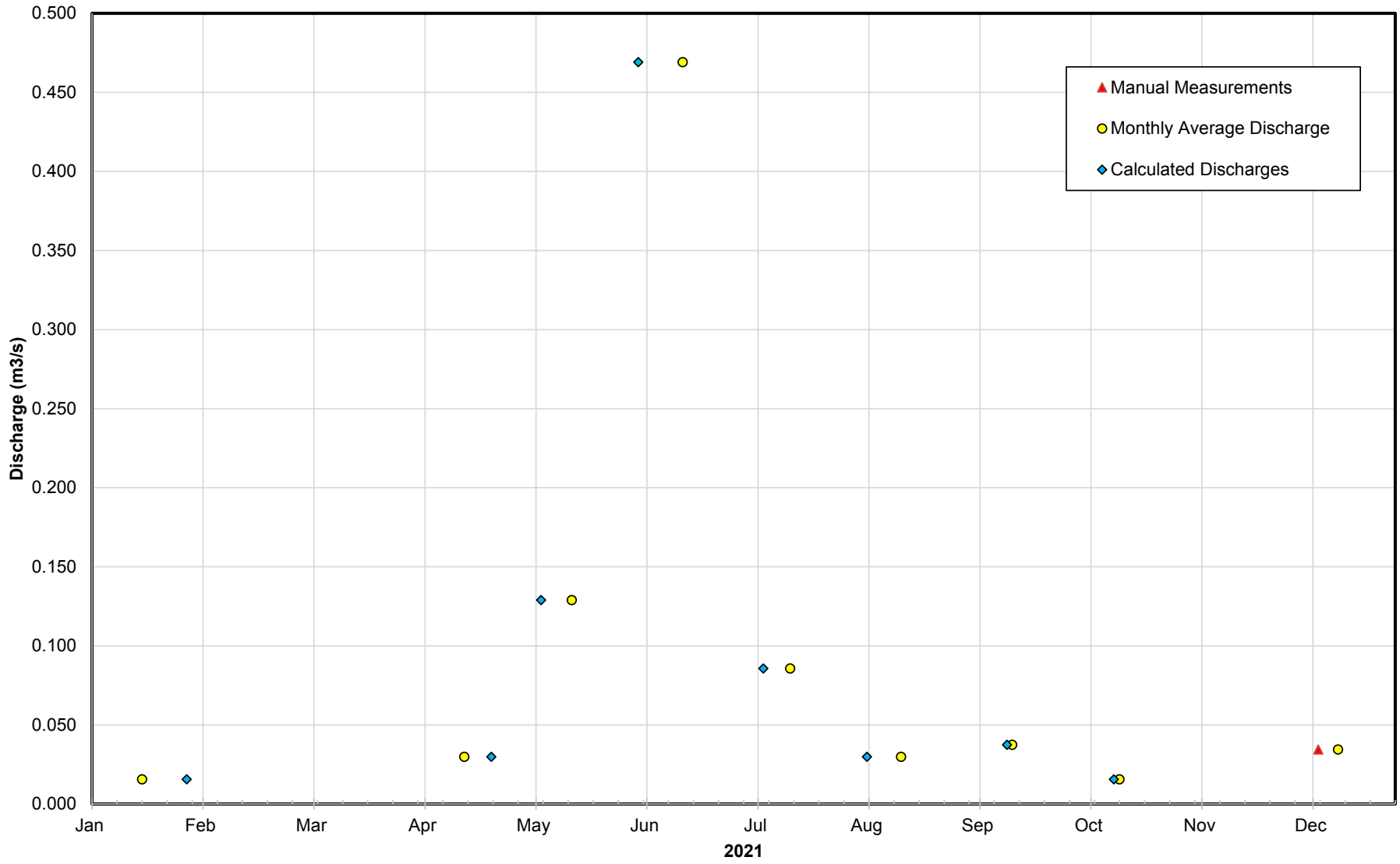
Summary Table of Yearly Discharge Measurements

Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 27, 2021	0.005	-	C	0.016	-	-	Calculated Discharge
April 22, 2021	0.015	-	C	0.030	-	-	Calculated Discharge
May 6, 2021	0.075	-	C	0.129	-	-	Calculated Discharge
June 2, 2021	0.250	-	C	0.469	-	-	Calculated Discharge
July 7, 2021	0.050	-	C	0.086	-	-	Calculated Discharge
August 5, 2021	0.015	-	C	0.030	-	-	Calculated Discharge
September 13, 2021	0.020	-	C	0.037	-	-	Calculated Discharge
October 13, 2021	0.005	-	C	0.016	-	-	Calculated Discharge
December 9, 2021	0.005	0.035	B	-	-	-	Teck Measurement, 20 panels, 9% Max, potential Ice in channel, vcalculated discharge removed
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

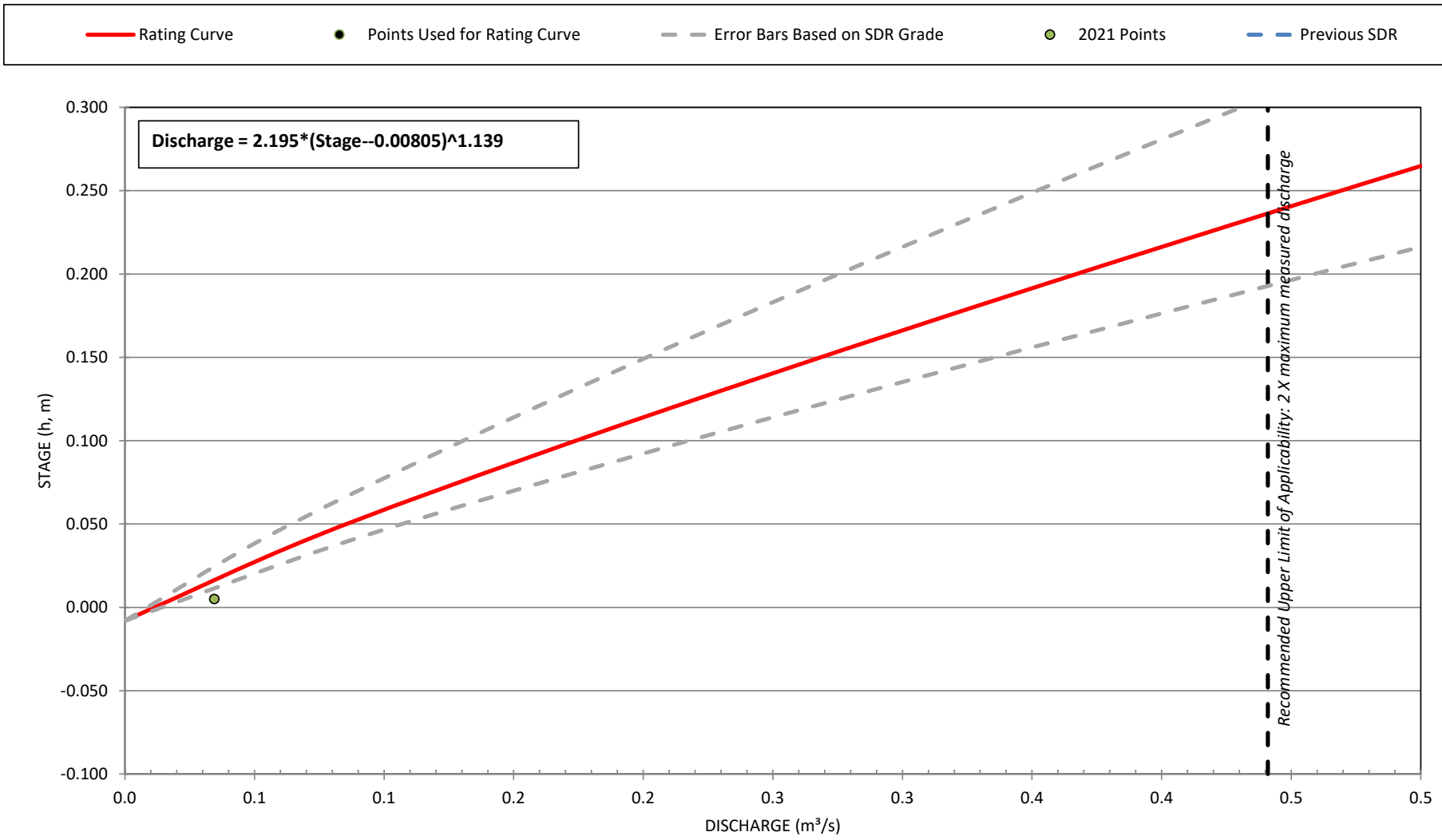
Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.02	#N/A	#N/A	0.03	0.13	0.47	0.09	0.03	0.04	0.02	#N/A	0.03

LC_GRCK 2021 - Yearly Hydrograph



Stage Discharge Relationship					
Year SDR Created:	2019	**Updated from Previous Year:**	No	**SDR Data Grade:**	C
Reason For Change		**Data Grade Rational:**	Significant scatter in measurement points used to create the SDR, Grade B not realistic.		

LC_GRCK 2021 SDR
(Estimated by the Method of Maximum Liklihood)



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Appendix Q

UC

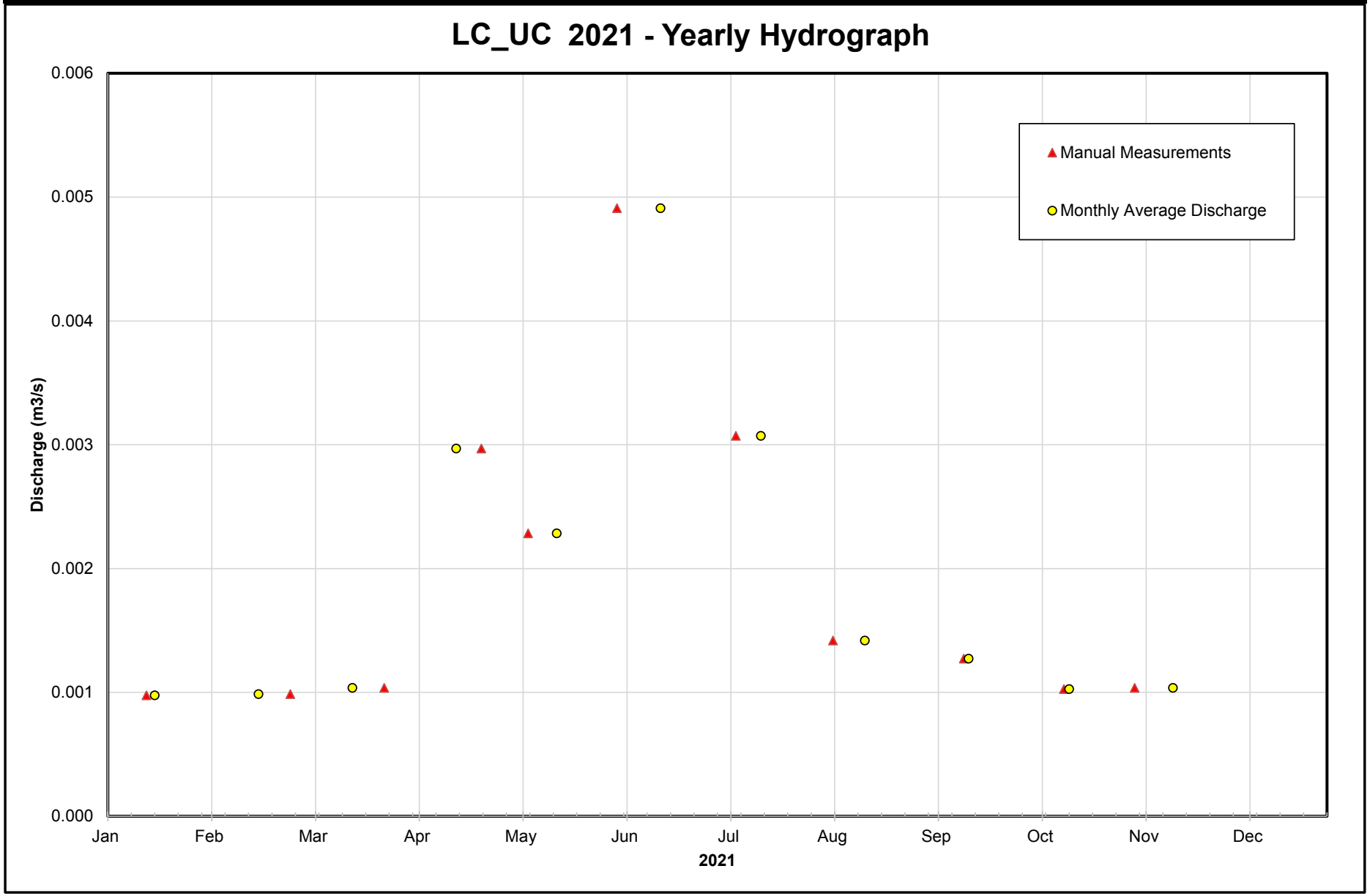
Station Details			
Station Name:	**Unnamed Creek**	**Reporting Year:**	**2021**
Site ID:	**LC_UC**	**Station Type:**	Manual Measurements
EMS:	**E295213**	**Teck Mine:**	Line Creek Operation
Station Description:	The Unnamed Creek (UC) staff gauge is located approximately 670 m south from the Fording River Road along the Fording Mine Road FSR.		
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol		
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B		
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.		

Summary Table of Yearly Discharge Measurements

Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
January 12, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
February 24, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
March 24, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
April 22, 2021	-	0.003	U	-	-	-	LCO volumetric Flow Measurement, no flow info
May 6, 2021	-	0.002	U	-	-	-	LCO volumetric Flow Measurement, no flow info
June 2, 2021	-	0.005	U	-	-	-	LCO volumetric Flow Measurement, no flow info
July 7, 2021	-	0.003	U	-	-	-	LCO volumetric Flow Measurement, no flow info
August 5, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
September 13, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
October 13, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
November 3, 2021	-	0.001	U	-	-	-	LCO volumetric Flow Measurement, no flow info
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

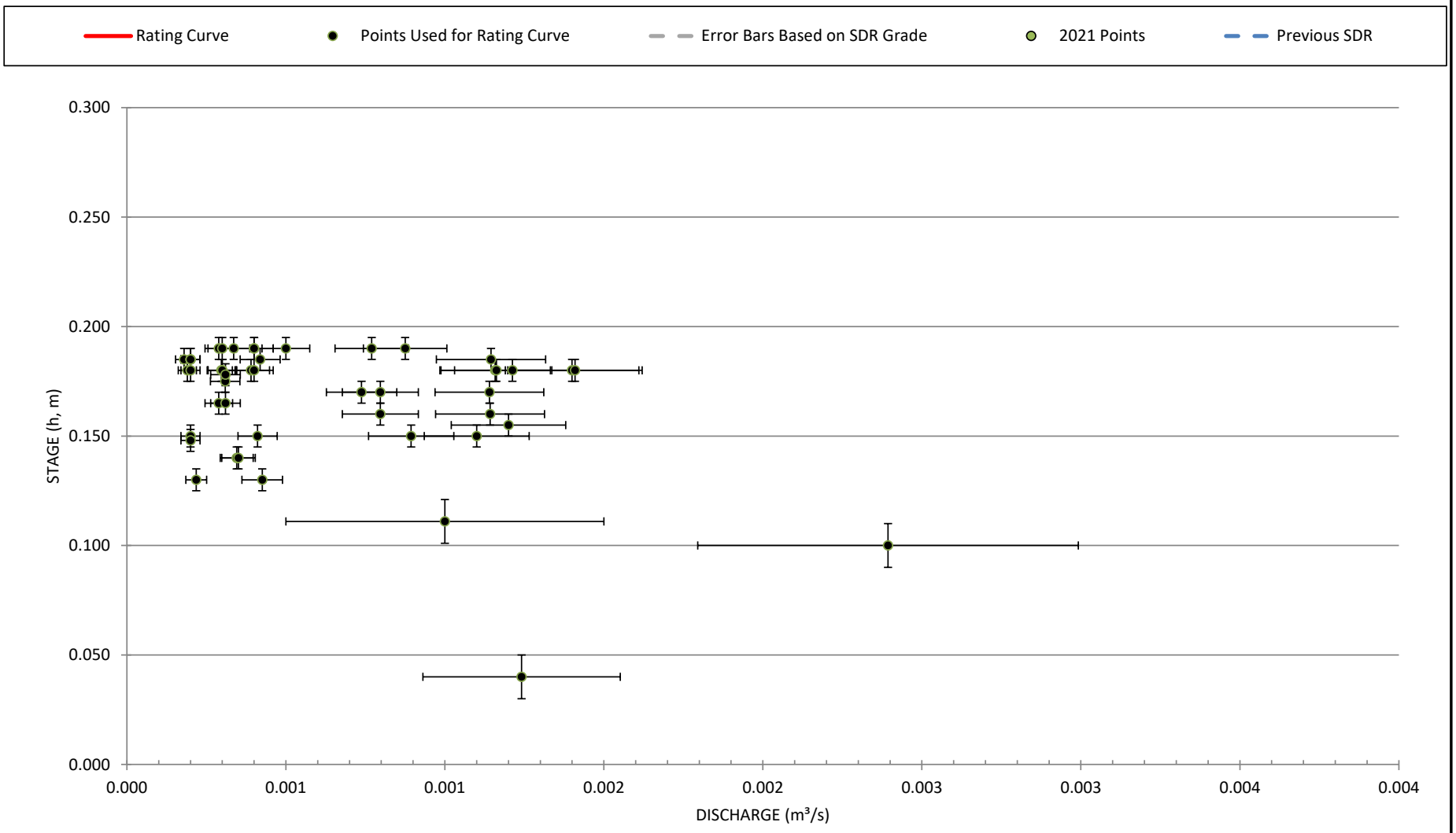
* Grades A, B, C, E and U based on the BC RISC Standards Document.

Monthly Average Discharge m^3/sec											
January	February	March	April	May	June	July	August	September	October	November	December
0.0010	0.0010	0.0010	0.0030	0.0023	0.0049	0.0031	0.0014	0.0013	0.0010	0.0010	#N/A



Stage Discharge Relationship					
Year SDR Created:	N/A	**Updated from Previous Year:**	N/A	**SDR Data Grade:**	N/A
Reason For Change		**Data Grade Rational:**	SDR Creation not possible due to excessive scatter in measurement points		

LC_UC 2021 SDR
(Estimated by the Method of Maximum Liklihood)



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Appendix R

RG_CH1

Station Details			
Station Name:	Chauncey Creek	**Reporting Year:**	**2021**
Site ID:	**RG_CH1**	**Station Type:**	Year-Round Continuous Data
EMS:	**E295214**	**Teck Mine:**	Line Creek Operation

Station Description:	This station is installed on Chauncey Creek immediately downstream of the Fording River Road. The station (logger, pressure transducer and staff gauge) was reinstalled in September 2021 following bridge and channel habitat construction.
Description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary:	All data was collected and managed as per the detail provided in the 2021 Metadata Summary and the 2017 Flow Monitoring Protocol
Target Data Quality from Regional Surface Flow Monitoring Plan (RSFMP):	B
Rationale for Data Grade Recommendation (RSFMP)	Governed by WQ sampling data use.

Data Quality Assessment - Continuous Data

Data Range	Data Quality Assessment Grade*	Description
January 1 - September 15, 2021	M	Station removed during bridge and channel construction
September 15 - October 24, 2021	E	Station operating as expected
October 24 - 29, 2021	M	Station battery failed
October 29 -November 29, 2021	E	Station operating as expected, potential ice in channel
November 29 - December 3, 2021	M	Ice affected data removed
December 3 - 15, 2021	E	Station operating as expected, potential ice in channel
December 15 - 29, 2021	M	Ice affected data removed
December 29 - 31, 2021	E	Station operating as expected, potential ice in channel

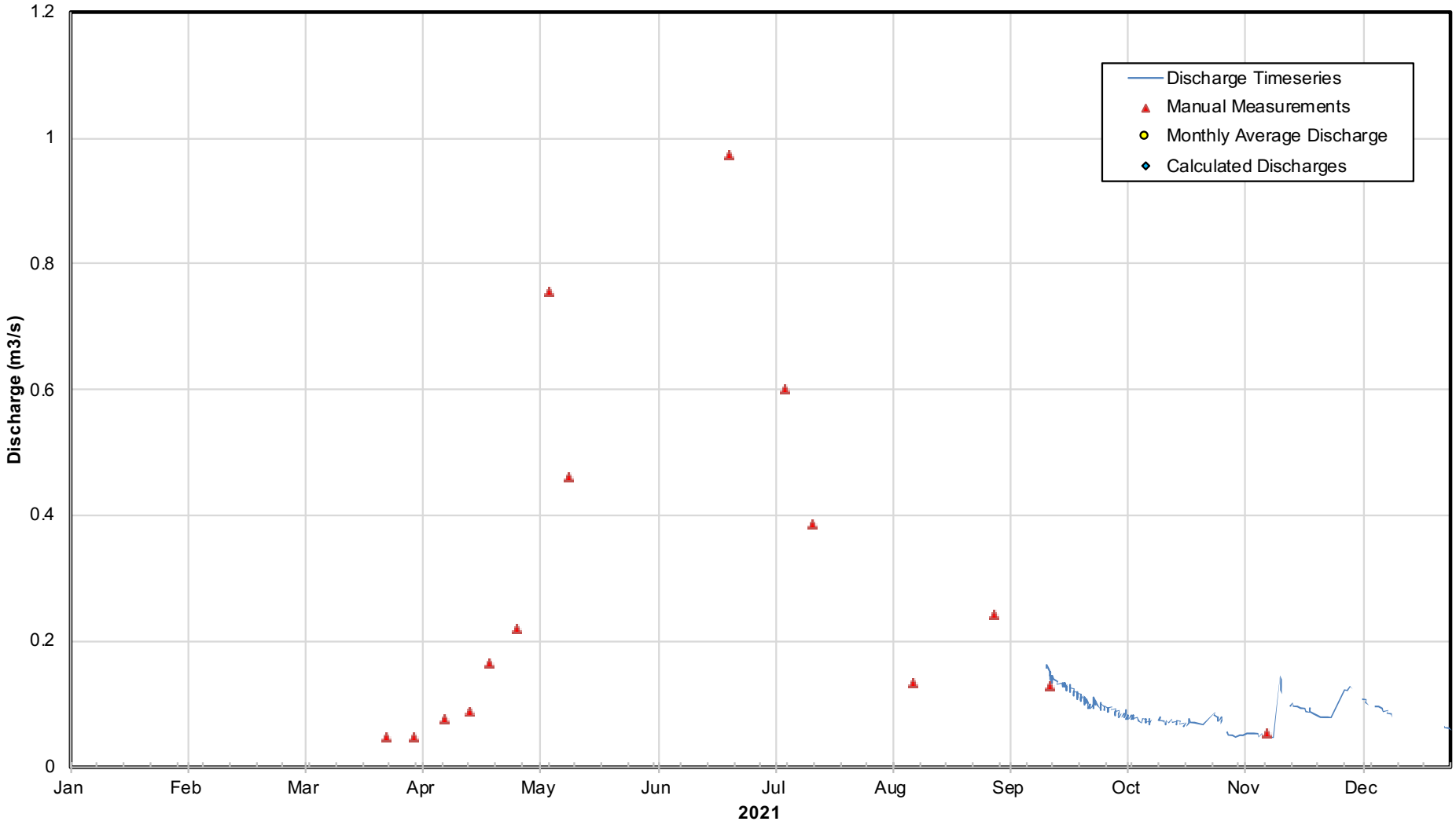
* Grades A, B, C, E and U based on the BC RISC Standards Document. Data gaps greater than 12 hours categorized as **Missing (M)**, data where ice was present in the stream is categorized as **Estimated (E)**

Summary Table of Yearly Discharge Measurements							
Date	Manual Staff Gauge Reading	Manual Discharge Measurement (m^3/s)	Data Grade of Manual or Calculated Discharge Measurement*	From Stage Discharge Relationship			Comments
				Calculated Discharge Measurement (m^3/s)	Difference (Manual-Calculated)	% Difference (Difference/ Calculated)	
March 25, 2021	-	0.047	B	-	-	-	Teck Measurement, 22 Panels, max 10%, no staff gauge due to construction in channel
April 1, 2021	-	0.047	B	-	-	-	Teck Measurement, 20 Panels, max 10%, no staff gauge due to construction in channel
April 9, 2021	-	0.077	B	-	-	-	Teck Measurement, 21 Panels, max 10%, no staff gauge due to construction in channel
April 16, 2021	-	0.089	B	-	-	-	Teck Measurement, 20 Panels, max 8%, no staff gauge due to construction in channel
April 21, 2021	-	0.167	B	-	-	-	Teck Measurement, 21 Panels, max 8%, no staff gauge due to construction in channel
April 28, 2021	-	0.221	B	-	-	-	Teck Measurement, 21 Panels, max 9%, no staff gauge due to construction in channel
May 7, 2021	-	0.755	B	-	-	-	Teck Measurement, 21 Panels, max 10%, no staff gauge due to construction in channel
May 12, 2021	-	0.460	C	-	-	-	Teck Measurement, 19 Panels, max 9%, no staff gauge due to construction in channel
June 23, 2021	-	0.972	B	-	-	-	Teck Measurement, 24 Panels, max 8%, no staff gauge due to construction in channel
July 8, 2021	-	0.601	B	-	-	-	Teck Measurement, 21 Panels, max 7%, no staff gauge due to construction in channel
July 15, 2021	-	0.386	B	-	-	-	Teck Measurement, 20 Panels, max 9%, no staff gauge due to construction in channel
August 11, 2021	-	0.135	B	-	-	-	Teck Measurement, 21 Panels, max 9%, no staff gauge due to construction in channel
September 1, 2021	0.580	0.242	B	0.226	0.016	6.6%	KWL Measurement, 23 Panels, max 8%, new staff gauge installed
September 16, 2021	0.545	0.128	B	0.141	-0.013	-10.1%	Teck Measurement, 21 Panels, max 8%
November 12, 2021	0.488	0.053	B	0.051	0.002	4.1%	Teck Measurement, 22 Panels, max 10%
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	
	-	-		-	-	-	

* Grades A, B, C, E and U based on the BC RISC Standards Document.

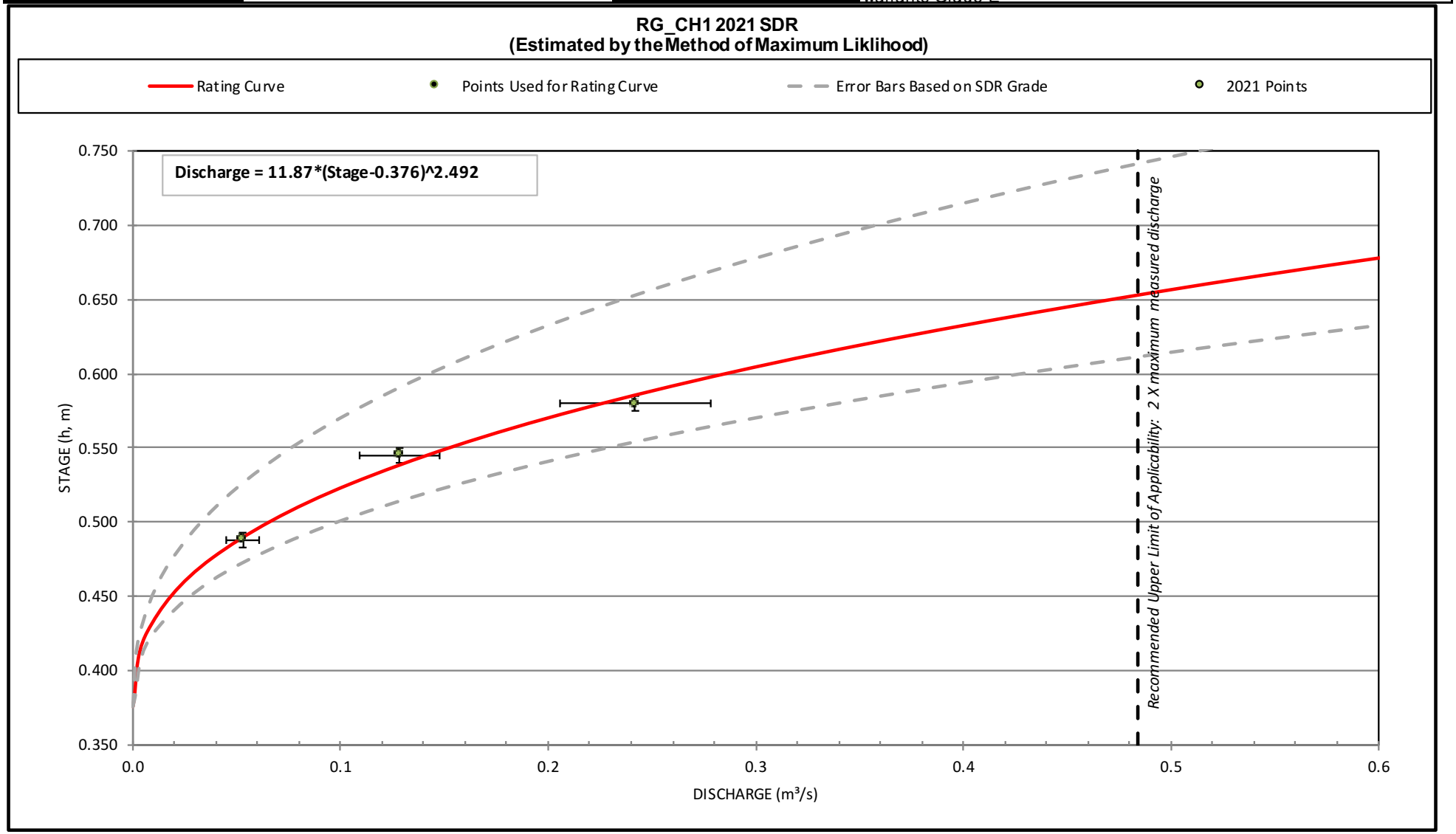
Monthly Average Discharge m^3/sec											
January	February	March*	April*	May*	June*	July*	August*	September*	October	November	December
#N/A	#N/A	0.05	0.12	0.61	0.97	0.49	0.14	0.19	0.08	0.07	0.10

RG_CH1 2021 - Yearly Hydrograph



* Calculated and/or manual measurements used to calculate monthly average

Stage Discharge Relationship					
Year SDR Created:	2021	**Updated from Previous Year:**	Yes	**SDR Data Grade:**	E
Reason For Change	In-stream Construction	**Data Grade Rational:**	Staff gauge and station relocated following instream construction, preliminary SDR created with three 2021 points, lack of measurements warrants Grade E		



RG_CH1
Summary Report
Year: 2021
Measurement: Preliminary Discharge (m3/s)

2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	*	*	*	*	*	*	*	*	*	0.094 PK	0.068	*
2	*	*	*	*	*	*	*	*	*	0.093	0.054	*
3	*	*	*	*	*	*	*	*	*	0.090	0.050	0.123
4	*	*	*	*	*	*	*	*	*	0.087	0.049	0.126 PK
5	*	*	*	*	*	*	*	*	*	0.084	0.051	0.125
6	*	*	*	*	*	*	*	*	*	0.080	0.052	*
7	*	*	*	*	*	*	*	*	*	0.080	0.053	0.108
8	*	*	*	*	*	*	*	*	*	0.079	0.054	0.106
9	*	*	*	*	*	*	*	*	*	0.076	0.052	0.100
10	*	*	*	*	*	*	*	*	*	0.074	0.050	0.098
11	*	*	*	*	*	*	*	*	*	0.074	0.049	0.097
12	*	*	*	*	*	*	*	*	*	0.073	0.049	0.094
13	*	*	*	*	*	*	*	*	*	0.076	0.047	0.089
14	*	*	*	*	*	*	*	*	*	0.074	0.049	0.086
15	*	*	*	*	*	*	*	*	0.160 PK	0.074	0.145 PK	0.082
16	*	*	*	*	*	*	*	*	0.148	0.073	0.124	*
17	*	*	*	*	*	*	*	*	0.140	0.074	0.113	*
18	*	*	*	*	*	*	*	*	0.136	0.074	0.095	*
19	*	*	*	*	*	*	*	*	0.132	0.073	0.097	*
20	*	*	*	*	*	*	*	*	0.129	0.072	0.094	*
21	*	*	*	*	*	*	*	*	0.126	0.069	0.094	*
22	*	*	*	*	*	*	*	*	0.122	0.068	0.093	*
23	*	*	*	*	*	*	*	*	0.117	0.073	0.089	*
24	*	*	*	*	*	*	*	*	0.113	0.071	0.087	*
25	*	*	*	*	*	*	*	*	0.108	*	0.082	*
26	*	*	*	*	*	*	*	*	0.103	0.067	0.080	*
27	*	*	*	*	*	*	*	*	0.099	*	0.077	*
28	*	*	*	*	*	*	*	*	0.103	*	0.079	*
29	*		*	*	*	*	*	*	0.099	0.084	0.079	0.063
30	*		*	*	*	*	*	*	0.097	0.079	*	0.062
31	*		*		*		*	*		0.072		0.059
Mean	---	---	---	---	---	---	---	---	**0.121**	**0.077**	**0.074**	**0.094**
Maximum	---	---	---	---	---	---	---	---	**0.160**	**0.094**	**0.145**	**0.126**
Minimum	---	---	---	---	---	---	---	---	**0.097**	**0.067**	**0.047**	**0.059**
Peak 5-Minute	---	---	---	---	---	---	---	---	**0.163**	**0.098**	**0.146**	**0.128+**

Notes:
' . ' denotes a 0 value for the period.
' * ' denotes there was no data for that period.
' + ' denotes the min/max/peak occurred more than once.
' P ' denotes only partial data exists for the day.
' PK ' denotes that the peak instantaneous value for the month occurred on this day.

Appendix G – 2015 Memo MSAN (LC7) Statistical Evaluation

Memorandum

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Line Creek Operations
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Teck

To: Mark Hall, MOE **SENT VIA EMAIL** Date: 30th October 2015

From: Kevin Podrasky, Line Creek Operations Cc: -

Subject: Statistical evaluation (T-Test) regarding the MSAN MSX Short Dump LC7 (E216142) and 'LC7 alternate' sampling location.

The Mine Services Area North Pond (MSAN) System (identified in Section 1.4 of PE5353 (June 2015) is a series of three separate cells which are used to settle suspended sediment in mine impacted water from the MSAN Pit. Line Creek Operations plans to implement a mine optimization opportunity that involves backfilling of the MSAN Pit with a short dump (MSX Short Dump) which comprises approximately 7.1 Million BCM of waste rock. The runout zone of the Short Dump has the potential to limit access to the Pond System and therefore may limit Line Creek Operations ability to meet compliance monitoring obligations as specified within the permit, unless the sample can be obtained from within the safe zone.

Line Creek Operations propose that for the duration of the spoil development, that compliance samples will be obtained where possible at the current discharge location E216142 and when access is restricted, that sampling is obtained from the '*LC_7 alternate location'* (LC_LC7DSTF).

In support of the request to sample an alternate location, the water quality and physical characteristics at the MSAN Pond discharge (E216142 (LC_7)) and the '*LC_7 alternate location'* (LC_LC7DSTF) were compared. An evaluation of standard deviation and coefficient of variation were applied to the dataset and submitted to MOE on 5th October 2015, concluding that there was a low degree of variation between the datasets. Following review of this submission, the MOE requested (14th October, 2015) that additional statistical evaluation was conducted, to determine the significance of any difference between the datasets from the two locations.

A t-test statistical analysis was undertaken on the original MSAN Pond discharge (E216142 (LC_7)) and the *LC7_alternate* dataset, to verify the hypothesis that no significant difference exists between them. For the purpose of hypothesis testing, the following assumptions applied to the analysis:

- Both datasets exhibit a normal distribution with equal variance
- The direction of difference is unable to be determined (two-tailed test)
- Significance level (α) of 0.05, 95% confidence

1 - Navidi, William. *Statistics for Engineers and Scientists*. New York: McGraw-Hill, 2006.

Values below detection were not utilized to conduct the t-test analysis as their value is undeterminable and would misconstrue the normal distribution.

The t-test assesses whether the means of two groups are statistically different from each other. In order to conduct the t-test analysis, a P value (or t-value in some references) was calculated for the distributions of parameter values from the two locations, within the assessed dataset (Table 1). To determine the critical P-value (or critical t-value in some references), the degree of freedom was determined for each parameter, by summing the number of samples (N) from LC7 (n_1) and *LC7_alternate* (n_2) as follows:

$$N = n_1 + n_2$$
$$degree\ of\ freedom = N - 2$$

Once the degree of freedom and the significance level were identified, the critical P-value was determined from t-test tables[1]. The T-test identifies that, where the calculated P-value exceeds the critical P-value, the two datasets are deemed to be significantly different.

In this case, the t-test was applied to a dataset of 86 water quality analytes, sampled from both the MSAN Pond discharge (E216142 (LC_7)) and the *'LC_7 alternate'* location. The parameters tested are listed in Table 1 and included mining constituents of concern, anions and nutrients (eg. nitrate, nitrite, ammonia and sulphate), total and dissolved metals (eg. selenium and cadmium) and Total Suspended Solids, etc. Data was obtained on 46 sampling events at the MSAN Pond discharge (E216142 (LC_7)) and 16 sampling events at the *'LC_7 alternate location'* (LC_LC7DSTF), throughout 2013.

Although the degrees of freedom varied for each parameter, the calculated P-values of all analytes collectively ranged from 0.0175 to 0.998 and critical P-values collectively ranged from 2.021 to 4.303. In all cases the P-value was less than the corresponding critical P-value, which verifies acceptance of the hypothesis that no significant difference exists between the two datasets.

The findings of this statistical comparison of water quality at the MSAN pond discharge and the *'LC_7 alternate'* location support the initial hypothesis that the water quality ~400 m downstream of the current sampling location (in the safe sampling zone), is not markedly different than the MSAN Pond Outlet (LC_LC7). The t-test results align with the initial statistical evaluations (submitted to MOE on 5th October) which concluded that there was a low degree of variation between the datasets at each location. Both analyses support the LCO proposal to obtain representative compliance samples where safe to do so at the discharge location (E216142 (LC_7)) and when access is restricted due to safety concerns, that sampling is obtained from the *'LC_7 alternate'* location.

Should you have any questions or comments regarding this report, please feel free to contact Kevin Podrasky, Superintendent Environment, at 250-425-3169, or via email at Kevin.Podrasky@teck.com.

Kevin Podrasky
Superintendent Environment - Line Creek Operations

Table 1. T-Test results for *LC7_alternate* as compared to LC7 (E216142) for all analytes

Analyte	P-value	Sample Count (N)	Degree of Freedom (N-2)	Alpha	Critical P-Value	ACCEPT or REJECT Null Hypothesis
ALUMINUM (D)	0.574	16	14	0.05	2.145	ACCEPT
ALUMINUM (T)	0.831	37	35	0.05	2.042	ACCEPT
ANTIMONY (D)	0.315	37	35	0.05	2.042	ACCEPT
ANTIMONY (T)	0.345	37	35	0.05	2.042	ACCEPT
ARSENIC (D)	0.967	34	32	0.05	2.042	ACCEPT
ARSENIC (T)	0.902	37	35	0.05	2.042	ACCEPT
BARIUM (D)	0.958	37	35	0.05	2.042	ACCEPT
BARIUM (T)	0.818	37	35	0.05	2.042	ACCEPT
BERYLLIUM (D)		0	*	0.05		N/A
BERYLLIUM (T)	0.404	4	2	0.05	4.303	ACCEPT
BISMUTH (D)		0	*	0.05		N/A
BISMUTH (T)		0	*	0.05		N/A
BORON (D)	0.211	32	30	0.05	2.042	ACCEPT
BORON (T)	0.337	37	35	0.05	2.042	ACCEPT
BROMIDE (D)		0	*	0.05		N/A
CADMIUM (D)	0.548	37	35	0.05	2.042	ACCEPT
CADMIUM (T)	0.814	37	35	0.05	2.042	ACCEPT
CALCIUM (T)	0.486	38	36	0.05	2.042	ACCEPT
CARBON, DISSOLVED ORGANIC (D)	0.347	35	33	0.05	2.042	ACCEPT
CHLORIDE (D)	0.304	24	22	0.05	2.074	ACCEPT
CHLORIDE (N)		2	0	0.05		N/A
CHROMIUM (D)	0.782	20	18	0.05	2.101	ACCEPT
CHROMIUM (T)	0.796	37	35	0.05	2.042	ACCEPT
COBALT (D)	0.362	35	33	0.05	2.042	ACCEPT
COBALT (T)	0.697	37	35	0.05	2.042	ACCEPT
CONDUCTIVITY, FIELD (N)	0.216	38	36	0.05	2.042	ACCEPT
CONDUCTIVITY, LAB (N)	0.812	37	35	0.05	2.042	ACCEPT
COPPER (D)	0.220	15	13	0.05	2.16	ACCEPT
COPPER (T)	0.702	22	20	0.05	2.086	ACCEPT
DISSOLVED OXYGEN, FIELD (N)	0.134	38	36	0.05	2.042	ACCEPT
FLUORIDE (D)	0.933	32	30	0.05	2.042	ACCEPT
Hardness, Total or Dissolved CaCO3 (N)	0.998	38	36	0.05	2.042	ACCEPT
IRON (D)		0	*	0.05		N/A
IRON (T)	0.546	26	24	0.05	2.064	ACCEPT
LEAD (D)		0	*	0.05		N/A
LEAD (T)	0.676	24	22	0.05	2.074	ACCEPT
LITHIUM (D)	0.319	37	35	0.05	2.042	ACCEPT
LITHIUM (T)	0.506	37	35	0.05	2.042	ACCEPT
MAGNESIUM (T)	0.694	38	36	0.05	2.042	ACCEPT
MANGANESE (D)	0.223	37	35	0.05	2.042	ACCEPT

Analyte	P-value	Sample Count (N)	Degree of Freedom (N-2)	Alpha	Critical P-Value	ACCEPT or REJECT Null Hypothesis
MANGANESE (T)	0.967	37	35	0.05	2.042	ACCEPT
MERCURY (D)		0	*	0.05		N/A
MERCURY (T)		0	*	0.05		N/A
MOLYBDENUM (D)	0.226	37	35	0.05	2.042	ACCEPT
MOLYBDENUM (T)	0.346	37	35	0.05	2.042	ACCEPT
NICKEL (D)	0.436	37	35	0.05	2.042	ACCEPT
NICKEL (T)	0.593	37	35	0.05	2.042	ACCEPT
NITRATE NITROGEN (NO3), AS N (N)	0.659	38	36	0.05	2.042	ACCEPT
NITRITE NITROGEN (NO2), AS N (N)	0.278	35	33	0.05	2.042	ACCEPT
NITROGEN, AMMONIA (AS N) (N)	0.051	32	30	0.05	2.042	ACCEPT
NITROGEN, AMMONIA (AS N) (T)	0.757	5	3	0.05	3.182	ACCEPT
ORTHO-PHOSPHATE (D)		2	*	0.05		N/A
ORTHO-PHOSPHATE (N)	0.691	22	20	0.05	2.086	ACCEPT
pH, Field (N)	0.845	38	36	0.05	2.042	ACCEPT
pH, LAB (N)	0.035	38	36	0.05	2.042	ACCEPT
PHOSPHORUS (N)	0.409	7	5	0.05	2.571	ACCEPT
PHOSPHORUS (T)	0.933	18	16	0.05	2.12	ACCEPT
POTASSIUM (T)	0.319	15	13	0.05	2.16	ACCEPT
SELENIUM (D)	0.556	37	35	0.05	2.042	ACCEPT
SELENIUM (T)	0.574	37	35	0.05	2.042	ACCEPT
SILVER (D)		0	*	0.05		N/A
SILVER (T)	0.804	10	8	0.05	2.306	ACCEPT
SODIUM (T)	0.525	33	31	0.05	2.042	ACCEPT
STRONTIUM (D)	0.399	37	35	0.05	2.042	ACCEPT
STRONTIUM (T)	0.244	37	35	0.05	2.042	ACCEPT
SULFATE (AS SO4) (D)	0.571	38	36	0.05	2.042	ACCEPT
TEMPERATURE, FIELD (N)	0.288	38	36	0.05	2.042	ACCEPT
THALLIUM (D)	0.671	13	11	0.05	2.201	ACCEPT
THALLIUM (T)	0.929	18	16	0.05	2.12	ACCEPT
TIN (D)		0	*	0.05		ACCEPT
TIN (T)		0	*	0.05		ACCEPT
TITANIUM (D)		2	0	0.05		N/A
TITANIUM (T)	0.679	14	12	0.05	2.179	ACCEPT
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) (N)	0.834	31	29	0.05	2.043	ACCEPT
TOTAL KJELDAHL NITROGEN (N)	0.322	34	32	0.05	2.042	ACCEPT

Analyte	P-value	Sample Count (N)	Degree of Freedom (N-2)	Alpha	Critical P-Value	ACCEPT or REJECT Null Hypothesis
TOTAL ORGANIC CARBON (T)	0.934	36	34	0.05	2.042	ACCEPT
TOTAL SUSPENDED SOLIDS, LAB (T)		1	*	0.05		ACCEPT
TURBIDITY, LAB (N)	0.548	57	55	0.05	2.021	ACCEPT
URANIUM (D)	0.542	37	35	0.05	2.042	ACCEPT
URANIUM (T)	0.664	37	35	0.05	2.042	ACCEPT
VANADIUM (D)		0	*	0.05		N/A
VANADIUM (T)	0.470	9	7	0.05	2.635	ACCEPT
ZINC (D)	0.017	25	23	0.05	2.069	ACCEPT
ZINC (T)	0.530	33	31	0.05	2.042	ACCEPT

* All sample results remained below detection limits for both sample locations

Appendix H – 2021 Temporary Paired Sampling at MSA North Ponds

Analyte	P-value	Sample Count	Degree of Freedom	Alpha	Critical P-Value	ACCEPT/REJECT Null Hypothesis
ALUMINUM (D)	0.364	34	32	0.05	2.042	ACCEPT
ALUMINUM (T)	0.802	56	54	0.05	2.021	ACCEPT
ANTIMONY (D)	0.971	56	54	0.05	2.021	ACCEPT
ANTIMONY (T)	0.988	56	54	0.05	2.021	ACCEPT
ARSENIC (D)	0.866	53	51	0.05	2.021	ACCEPT
ARSENIC (T)	0.770	56	54	0.05	2.021	ACCEPT
BARIUM (D)	0.444	56	54	0.05	2.021	ACCEPT
BARIUM (T)	0.547	56	54	0.05	2.021	ACCEPT
BERYLLIUM (D)	0.1895	24	22	0.05	2.074	ACCEPT
BERYLLIUM (T)	0.776	28	26	0.05	2.056	ACCEPT
BISMUTH (D)	1.000	24	22	0.05	2.074	ACCEPT
BISMUTH (T)	1.000	24	22	0.05	2.074	ACCEPT
BORON (D)	1.000	52	50	0.05	2.021	ACCEPT
BORON (T)	0.976	56	54	0.05	2.021	ACCEPT
BROMIDE (D)	0.993	56	54	0.05	2.021	ACCEPT
CADMIUM (D)	0.984	56	54	0.05	2.021	ACCEPT
CADMIUM (T)	0.843	20	18	0.05	2.101	ACCEPT
CALCIUM	0.807	56	54	0.05	2.021	ACCEPT
CALCIUM (T)	0.550	54	52	0.05	2.021	ACCEPT
CARBON, DISSOLVED ORGANIC (D)	0.978	44	42	0.05	2.021	ACCEPT
CHLORIDE (N)	0.823	49	47	0.05	2.021	ACCEPT
CHROMIUM (D)	0.896	54	52	0.05	2.021	ACCEPT
CHROMIUM (T)	0.967	56	54	0.05	2.021	ACCEPT
COBALT (D)	0.997	56	54	0.05	2.021	ACCEPT
COBALT (T)	0.646	35	33	0.05	2.042	ACCEPT
CONDUCTIVITY, LAB (N)	0.669	41	39	0.05	2.042	ACCEPT
COPPER (D)	0.346	53	51	0.05	2.021	ACCEPT
(N)	0.335	50	48	0.05	2.021	ACCEPT
Extractable Petroleum Hydrocarbons C19-C32	0.974	6	4	0.05	2.776	ACCEPT
Hardness, Total or Dissolved CaCO3 (N)	0.987	56	54	0.05	2.021	ACCEPT
IRON (D)	0.350	23	21	0.05	2.08	ACCEPT
IRON (T)	0.898	45	43	0.05	2.021	ACCEPT
LEAD (D)	0.350	23	21	0.05	2.08	ACCEPT
LEAD (T)	0.773	41	39	0.05	2.042	ACCEPT
LITHIUM (D)	0.825	56	54	0.05	2.021	ACCEPT
LITHIUM (T)	0.969	56	54	0.05	2.021	ACCEPT
MAGNESIUM (D)	0.982	56	54	0.05	2.021	ACCEPT
MAGNESIUM (T)	0.976	56	54	0.05	2.021	ACCEPT
MANGANESE (D)	0.937	56	54	0.05	2.021	ACCEPT
MANGANESE (T)	0.385	56	54	0.05	2.021	ACCEPT
MERCURY (T)	0.409	16	14	0.05	2.145	ACCEPT
MOLYBDENUM (D)	0.944	56	54	0.05	2.021	ACCEPT
MOLYBDENUM (T)	0.712	54	52	0.05	2.021	ACCEPT
NICKEL (D)	0.785	56	54	0.05	2.021	ACCEPT
NICKEL (T)	0.943	56	54	0.05	2.021	ACCEPT
NITRATE NITROGEN (NO3), AS N (N)	0.989	56	54	0.05	2.021	ACCEPT
NITRITE NITROGEN (NO2), AS N (N)	0.804	54	52	0.05	2.021	ACCEPT
NITROGEN, AMMONIA (AS N) (N)	0.575	49	47	0.05	2.021	ACCEPT
ORTHO-PHOSPHATE (N)	0.702	43	41	0.05	2.021	ACCEPT
pH, Field (N)	0.765	53	51	0.05	2.021	ACCEPT
pH, LAB (N)	0.046	56	54	0.05	2.021	ACCEPT
PHOSPHORUS (N)	0.469	20	18	0.05	2.101	ACCEPT
POTASSIUM	0.802	37	35	0.05	2.042	ACCEPT
POTASSIUM (T)	0.941	56	54	0.05	2.021	ACCEPT
SELENIUM (D)	0.994	56	54	0.05	2.021	ACCEPT
SELENIUM (T)	0.411	20	18	0.05	2.101	ACCEPT
SILICON	0.950	20	18	0.05	2.101	ACCEPT
SILVER (D)	0.935	29	27	0.05	2.052	ACCEPT
SILVER (T)	0.605	52	50	0.05	2.021	ACCEPT
SODIUM (T)	0.761	22	20	0.05	2.086	ACCEPT
SODIUM	0.983	56	54	0.05	2.021	ACCEPT
STRONTIUM (D)	0.767	56	54	0.05	2.021	ACCEPT
STRONTIUM (T)	0.996	6	4	0.05	2.776	ACCEPT
SULFATE (AS SO4) (D)	0.897	56	54	0.05	2.021	ACCEPT
TEMPERATURE, FIELD (N)	0.719	51	49	0.05	2.021	ACCEPT
THALLIUM (D)	0.344	31	29	0.05	2.043	ACCEPT
THALLIUM (T)	0.905	35	33	0.05	2.042	ACCEPT
The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32.	1.000	20	18	0.05	2.101	ACCEPT
TIN (D)	1.000	22	20	0.05	2.086	ACCEPT
TIN (T)	1.000	24	22	0.05	2.074	ACCEPT
TITANIUM (D)	0.892	26	24	0.05	2.064	ACCEPT
TITANIUM (T)	0.847	34	32	0.05	2.042	ACCEPT
FILTERABLE) (N)	0.745	50	48	0.05	2.021	ACCEPT
TOTAL EXTRACTABLE HYDROCARBONS (TEH 10-30)	0.244	15	13	0.05	2.16	ACCEPT
TOTAL KJELDAHL NITROGEN (N)	0.359	51	49	0.05	2.021	ACCEPT
TOTAL ORGANIC CARBON (T)	0.884	54	52	0.05	2.021	ACCEPT
TOTAL SUSPENDED SOLIDS, LAB (T)	0.513	25	23	0.05	2.069	ACCEPT
TURBIDITY, LAB (N)	0.961	56	54	0.05	2.021	ACCEPT
URANIUM (D)	0.991	56	54	0.05	2.021	ACCEPT
URANIUM (T)	0.866	56	54	0.05	2.021	ACCEPT
VANADIUM (D)	0.413	24	22	0.05	2.074	ACCEPT
VANADIUM (T)	0.950	32	30	0.05	2.042	ACCEPT
ZINC (D)	0.343	47	45	0.05	2.021	ACCEPT
ZINC (T)	0.947	53	51	0.05	2.021	ACCEPT

*All sample results remained below detection limits for both sample locations.

Appendix I – 2021 TSS Determination Report

Total Suspended Solids Determination Method-Updated Report

March 31, 2022

Teck

Introduction

This report is submitted to satisfy additional and amended conditions related to the Total Suspended Solids Determination Method. The original report was submitted by Teck Coal Limited, Line Creek Operations (LCO) to the British Columbia Ministry of Environment and Climate Change Strategy (ENV) on January 22, 2015, as required by Section 2.3 of Permit PE-5353 and Section 4.6 of Permit PE-106907. It was accepted by Ministry of Environment and Climate Change Strategy (ENV) on May 1, 2015, based on some additional conditions. Further discussion and correspondence regarding these conditions occurred throughout 2015. On November 16, 2015, ENV amended condition 5 of the May 1, 2015 letter.

Amended approval condition 5 from the ENV letter dated November 16, 2015 states:

> *Teck LCO must provide an updated report following the completion of the 2015 field season. Report to be provided by February 29th, 2016. All field monitoring data collected for the TSS/Turbidity correlation can be submitted together in one submission with the updated report. The updated report must include the following;*
>
> - *Measured field turbidity values (2015 data) plotted against estimated TSS value from the provided linear correlations (data from 2012-2014).*
> - *Measured field turbidity values plotted against lab TSS values (2015 lab results),*
> - *Where available, flow data should be plotted against measured field turbidity values (measurements must be taken on the same day),*
> - *Updated TSS/turbidity linear correlations including all data from 2012 to the end of 2015,*
> - *Proposal for refined turbidity triggers for sampling of TSS based on the linear relationships of the outlet-only data.*

An updated report was submitted to ENV on February 29, 2016 to satisfy the above conditions. On July 7, 2016, the ENV provided an assessment of the approach; there were some additional questions but stated "this is a well-defined approach to guide additional field data collection needs" and encouraged Teck to "continue collecting the required field data needed to improve all the correlation curves and strengthen confidence in the trigger values".

On October 29, 2018 ENV provided a letter approving the proposed TSS Determination Method for West Line Creek Active Water Treatment Facility. In addition, an amendment to Section 2.3 of Permit 5353 was implemented that clarified some of the wording and requirements.

As of July 22, 2021, the permit conditions and requirements previously specified under EMA Permit 106970 (with respect to TSS sampling and determination method), have been moved to Permit 5353, which now includes the Dry Creek drainage.

Table 1 – History of TSS determination submissions and approvals

Date of Submission	Submission Title	Due Date	Authorization
January 22, 2015	Total Suspended Solids Determination Method		PE 5353 & 106970
November 24, 2015	Summary Update of LCO Actions Taken in 2015 related to the TSS/Turbidity Determination Methodology	December 1, 2015	May 1, 2015 & November 16, 2015 Approval Letters
February 29, 2016	Total Suspended Solids Determination Method – Updated Report	February 29, 2016	November 16, 2015 Approval Letter
March 31, 2017	Total Suspended Solids Determination Method – Updated Report	March 31, 2017 (submitted with annual reports for Permit 5353 and 106970)	None received
April 30, 2018	Total Suspended Solids Determination Method – Updated Report	March 31, 2018 (submitted with Q1 2018 Elk Valley Regional Water Quality Report)	October 29, 2018 Approval Letter
March 30, 2019	Total Suspended Solids Determination Method – Updated Report	March 31, 2019 (submitted with annual reports for Permit 5353 and 106970)	None received
March 31, 2020	Total Suspended Solids Determination Method – Updated Report	March 31, 2020 (submitted with annual reports for Permit 5353 and 106970)	None received
March 31, 2021	Total Suspended Solids Determination Method – Updated Report	March 31, 2021 (submitted with annual report for Permit 5353 and 106970)	None received

This report updates previously submitted correlations with 2021 data. The authorized discharges addressed in this report are listed in Table 2.

Table 2 – Authorized discharge monitoring locations with TSS-Turbidity correlations

Permit	ENV EMS Number	LCO Station Code	Location Description
PE-5353	E216144	LC_LC7	Discharge of effluent from a spillway from MSA North Ponds to Line Creek
PE-5353	E219411	LC_LC8	Discharge of effluent from a Contingency Treatment System to Line Creek
PE-5353	E221268	LC_LC9	Discharge of effluent from a spillway from the No Name Creek Diversion and Sediment Pond to the Line Creek Rock Drain

Permit	ENV EMS Number	LCO Station Code	Location Description
PE-5353	E308147	LC_HSP	Discharge from Horseshoe Pit
PE-5353	E295211	LC_SPDC	Discharge of effluent from a return channel from the Dry Creek Sedimentation Ponds to Dry Creek

Those locations that have not had correlations developed are listed in the Teck letter dated January 22, 2015, including the rationale for each site. The exception is location E308147 (LC_HSP), which was a new addition to this report as of the 2020 reporting year. Discharge from HSP is from an inactive pit (Horseshoe Ridge Pit) that is pumped to the Line Creek rock drain via pumps and pipeline and is managed in accordance with the Horseshoe Ridge Pit (HSP) Dewatering Plan.

Turbidity monitoring and sampling for TSS will be conducted again in 2022 to continue to develop the TSS determinations from field turbidity at these locations where possible (No Name Pond does not consistently discharge and did not receive inflow in 2015 and 2016). As determined by a third party review (SNC-Lavalin, August 31, 2015) this will enable LCO to assess the quality of influent flow and determine whether or not flocculation is required and how effective TSS removal in a pond structure is.

Methodology

Discussion with ENV resulted in minor changes to the methodology used in the original TSS Determination Method, submitted 22nd January 2015. The below updated methodology was submitted to ENV February 29, 2016.

All field turbidity results are paired with the corresponding lab TSS value taken on the same date and time. Any field reading not accompanied by a lab TSS result is omitted from the analyses. In addition, field results above the turbidity meter's capability (3000 NTU for the currently used meter; 1000 FNU for an older turbidity meter. Note that NTU and FNU are equivalent units) are omitted. Field duplicate results are not included in the correlation. Non-detect lab results are taken at the method detection limit (for example, a lab TSS result of <1 mg/L TSS is taken as 1 mg/L) to allow for statistical analysis and graphing.

Corresponding data sets are graphed and a linear correlation is established. As a linear function is used, the equation is:

$$y = ax + b$$

where:

y is a functional variable of x, and is the field inferred TSS value
x is the measured field turbidity
a and **b** are equation coefficients determined by plotting site-specific datasets; **a** is the slope of the line and **b** is the y-intercept

For the purpose of this methodology, linear correlations with a coefficient of determination $R^2 \geq 0.7$ are considered to be strong correlations. Any value below 0.7 is considered to be a weak correlation.

Analysis

Development of New Correlations for Pre-settled Inflows

Correlations for authorized discharges were submitted January 22, 2015. New correlations for pre-settled inflows to Authorized Discharges (ponds) were submitted February 29, 2016 in the updated report. Samples at pre-settled inflow locations were monitored in the field for turbidity and sampled for laboratory analysis of TSS in 2016 as possible. However, there was no inflow into the No Name Pond during 2016 and limited access to the MSA North Ponds due to the short dump project in MSX pit.

The next five numbered sections of this report are in response to the list of five items (under Amended Approval Condition #5) which the November 16, 2015 ENV letter indicates must be included, and have been amended to incorporate comparison of 2019 data.

1. Field Turbidity Values (2021 data) and Estimated TSS Values from the provided Linear Correlations

Correlations for authorized discharges were submitted March 31, 2021, including for the locations summarized in Table 3. Data from 2017 to 2020 was omitted for MSA North Ponds and No Name Creek Pond to improve the correlation (R^2). Data from 2020 improved the correlation for Dry Creek Settling Ponds by further developing the TSS/Turbidity dataset (N=271) over the six-year record (2015-2020). No update to the correlation occurred for the Contingency Treatment System as it was not utilized in 2018-2020 and did not discharge (no data).

Table 3 – Previous year's (2020) TSS-Turbidity linear correlations

Location	MOE EMS Number	Teck Station Code	Coefficient of Determination (R^2)	Linear Function Equation
MSA North Ponds Effluent to Line Creek	E216144	LC_LC7	0.9525	TSS-F = 0.3988*(Turb-F) + 1.0126
Contingency Treatment System to Effluence to Line Creek	E219411	LC_LC8	0.8454	TSS-F = 1.5837*(Turb-F) + 8.4018
No Name Creek Pond Effluence to Line Creek	E221268	LC_LC9	0.7296	TSS-F = 0.2936*(Turb-F) + 3.23
Dry Creek Sedimentation Ponds Effluent to Dry Creek[1]	E295211	LC_SPDC	0.7449	TSS-F = 0.2882*(Turb-F) + 1.4625
Discharge from Horseshoe Ridge Pit[2]	E308146	LC_HSP	0.1128 (very weak)	TSS-F = 0.255*(Turb-F) + 2.1821 (Equation is not applicable)

1. Not in operation in 2014; no 2012 – 2014 data
2. No previous correlation developed for E308147

Where:

TSS-F is the inferred field total suspended solids
Turb-F is the turbidity as measured in the field

Figures 1 through 5 show 2021 field turbidity data plotted to estimate TSS values based on the correlations from the previous year (Table 3). In situations where the measured range of field turbidity values was limited (all values below 15 NTU), the correlation linear function may cross the x-axis; TSS values cannot actually be lower than zero. At the point where the line crosses the x-axis is assumed to be where TSS would be below method detection limits.

As noted in the 2020 Determination Report from March 2021, the equation provided in Table 3 for the MSA North Ponds (E216144) references the 2016 TSS/Turbidity correlation as it was deemed a stronger correlation and had a more protective reportable trigger value (compared to the correlation based on 2017-2020 data). Inlet data for the MSA North Ponds (E216144) is limited from 2017 to 2021 due to access safety restrictions (MSX Short Dump).

The Contingency Treatment System (E219411) was not utilized from 2017 to 2021 and did not discharge during that period. In the 2018 Determination Report (March 2019), the correlation for E219411 was updated to include data from the 2017 effluent spike testing, which improved the correlation at this location.

Additionally, No Name Creek Pond (E221268) did not discharge in 2015, 2016, and 2019-2021, but did discharge for a short period in 2017 (March 16 – April 5) and 2018 (March 12 – March 28). Therefore, the inferred TSS values used field turbidity values collected in 2017/2018 for those periods and are provided in Figure 4.

For Dry Creek Sedimentation Ponds (E295211), TSS was inferred using the 2020 correlation equation, and plotted against 2021 field turbidity (Figure 5). The resulting linear trend shows a much stronger correlation ($R^2 \geq 0.7$) compared to previous years. It is expected that this correlation should continue to improve as future data is incorporated and the equation is updated.

Horseshoe Ridge Pit or HSP (E308146) was not included in previous reports and therefore no TSS-turbidity correlation exists. EMA Permit 5353 (August 12, 2019) includes an amendment to Section 2.3 which states:

> "T*he Permittee must develop and validate, at a minimum, on an annual basis, a method for field determination of total suspended solids (TSS) value and procedures for additional TSS sampling for discharges referenced in Section 1 of this permit and any effluent discharge to surface water from the mine property*".

To comply with this condition, HSP was included in last years report (March 2021) based on 2020 data. However, the correlation was very weak (as shown in Table 3), likely due to the lack of TSS concentrations above 30 mg/L and field turbidity readings above 35 NTU. This was attributed to the depth of water typically present in HSP and the residence time between inflow of the majority of water to the pit (May – June) and the historical timing of discharge (September to April). For completeness, TSS was inferred using the 2020 correlation equation and plotted against 2021 turbidity (Figure 6).

Figures 7 through 10 show the actual 2021 Lab TSS results against the field turbidity results. The figures show several values equal to 1 mg/L TSS, the lab method detection limit (MDL). As stated in the 2015 methodology (Section 2.2) lab results below detection are used in the correlation as values equal to the MDL. Negative results in are assumed to be values below detection limits.

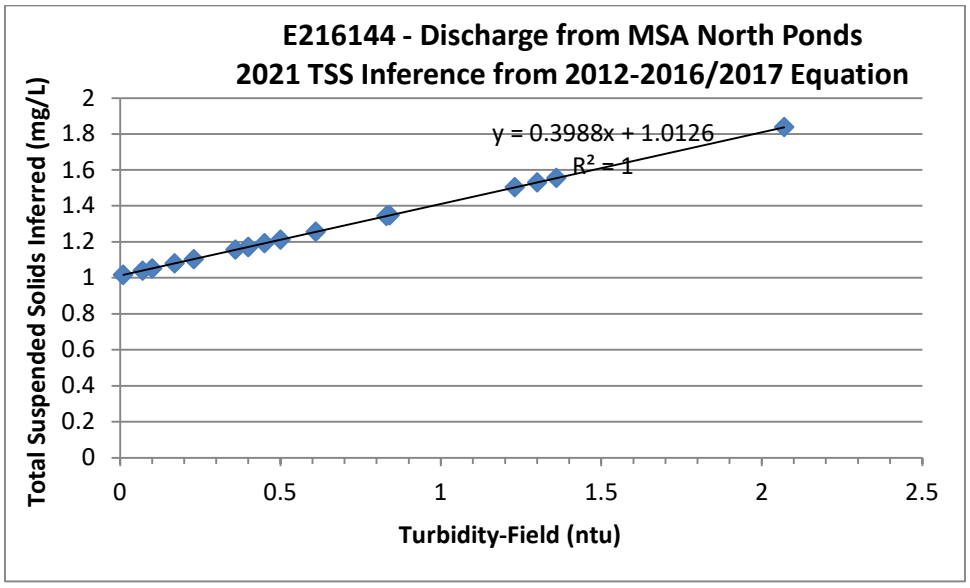

Figure 1 – E216144 – 2021 TSS Inference from 2012-2016 TSS/Turbidity Curve

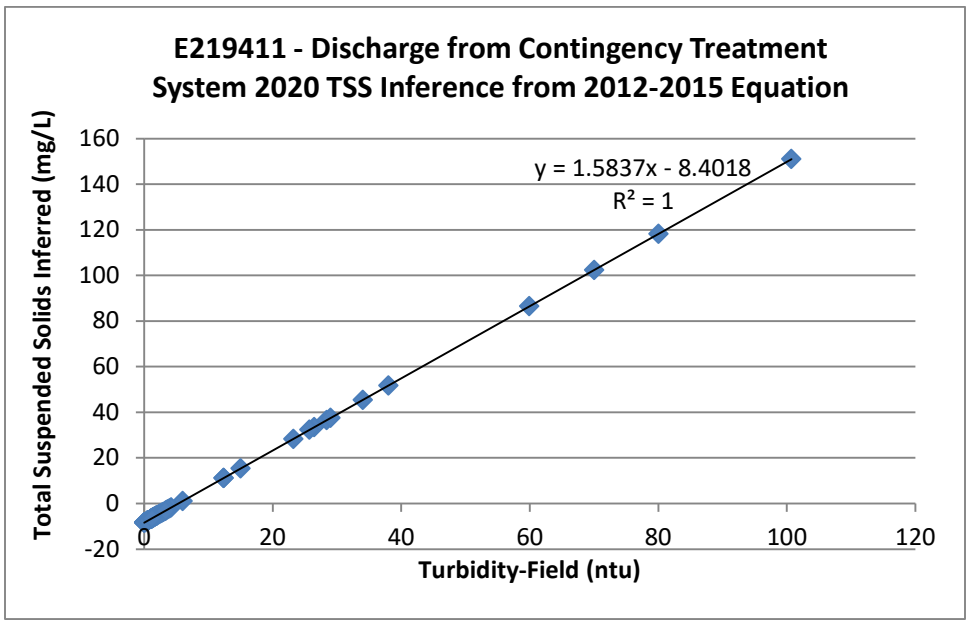

Figure 2 – E219411 – 2016 TSS Inference from 2012-2014 TSS/Turbidity Curve (not updated from March 2021 report as no discharge in 2021)

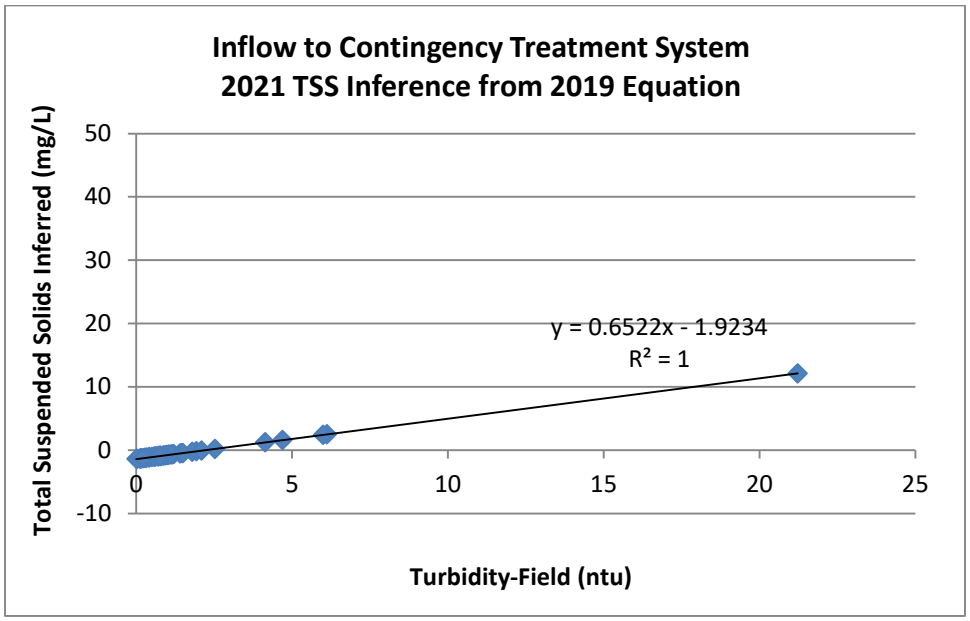

Figure 3 – E219411 – 2021 TSS Inference from 2017 TSS/Turbidity Curve

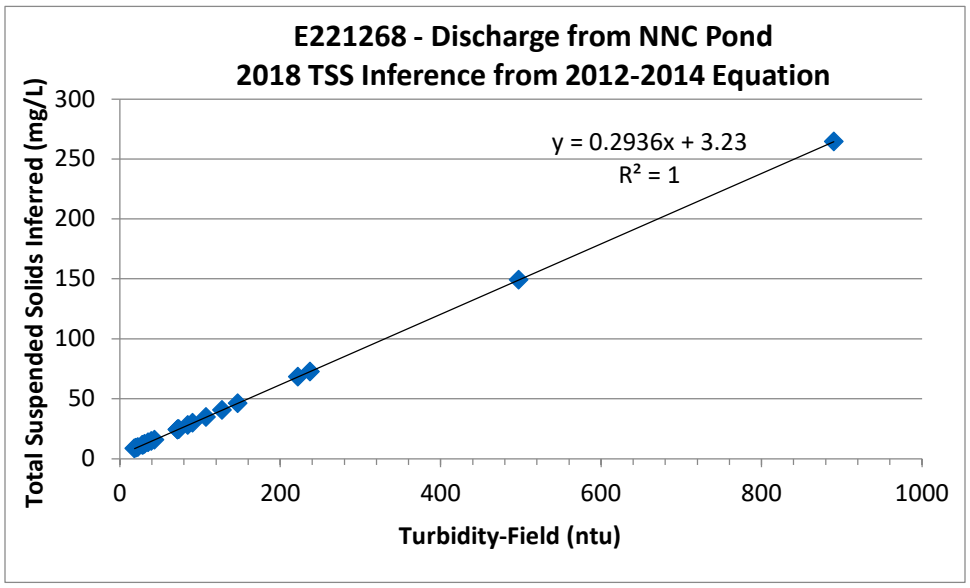

Figure 4 – E2212681 – 2018 TSS Inference from 2014 TSS/Turbidity Curve (not updated from March 2021 report as no discharge in 2021)

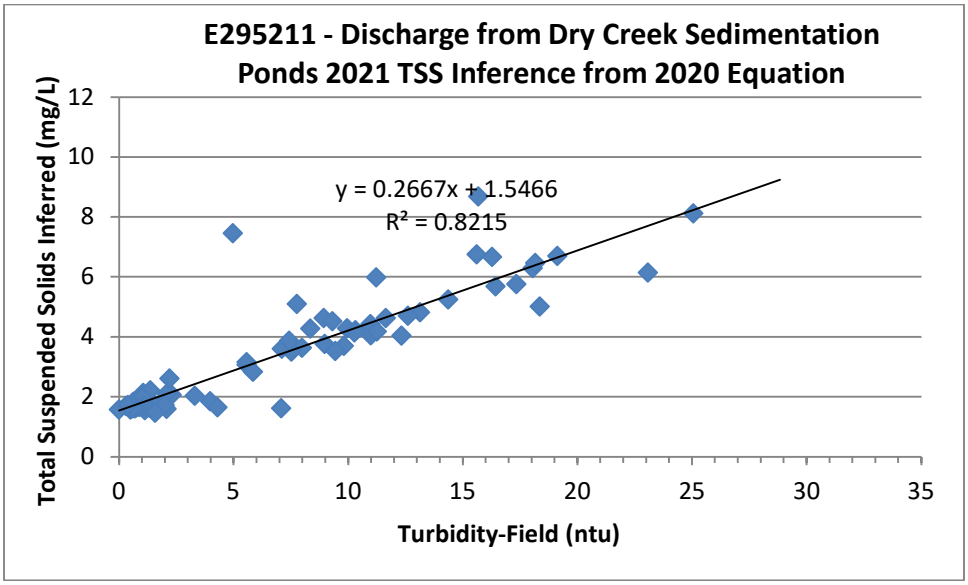

Figure 5 – E295211 – 2021 TSS Inference from 2020 TSS/Turbidity Curve

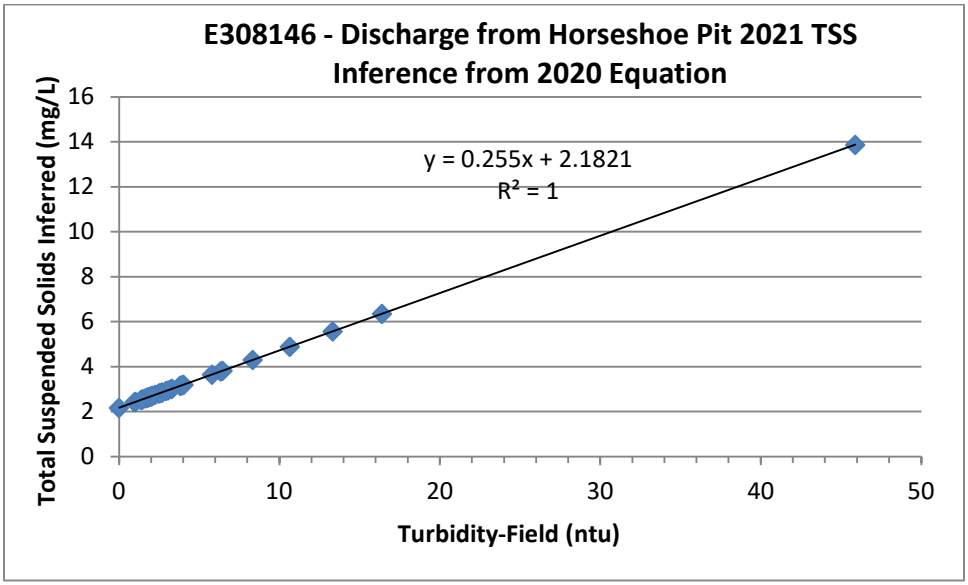

Figure 6 – E308146 – 2021 TSS Inference from 2020 TSS/Turbidity Curve

2. Field Turbidity Values and Laboratory TSS Values (2021 Lab Results)

Field turbidity values were measured in 2021, along with collection of samples for laboratory analysis of TSS, at four locations: E216144 (discharge from MSA North Ponds), the inflow to the Contingency Treatment System, E295211 (discharge from the Dry Creek Sedimentation Ponds), and E308146 (discharge of stored pit water from the Horseshoe Pit). The inflow to the Contingency Ponds is provided although flow was not diverted into the ponds in 2021. E219411 (discharge from the Contingency Treatment

System) and E221268 (discharge from the No Name Creek Ponds) did not discharge in 2021. See Figures 7 to 11 below. There is limited 2021 data for inflows to the MSA North Ponds and no 2021 data the No Name Creek Pond. Graphs are not provided for these locations because of the limited data set.

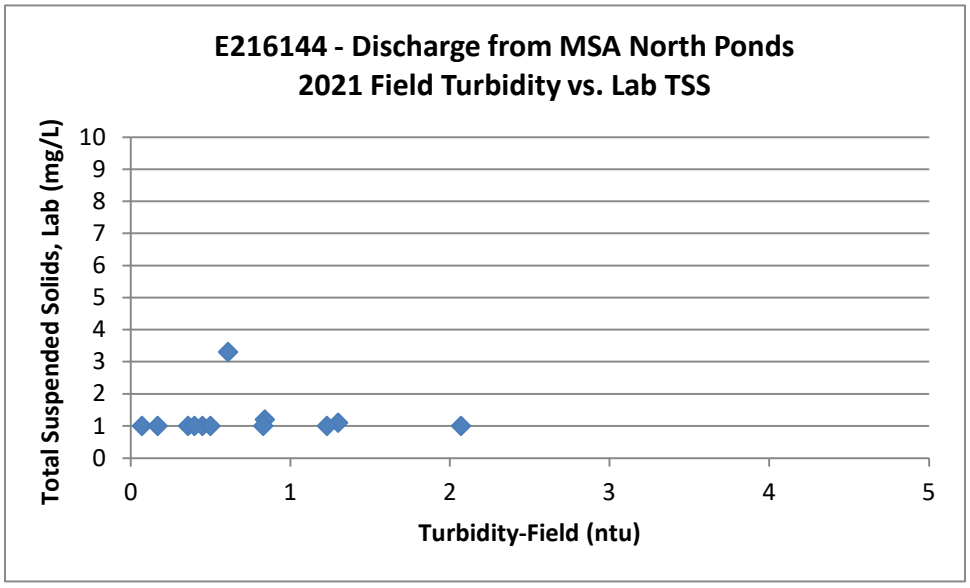

Figure 7 – E216144 – 2021 Field Turbidity versus Lab TSS

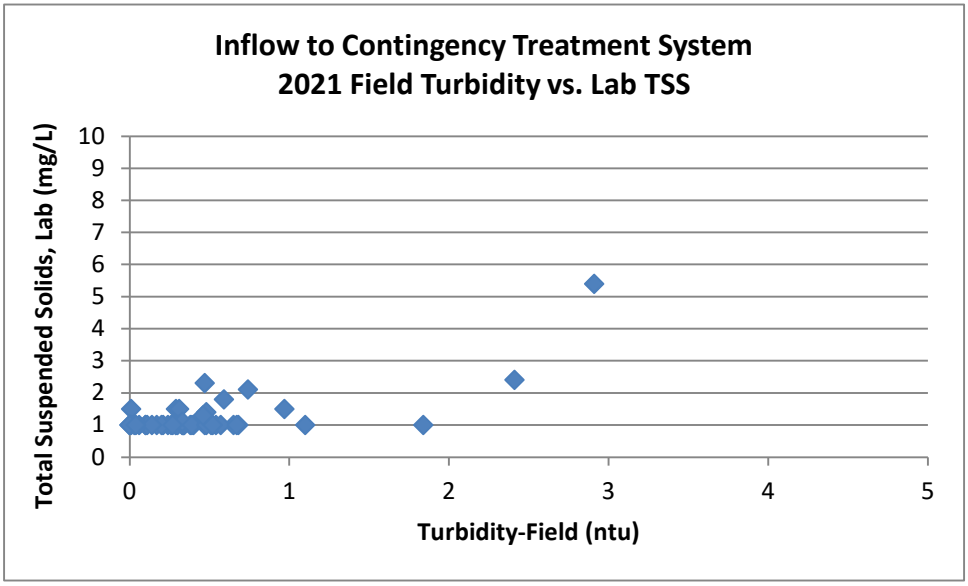

Figure 8 – Inflow to Contingency Treatment System – 2021 Field Turbidity versus Lab TSS

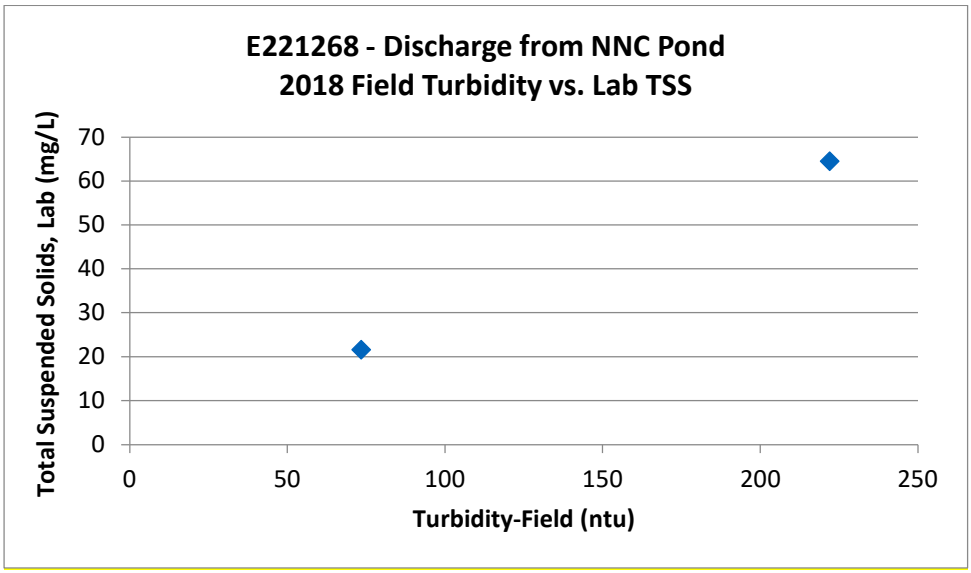

Figure 9 – E221268 – 2018 Field Turbidity versus Lab TSS – No data in 2019, 2020 or 2021

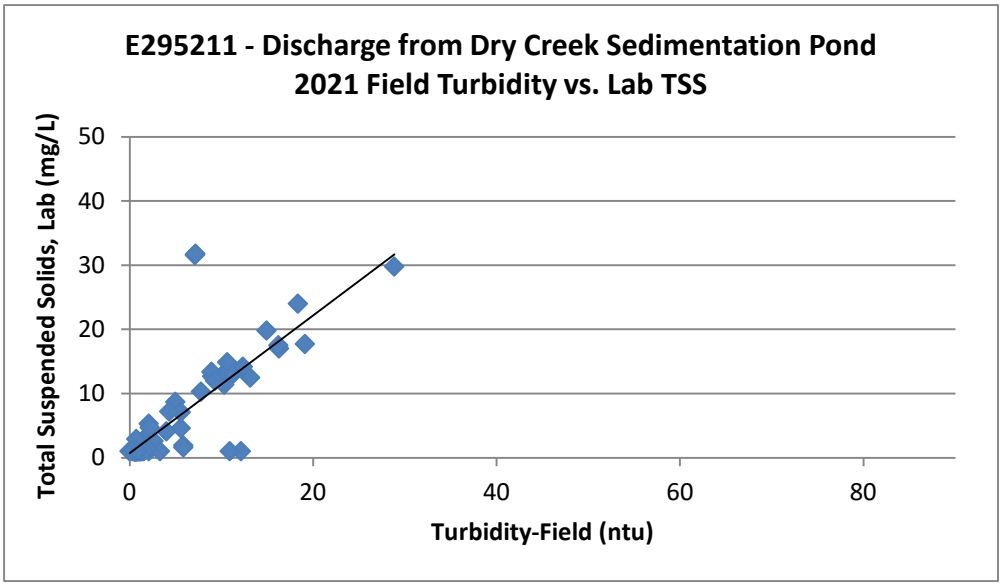

Figure 10 – E295211 – 2021 Field Turbidity versus Lab TSS

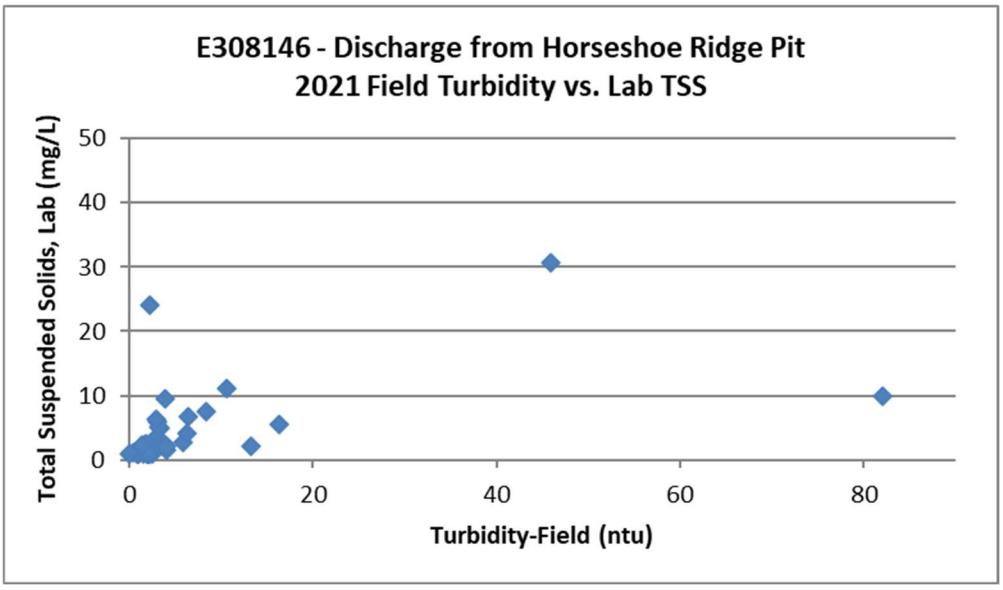

Figure 11 – E308146 –2021 Field Turbidity versus Lab TSS

3. Flow Data and Field Turbidity

Where possible, flow results were plotted with field turbidity measurements.

MSA NORTH PONDS (E216144) (LC7)

Flow numbers at the MSA North Ponds are based on a weir formula stage-discharge-relationship (SDR). The SDR only applies to the authorized discharge point of the MSA North Ponds. Due to a slough in 2012, the MSA North Ponds currently treat water from two inflows. Flow values for these inflows have not been measured and are therefore, not compared to field turbidity results. Figure 12 shows calculated flow results as compared to measured field turbidity measurements taken on the same day.

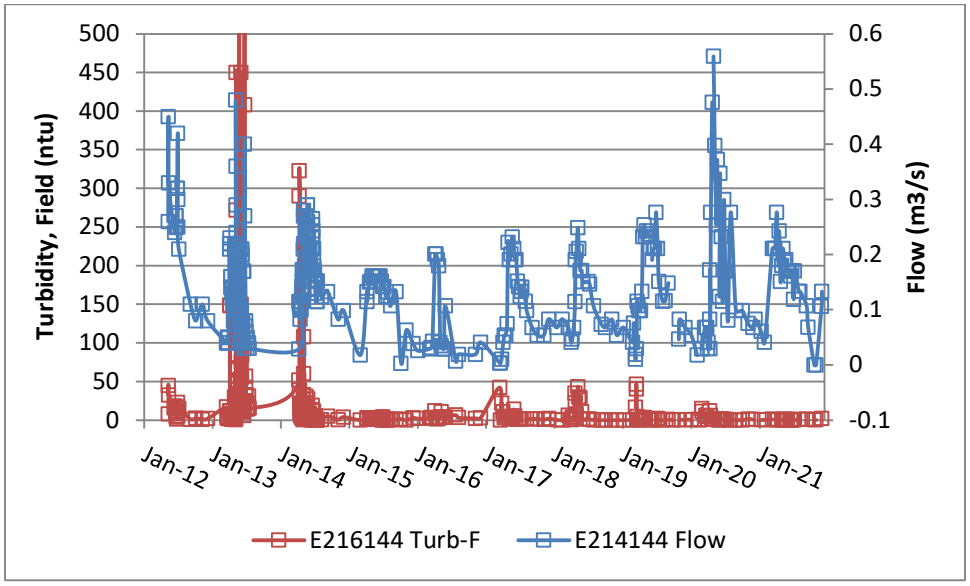

Figure 12 – E216144 (LC7) – Flow to Field Turbidity Comparison

CONTINGENCY TREATMENT SYSTEM PONDS (E219411) (LC8)

Flow numbers at the Contingency Pond outlet are based on a weir formula SDR. The SDR only applies to the authorized discharge point of the Contingency Ponds. Inlet flow data is obtained from a continuous flow monitoring station located upstream at Line Creek downstream of West Line Creek (EMS 0200337) (LC_LC3). Figure 13 and Figure 14 shows flow results as compared to field turbidity measurements taken on the same day.

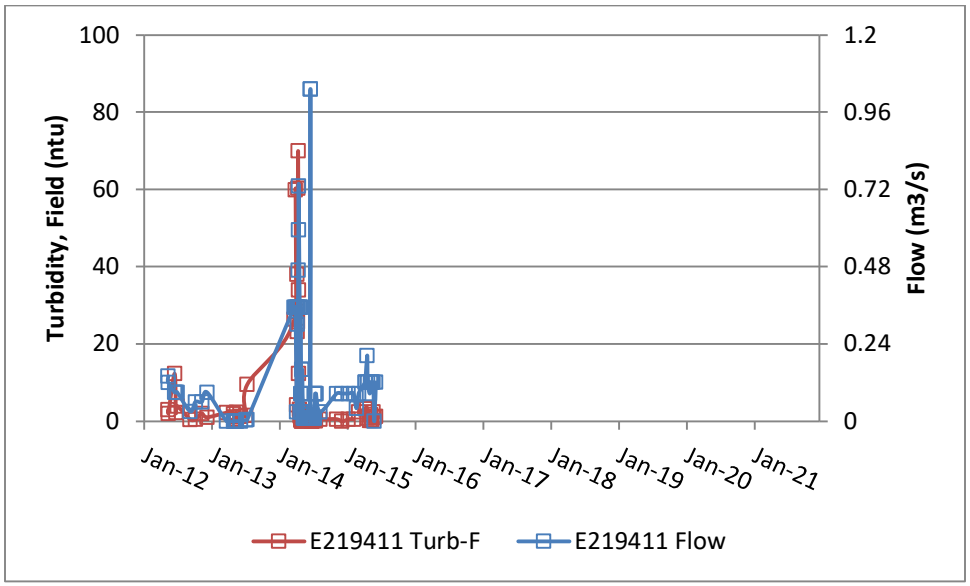

Figure 13 – E219411 (LC8) – Flow to Field Turbidity Comparison

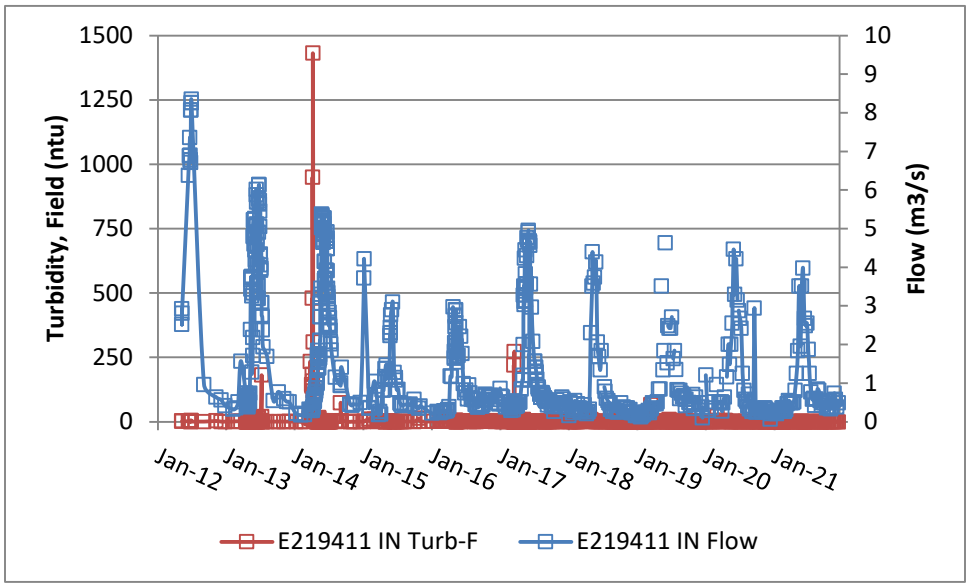

Figure 14 – Inflow to Contingency Treatment System – Flow to Field Turbidity Comparison

NO NAME CREEK PONDS (E221268)

Flow numbers at No Name Creek Pond outlet are based on manual flow measurements. Inlet flow data for the No Name Creek Ponds was based on a continuous flow monitoring location. This location was decommissioned in 2013 and only provides a limited dataset. E221268 (LC9) did not discharge in 2021. Figure 15 and Figure 16 shows flow results as compared to the field turbidity measurements taken on the same day.

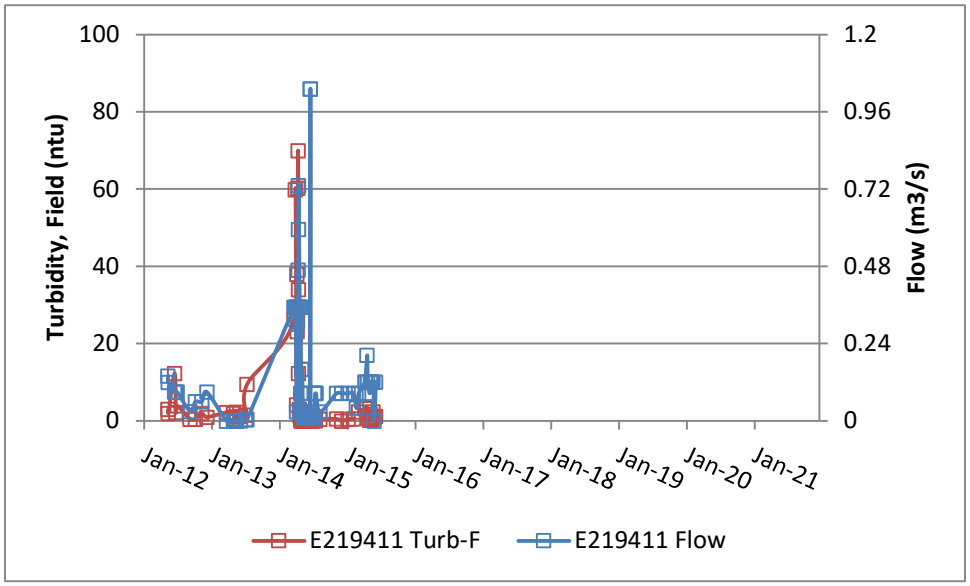

Figure 15 – E221268 (LC9) – Flow to Field Turbidity Comparison

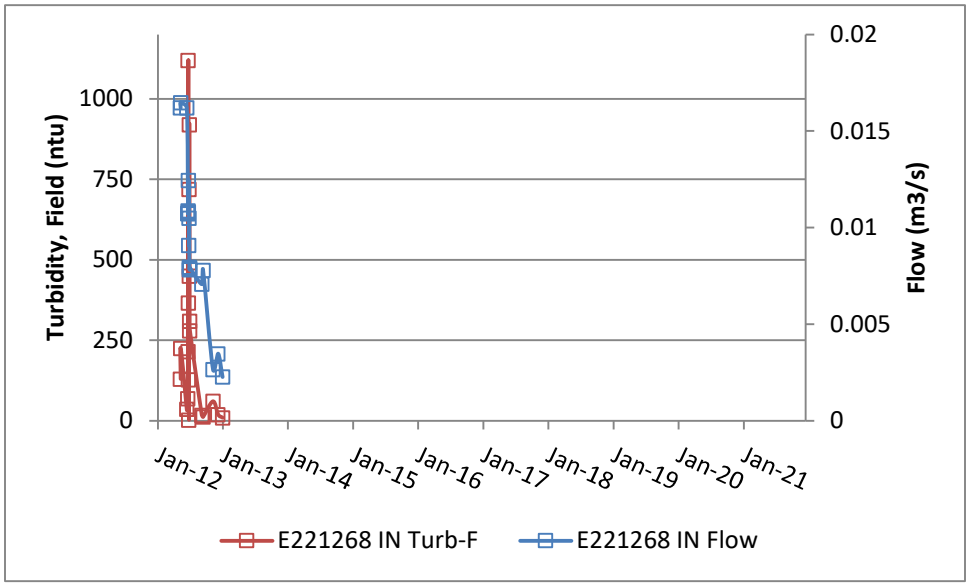

Figure 16 – Inflow to No Name Creek Pond – Flow to Inlet Field Turbidity Comparison

DRY CREEK SEDIMENTATION PONDS (E295211)

The Dry Creek Sedimentation Ponds were commissioned in 2014 and flows are captured using a continuous flow monitoring system, verified with manual measurements and Quality Assured/Controlled by

a third-party consultant. In 2019 and 2020, infrastructure for the Dry Creek Sedimentation Ponds was undergoing upgrades and continuous monitoring was not possible. Flows at E288273 (DC3) are provided for this period as E288273 is located immediately upstream the Dry Creek Sedimentation Ponds and provides a surrogate for the inflows into the Dry Creek Sedimentation Ponds. Figure 17 shows flow results as compared to field turbidity measurements.

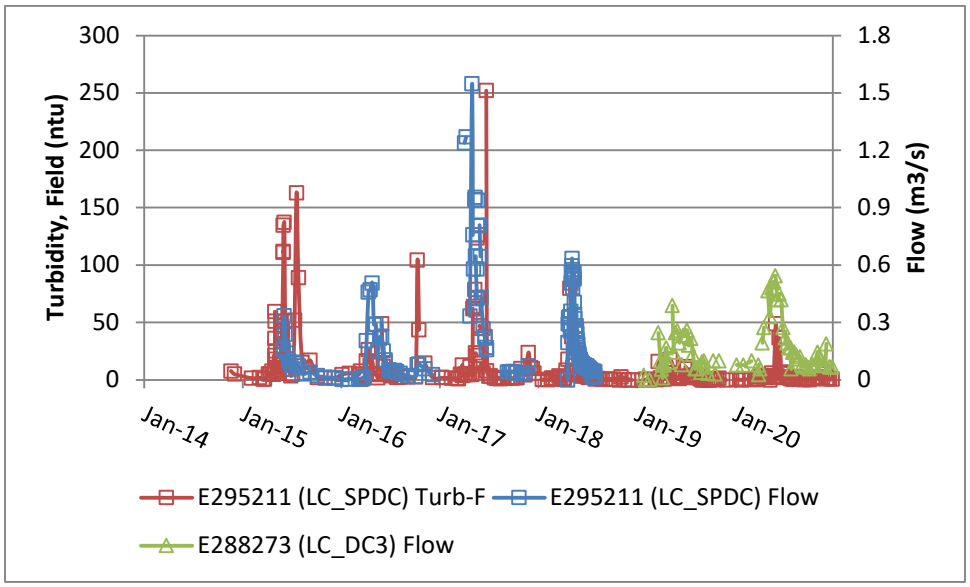

Figure 17 – E295211 (SPDC) – Flow to Field Turbidity Comparison

HORSESHOE PIT (E308146)

Water from HSP does not discharge directly to the receiving environment but rather is conveyed (by pipe) to an inlet of the Line Creek rock drain located below the discharge point for No Name Creek Diversion and Sediment Pond (E221268, LC_LC9). Water then flows through the rock drain for approximately 3 km before discharging into Line Creek (from the outlet of the rock drain) immediately upstream of the closest receiving environment monitoring location (E293369, LC_LCUSWLC). Flow data is measured with inline flow meters that provided a digital display of flow. Figure 18 shows flow results as compared to field turbidity measurements.

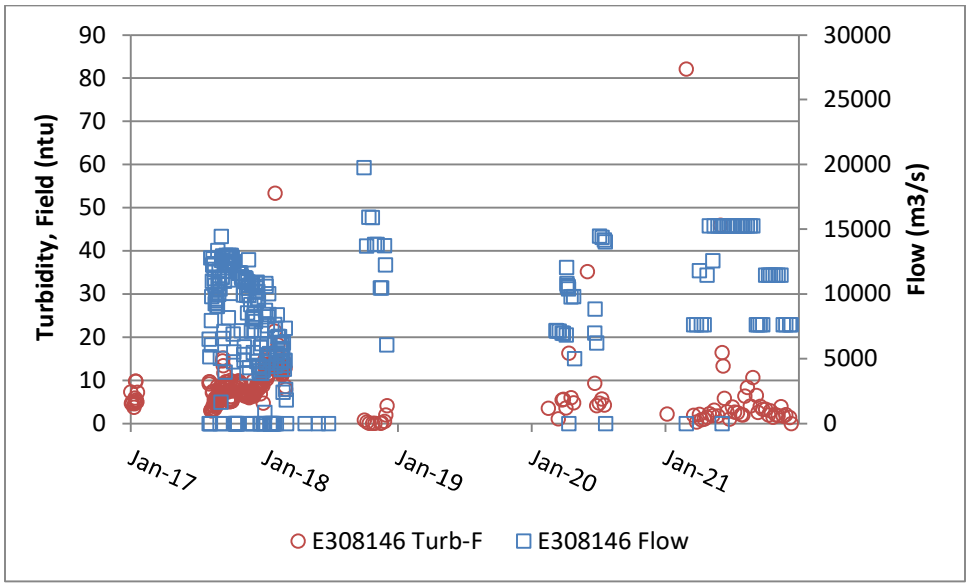

Figure 18 – E308146 (HSP) – Flow to Field Turbidity Comparison

4. Updated TSS/Turbidity Linear Correlations

In accordance with the updated calculation methodology (see Methodology section above), the February 2016 TSS Determination Report included a complete review of the dataset from 2012 to 2014 of any missed data points (as discussed in the memo to the MOE dated April 10, 2015) and provided updated TSS/Turbidity correlations with 2015 monitoring data. In subsequent years the Determination Reports were updated with the monitoring data from the previous year. Expanding on that dataset, monitoring data for 2021 has been included and used in calculating each correlation for the authorized discharge points. Table 4 provides a summary of the correlations for each discharge. Correlation graphs are shown in Figures 19 to 25 below.

Table 4: Summary of updated TSS-Turbidity linear correlations for authorized discharges (2012-2021)

Location	MOE EMS Number	Teck Station Code	Coefficient of Determination (R2)	Linear Function Equation
MSA North Ponds Effluent to Line Creek	E216144	LC7	0.6861	TSS-F = 0.2877*(Turb-F) + 3.5397
Contingency Treatment System to Effluent to Line Creek	E219411	LC8	0.4855	TSS-F = 0.2338*(Turb-F) + 2.3489
No Name Creek Pond Effluent to Line Creek	E221268	LC9	0.5493	TSS-F = 0.1387*(Turb-F) + 10.411
Dry Creek Sedimentation Ponds Effluent to Dry Creek	E295211	SPDC	0.6418	TSS-F = 0.29*(Turb-F) + 2.1184
Discharge from Horseshoe Pit	E308146	LC_HSP	0.187	TSS-F = 0.2233*(Turb-F) + 2.6015

As presented in Table 4, none of the five discharge locations shows strong correlations ($R^2 \geq 0.7$). The correlations for MSA North Ponds and Dry Creek Sedimentation Pond have become weaker compared to previous years. The Contingency Treatment System and No Name Creek Pond did not change as there was no effluent released from the ponds in 2021. In addition, the slopes are reduced from previous year (2016), indicating that for a given field turbidity, the corresponding calculated TSS would be less than previous correlations. In-order to use the strongest correlations and ensure a more protective reportable trigger value is used, LCO has decided to reference the 2016 TSS/Turbidity correlations for MSA North Ponds and No Name Creek Pond for the duration of 2022 (Table 5).

As noted in Section 1, Horseshoe Ridge Pit or HSP (E308146) was first included in the 2020 reports, and therefore this is only the second time a linear correlation has been evaluated for this location. TSS and field turbidity records were used to create the correlation. However, the correlation is very weak, likely due to the lack of TSS concentrations above 30 mg/L and field turbidity readings above 35 NTU. This can be attributed to the depth (and volume) of water typically present in HSP, thereby influencing the residence time and settling of suspended sediment (prior to discharge). An additional factor may also be the time between initial inflow and discharge. Typically, the majority of inflow of water to the pit occurs in May and June, while the historical timing of discharge has often occurred later (September to April). One notable change in 2021 was that dewatering of HSP took place over a majority of the year (March 16 – December 19).

As presented below in Table 5, by omitting the 2017-2021 data for MSA North Ponds and No Name Creek Pond, and thereby defaulting back to the 2016 equation, three of five discharges show strong correlations. Although there was no discharge from No Name Creek Pond in 2015, 2016, 2019, 2020 and 2021, strong correlation exists likely due to the number of data points (N=72) over the period assessed (2012-2014). For the Contingency Treatment System, the equation developed using the 2017 spike test data shows a much stronger correlation (see Section 5), and the applicable equation is provided in Table 5. The addition of 2021 data at the Dry Creek Sedimentation Ponds caused a decrease in the R^2 value (0.7449 to 0.6418) compared to 2020 and is less than the R^2 value for 2018 (0.7421). Therefore, LCO will exclude 2021 data in the correlation because the R^2 value decreased, and including this data provides an expanded data set and includes the most recent data. With respect to HSP, as the correlation (R^2 value) is very weak, LCO will instead reference the field turbidity triggers detailed in the Trigger Action Response Plan (TARP) provided in the Horseshoe Ridge Pit Dewatering Plan (field turbidity reading greater than 20 NTU for collecting a sample, and 40 NTU for potential non-compliance).

Table 5: Revised TSS-Turbidity linear correlations for authorized discharges (2012-2021)

Location	MOE EMS Number	Teck Station Code	Coefficient of Determination (R2)	Linear Function Equation	Equation Referenced
MSA North Ponds Effluent to Line Creek (2016 data)	E216144	LC7	0.9525	TSS-F = 0.3988*(Turb-F) + 1.0126	2016
Contingency Treatment System to Effluence to Line Creek	E219411	LC8	0.8454	TSS-F = 1.5837*(Turb-F) – 8.4018	2017 (with spike testing)
No Name Creek Pond Effluence to Line Creek (2016 data)	E221268	LC9	0.7296	TSS-F = 0.2936*(Turb-F) + 3.23	2016
Dry Creek Sedimentation Ponds Effluent to Dry Creek	E295211	SPDC	0.7449	TSS-F = 0.2882*(Turb-F) + 1.4625	2020
Discharge from Horseshoe Pit	E308146	LC_HSP	0.187 (very weak)	Equation is not applicable	Refer to HSP Dewatering Plan TARP

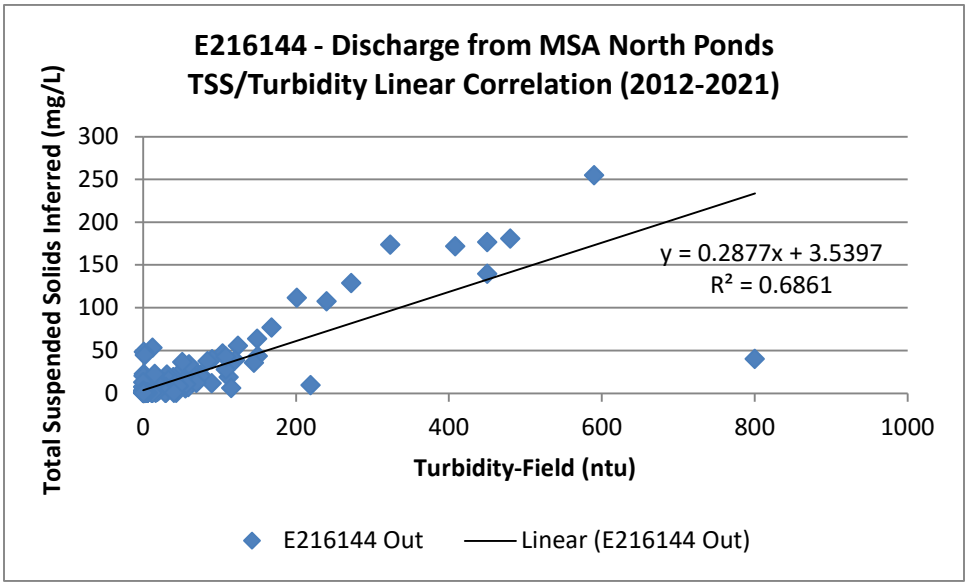

Figure 19 – E216144 (LC7) 2012-2020 TSS/Turbidity Correlation

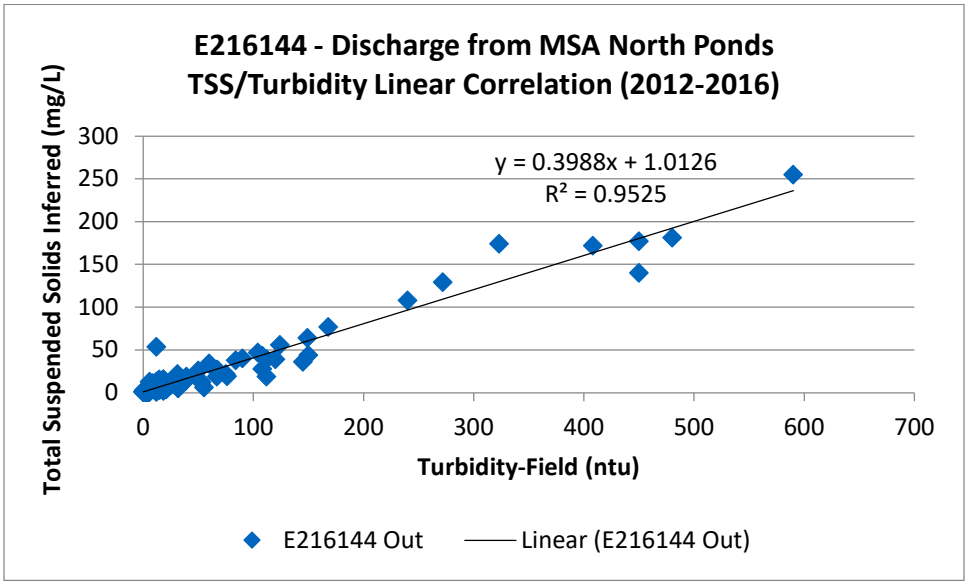

Figure 19 – E216144 (LC7) 2012-2016 TSS/Turbidity Correlation (no 2017-2021 data)

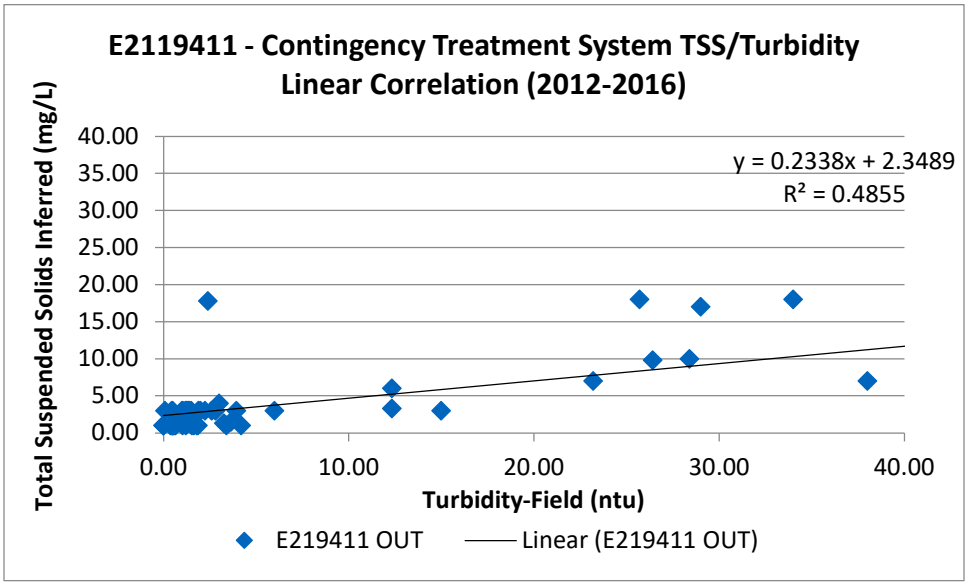

Figure 20 – E219411 (LC8) 2012-2016 TSS/Turbidity Correlation

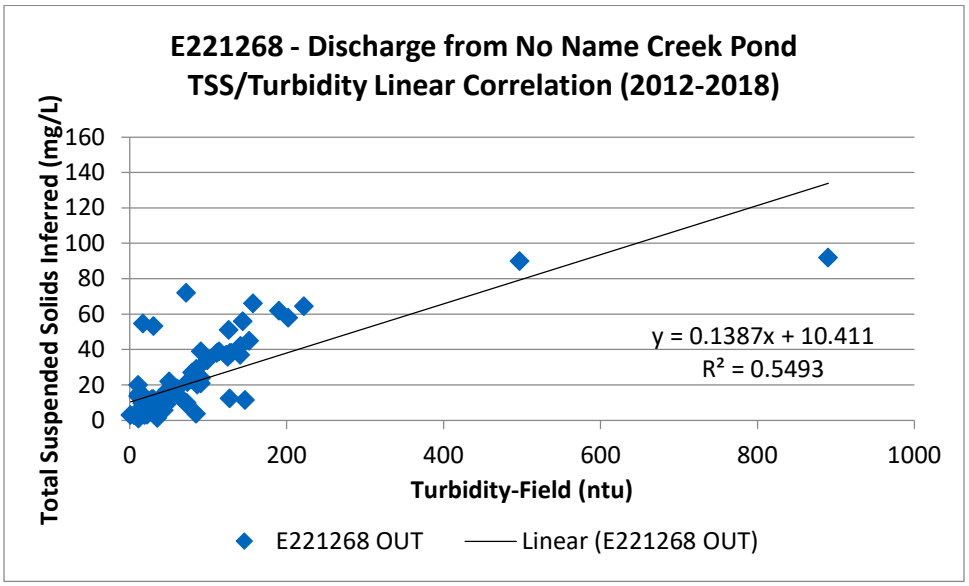

Figure 21 – E221268 (LC9) 2012-2018 TSS/Turbidity Correlation (no 2019-2021 data)

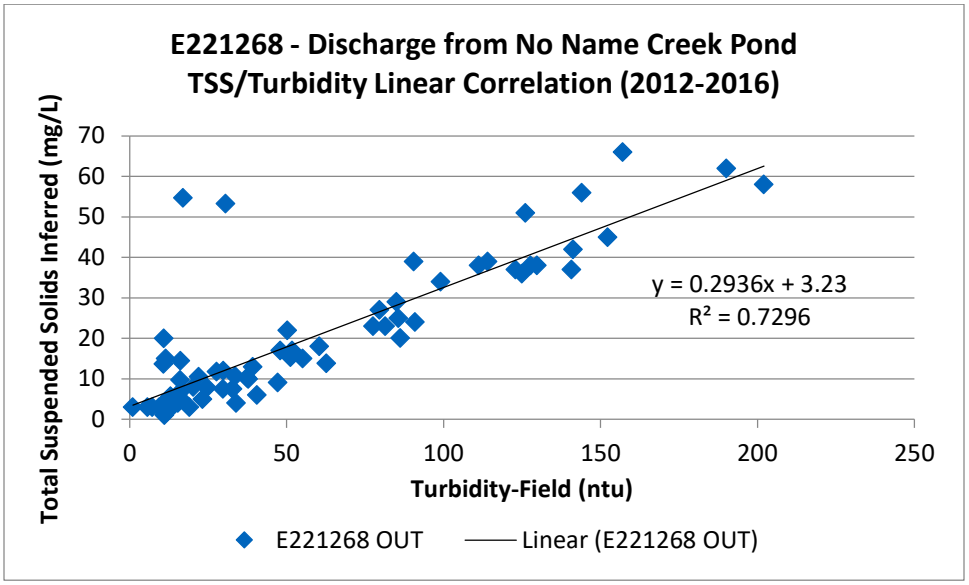

Figure 22 – E221268 (LC9) 2012-2016 TSS/Turbidity Correlation (no 2017-2021 data)

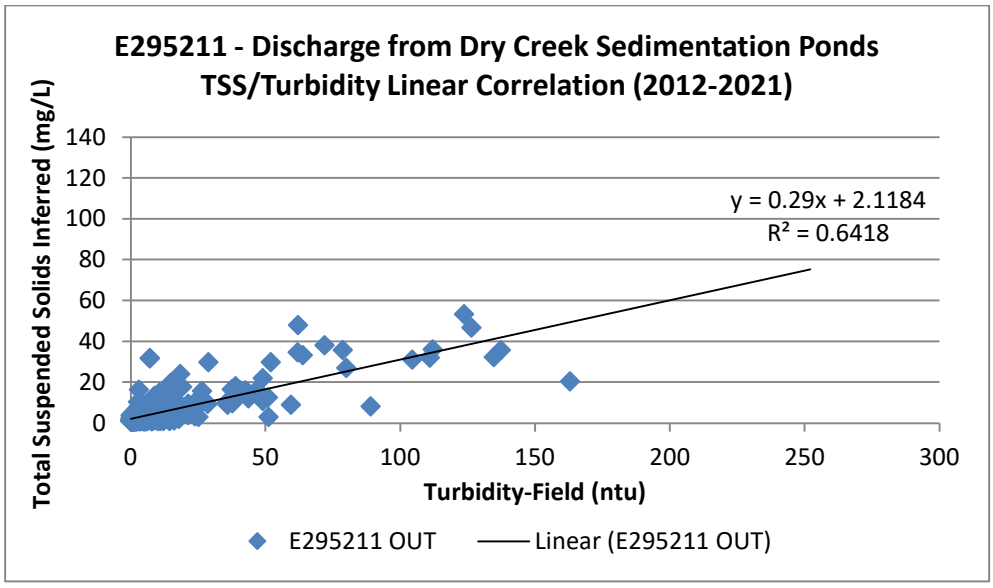

Figure 23 – E295211 (SPDC) 2012-2021 TSS/Turbidity Correlation

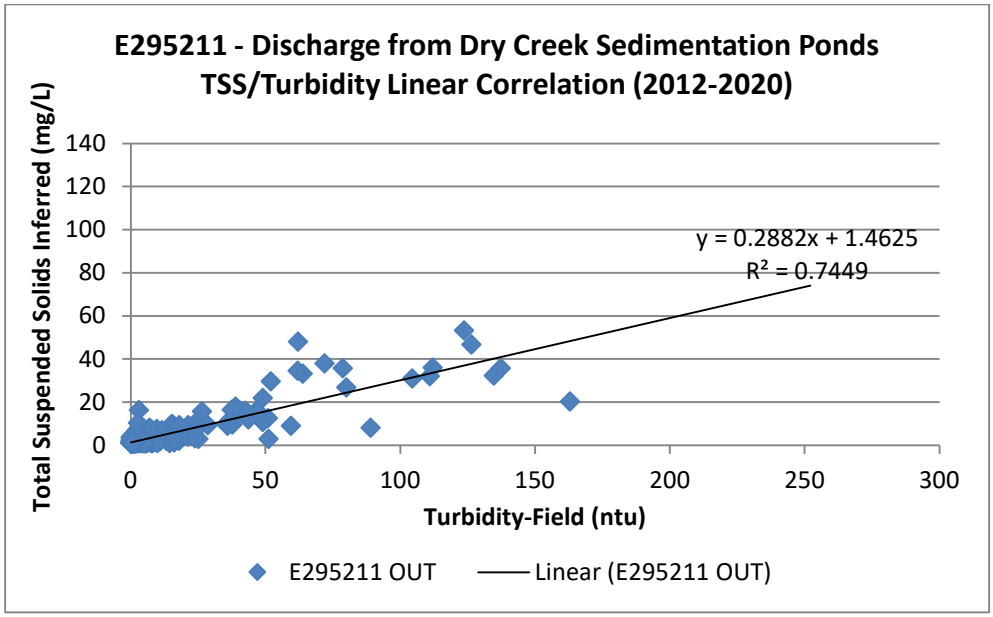

Figure 24 – E295211 (SPDC) 2012-2020 TSS/Turbidity Correlation; no 2021 data

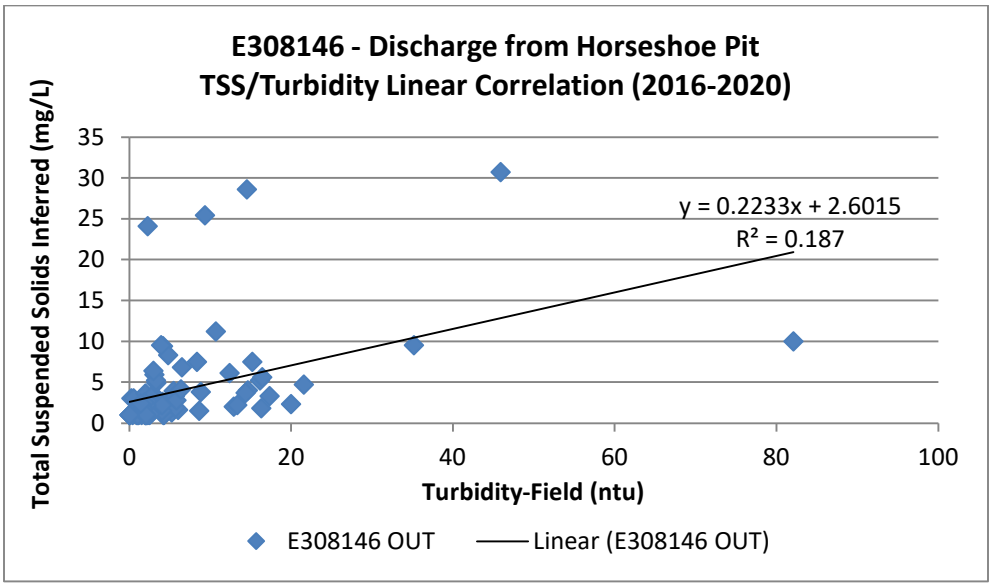

Figure 25 – E308146 (HSP) 2016-2021 TSS/Turbidity Correlation

5. Effluent Spike Testing

As discussed in the March 2018 TSS Determination Report, LCO conducted a series of spike tests in 2017 for MSA North Ponds, No Name Creek Pond, and Contingency Treatment System. The tests involved the collection of sediment and water from the pond systems, and mixing of the materials together by the lab to create samples with specific TSS values (approximately 100, 200, 300, 400, and 500 mg/L). Field turbidity readings were then measured using the samples with a known TSS value. The intent was to improve the TSS/turbidity correlation by increasing the number of high TSS values in the dataset.

For MSA North Ponds and No Name Creek Pond, the resulting correlation became weaker with the spike test data added to the existing dataset. The correlation for Contingency Treatment System, however, showed a stronger correlation (R^2=0.8454 with the spike test data versus R^2 = 0.4855 without). Based on this, LCO will continue to reference the 2016 correlations for MSA North Ponds and No Name Creek Pond, but will utilize the 2017 correlation with the spike test data for the Contingency Treatment System.

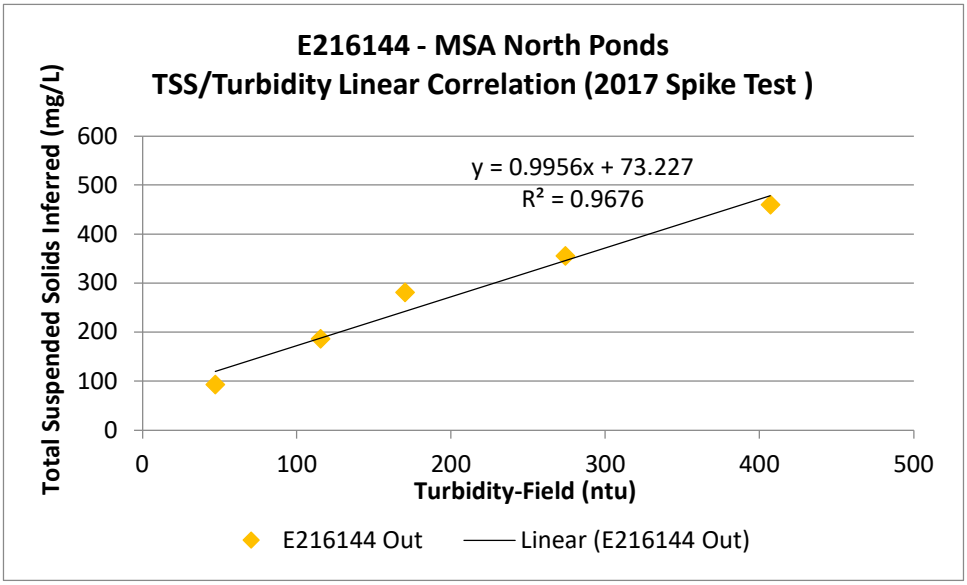

Figure 26 – E216144 (LC7) 2012-2017 TSS/Turbidity Spike Test Correlation

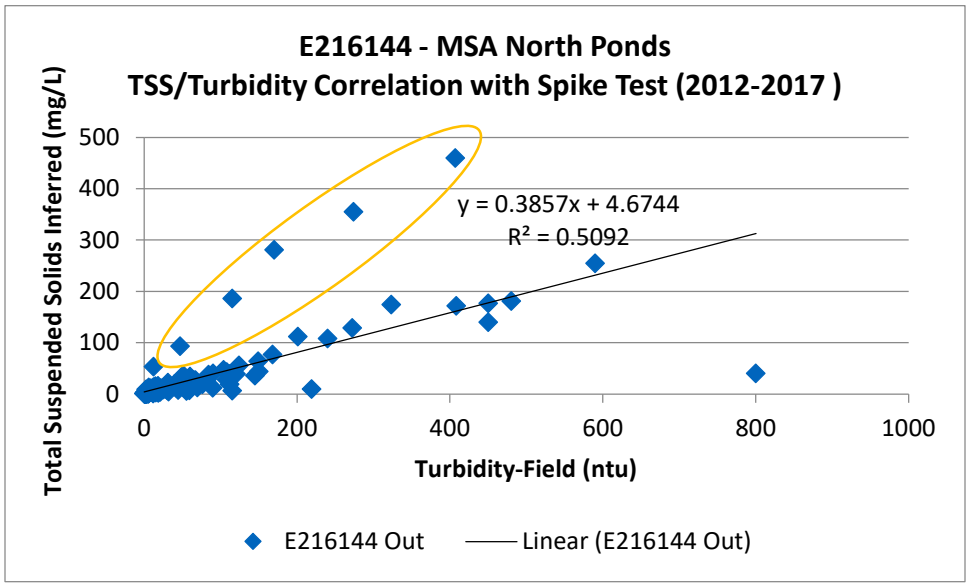

Figure 27 – E216144 (LC7) 2012-2017 TSS/Turbidity Correlation with Spike Test Data

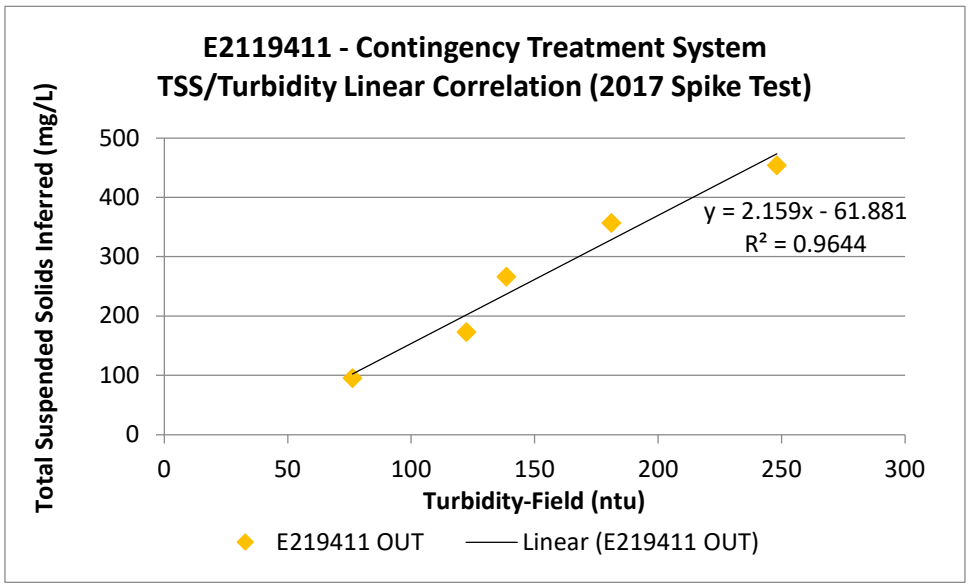

Figure 28 – E219411 (LC8) 2012-2016 TSS/Turbidity Spike Test Correlation

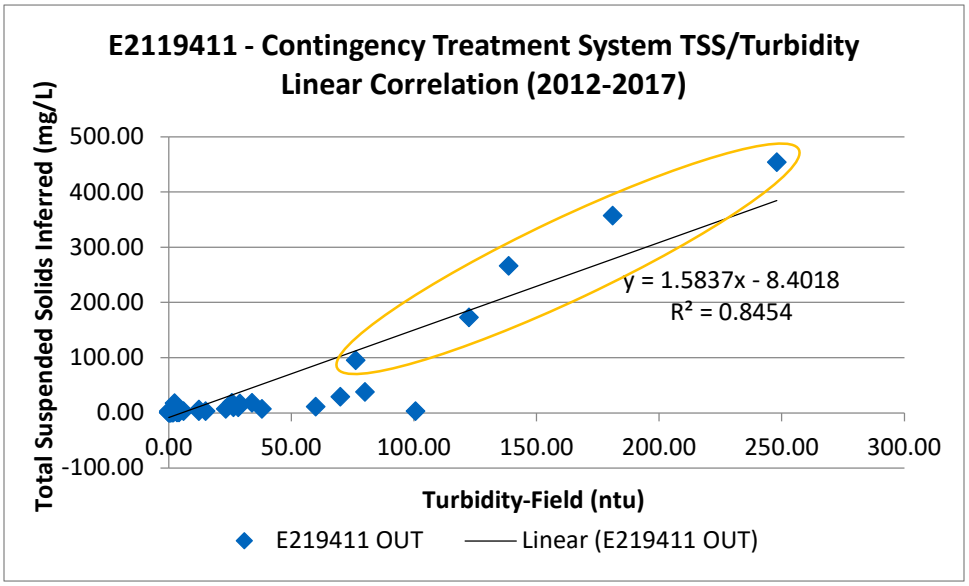

Figure 29 – E219411 (LC8) 2012-2017 TSS/Turbidity Correlation with Spike Test Data

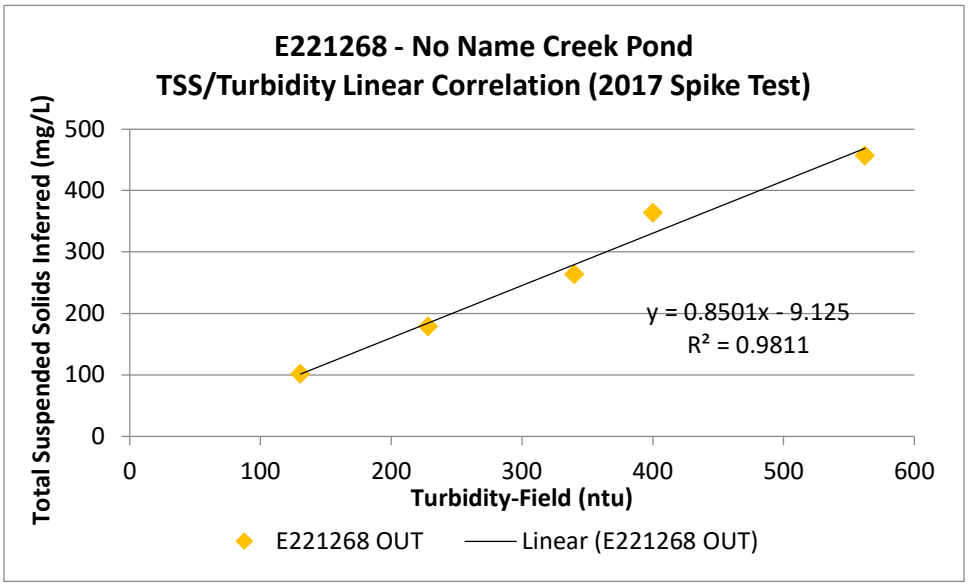

Figure 230 – E221268 (LC9) 2012-2017 TSS/Turbidity Spike Test Correlation

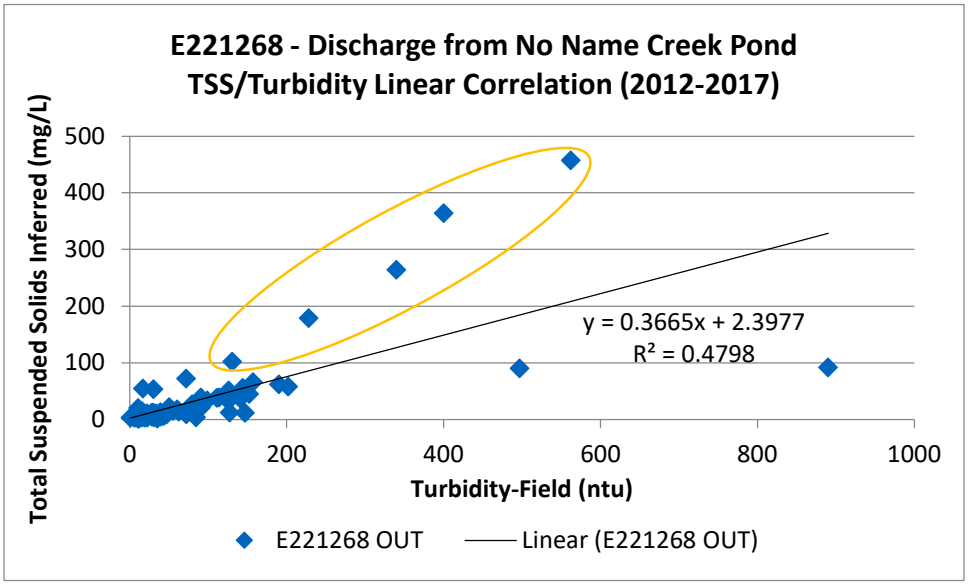

Figure 3 – E221268 (LC9) 2012-2017 TSS/Turbidity Correlation with Spike Test Data

6. Proposed Refined Turbidity Triggers Requiring Collection of TSS Samples

In accordance with permit requirements, this TSS determination method will be utilized as a method for real time field analysis of TSS values for authorized discharges. It is expected that use of the methodology will improve real time TSS determination and/or estimation to better inform management decisions and agency reporting. In addition, it is recognized that each correlation should be continued to be strengthened. As

such, the proposed triggers for reporting and additional sampling collection are identified in Table 6. These values are consistent with the 2020 report values and are based on the equations detailed in Table 4.

Table 6: Turbidity trigger values for collecting TSS samples and reporting potential non-compliances

Location	Min NTU	Max NTU	Turb-F at which TSS-F = 50 mg/L	Reportable trigger value (NTU)	Sample trigger value (NTU)
MSA North Ponds Effluent to Line Creek (LC7) (E216144)	0	590	122	122	85
Contingency Treatment System to Effluent to Line Creek (LC8) (E219411)	0	248	37	37	26
No Name Creek Pond Effluent to Line Creek (LC9) (E221268)	1	202	159	159	182
Dry Creek Sedimentation Ponds Effluent to Dry Creek (SPDC) (E295211)	0	252	168	168	116
Discharge from Horseshoe Pit (HSP) (E308146)	0	82	187[1]	40	20

1. Based on 2021 equation. However, the correlation is very week and therefore a lower reportable trigger has been referenced.

Summary

This TSS determination method will be utilized as a method for real time field analysis of TSS values for authorized discharge. In 2021, none of the TSS/turbidity linear correlations developed using data for applicable Authorized Discharges showed strong correlations ($R^2 \geq 0.7$). As such, to ensure LCO uses the strongest correlations and the most protective reportable trigger value, LCO has decided to reference the 2016 TSS/Turbidity correlations for MSA North Ponds and No Name Creek Pond for 2022. For the Contingency Treatment System, the 2017 correlation that includes data from the 2017 spike test will be referenced. For the Dry Creek Sedimentation Ponds, the 2020 TSS/Turbidity correlation will be referenced. The correlations are summarized below in Table 7.

Table 7: TSS-Turbidity relationship for authorized discharges

Location	MOE EMS Number	Teck Station Code	Coefficient of Determination (R2)	Linear Function Equation
MSA North Ponds Effluent to Line Creek	E216144	LC7	0.9525	TSS-F = 0.3988*(Turb-F) + 1.0126
Contingency Treatment System to Effluence to Line Creek	E219411	LC8	0.8454	TSS-F = 1.5837*(Turb-F) – 8.4018
No Name Creek Pond Effluence to Line Creek	E221268	LC9	0.7296	TSS-F = 0.2936*(Turb-F) + 3.23
Dry Creek Sedimentation Ponds Effluent to Dry Creek	E295211	SPDC	0.7449	TSS-F = 0.2882*(Turb-F) + 1.4625
Discharge from Horseshoe Pit	E308146	LC_HSP	0.1128 (very weak)	TSS-F = 0.255*(Turb-F) + 2.1821 (Equation is not applicable)

Although there was no discharge from No Name Creek Pond in 2015, 2016, and 2019-2021, strong correlation exists likely due to the number of data points (N=72) over the period assessed (2012-2014). Data from 2018 improved the correlation for Dry Creek Settling Ponds by further developing the TSS/Turbidity dataset (N=177) over the four-year record (2015-2018). While data from 2019 and 2021 for this location slightly decreased the correlation, data from 2020 increased the correlation which remains strong. The data from the spike test conducted in 2017 has improved the correlation for the Contingency Treatment System. A TSS/turbidity linear correlation for discharge from HSP dewatering was developed in 2020 and updated in 2021 using 2016 to 2021 data; however, the correlation remains very weak and the equation was deemed not suitable for providing protective triggers for sampling and reporting. Instead, Table 8 references triggers from the Trigger Action Response Plan (TARP) provided in the 2021 Horseshoe Ridge Pit Dewatering Plan.

Line Creek will continue to perform field turbidity measurements and collect samples for laboratory analysis for TSS, when and where possible, to further refine the above correlations and to construct new correlations at additional appropriate monitoring locations. Triggers have been identified for ENV reporting purposes for potential non-compliances; actual non-compliance will be confirmed by lab analyses. Additionally, triggers for sample collection are also developed to assist in the continual improvement of each correlation.

Table 8: Turbidity trigger values for collecting TSS samples and reporting potential non-compliances

Location	Turb-F at which TSS-F = 50 mg/L	Reportable trigger value (NTU)	Sample trigger value (NTU)
MSA North Ponds Effluent to Line Creek (LC7) (E216144)	122	122	85
Contingency Treatment System to Effluent to Line Creek (LC8) (E219411)	37	37	26
No Name Creek Pond Effluent to Line Creek (LC9) (E221268)	159	159	108
Dry Creek Sedimentation Ponds Effluent to Dry Creek (SPDC) (E295211)	168	168	116
Discharge from Horseshoe Pit (HSP) (E308146)	221[1]	40	20

1. Based on 2021 equation. However, the correlation is very week and therefore a lower reportable trigger has been referenced (from 2021 HSP Dewatering Plan).

Appendix A – 2021 Monitoring Data (TSS and Turbidity)

E216144 MSA North Ponds Effluent to Line Creek (LC_LC7)

	Parameter	TOTAL SUSPENDED SOLIDS, LAB		TURBIDITY, FIELD	
	Fraction	N		N	
	Unit	mg/l		ntu	
Location	Date	Result Text	Result Value	Result Text	Result Value
LC_LC7	1/14/2021	< 1.0	1	0.45	0.45
LC_LC7	2/1/2021	< 1.0	1	0.36	0.36
LC_LC7	3/15/2021	1.1	1.1	1.30	1.3
LC_LC7	4/7/2021	< 1.0	1	0.07	0.07
LC_LC7	5/4/2021	< 1.0	1	0.17	0.17
LC_LC7	5/11/2021			0.23	0.23
LC_LC7	5/18/2021			1.36	1.36
LC_LC7	5/27/2021			0.1	0.1
LC_LC7	6/4/2021	1.2	1.2	0.84	0.84
LC_LC7	6/21/2021			0.01	0.01
LC_LC7	6/28/2021			0.01	0.01
LC_LC7	7/7/2021	< 1.0	1	0.5	0.5
LC_LC7	7/12/2021			0.4	0.4
LC_LC7	8/3/2021	< 1.0	1	0.83	0.83
LC_LC7	9/14/2021	< 1.0	1	1.23	1.23
LC_LC7	10/25/2021	3.3	3.3	0.61	0.61
LC_LC7	11/4/2021	< 1.0	1	0.4	0.4
LC_LC7	12/5/2021	< 1.0	1	2.07	2.07

Influent to E221268 Contingency Treatment System (LC_LC8IN or LC_LC3)

	Parameter	TOTAL SUSPENDED SOLIDS, LAB		TURBIDITY, FIELD	
	Fraction	N		N	
	Unit	mg/l		ntu	
Location	Date	Result Text	Result Value	Result Text	Result Value
LC_LC3	1/5/2021	< 1.0	1	0.34	0.34
LC_LC3	1/11/2021	1.4	1.4	0.48	0.48
LC_LC3	1/18/2021	< 1.0	1	0.34	0.34
LC_LC3	1/25/2021	< 1.0	1	0.33	0.33
LC_LC3	2/1/2021	1.0	1	0.38	0.38
LC_LC3	2/8/2021	2.3	2.3	0.47	0.47
LC_LC3	2/16/2021	1.5	1.5	0.29	0.29
LC_LC3	2/22/2021	1.5	1.5	0.31	0.31
LC_LC3	2/23/2021	< 1.0	1	1.10	1.1
LC_LC3	2/24/2021	< 1.0	1	0.34	0.34
LC_LC3	2/25/2021	< 1.0	1	0.29	0.29
LC_LC3	2/26/2021	< 1.0	1	0.24	0.24
LC_LC3	3/2/2021	< 1.0	1	0.26	0.26
LC_LC3	3/9/2021	< 1.0	1	0.29	0.29
LC_LC3	3/16/2021	1.5	1.5	0.97	0.97
LC_LC3	3/23/2021	< 1.0	1	0.1	0.1
LC_LC3	3/30/2021	< 1.0	1	0.3	0.3
LC_LC3	4/5/2021	< 1.0	1	0.1	0.1
LC_LC3	4/13/2021	< 1.0	1	0.03	0.03
LC_LC3	4/20/2021	< 1.0	1	0.21	0.21
LC_LC3	4/27/2021	< 1.0	1	0.40	0.4
LC_LC3	5/4/2021	< 1.0	1	0.33	0.33
LC_LC3	5/11/2021	< 1.0	1	0.11	0.11
LC_LC3	5/18/2021	< 1.0	1	0.65	0.65
LC_LC3	5/25/2021	< 1.0	1	0	0
LC_LC3	6/1/2021	5.4	5.4	2.91	2.91
LC_LC3	6/8/2021	< 1.0	1	0.06	0.06
LC_LC3	6/15/2021	51.0	51	0.01	0.01
LC_LC3	6/21/2021	1.5	1.5	0.01	0.01
LC_LC3	6/29/2021	1.1	1.1	0.33	0.33
LC_LC3	7/6/2021	< 1.0	1	0.47	0.47
LC_LC3	7/12/2021	< 1.0	1	0.51	0.51
LC_LC3	7/20/2021	< 1.0	1	0.54	0.54
LC_LC3	7/28/2021	< 1.0	1	0.39	0.39
LC_LC3	8/4/2021	< 1.0	1	0.37	0.37
LC_LC3	8/10/2021	< 1.0	1	0.17	0.17
LC_LC3	8/17/2021	2.4	2.4	2.41	2.41
LC_LC3	8/24/2021	< 1.0	1	0.22	0.22
LC_LC3	8/31/2021	< 1.0	1	0.68	0.68
LC_LC3	9/7/2021	< 1.0	1	0.48	0.48
LC_LC3	9/14/2021	< 1.0	1	0.01	0.01
LC_LC3	9/20/2021	< 1.0	1	0.57	0.57
LC_LC3	9/27/2021	1.4	1.4	0.34	0.34
LC_LC3	10/5/2021	< 1.0	1	0.52	0.52
LC_LC3	10/12/2021	1.8	1.8	0.59	0.59
LC_LC3	10/19/2021	< 1.0	1	0.67	0.67
LC_LC3	10/26/2021	2.1	2.1	0.74	0.74
LC_LC3	11/2/2021	1.3	1.3	0.46	0.46
LC_LC3	11/9/2021	1.5	1.5	0.67	0.67
LC_LC3	11/16/2021	1.4	1.4	0.5	0.5
LC_LC3	11/22/2021	< 1.0	1	0.20	0.2
LC_LC3	11/29/2021	< 1.0	1	0.14	0.14
LC_LC3	12/5/2021	< 1.0	1	1.84	1.84
LC_LC3	12/16/2021	< 1.0	1	0	0
LC_LC3	12/21/2021	< 1.0	1	0.04	0.04
LC_LC3	12/29/2021	< 1.0	1	0.27	0.27

E295211 Dry Creek Sedimentation Pond Effluent to Dry Creek (LC_SPDC)

	Parameter	TOTAL SUSPENDED SOLIDS, LAB		TURBIDITY, FIELD	
	Fraction	N		N	
	Unit	mg/l		ntu	
Location	Date	Result Text	Result Value	Result Text	Result Value
LC_SPDC	1/6/2021	< 1.0	1	0.55	0.55
LC_SPDC	1/12/2021	< 1.0	1	0.5	0.5
LC_SPDC	1/19/2021	1.5	1.5	0.5	0.5
LC_SPDC	1/26/2021	< 1.0	1	0.4	0.4
LC_SPDC	2/2/2021	1.2	1.2	1.05	1.05
LC_SPDC	2/10/2021	2.0	2	2.30	2.3
LC_SPDC	2/12/2021	< 1.0	1	2.08	2.08
LC_SPDC	2/13/2021	1.6	1.6	0.46	0.46
LC_SPDC	2/14/2021	1.5	1.5	0.71	0.71
LC_SPDC	2/15/2021	< 1.0	1	0.66	0.66
LC_SPDC	2/16/2021	< 1.0	1	0.52	0.52
LC_SPDC	2/17/2021	< 1.0	1	0.60	0.6
LC_SPDC	2/18/2021	2.0	2	1.82	1.82
LC_SPDC	2/19/2021	1.6	1.6	0.89	0.89
LC_SPDC	2/20/2021	1.8	1.8	0.81	0.81
LC_SPDC	2/21/2021	1.7	1.7	0.76	0.76
LC_SPDC	2/22/2021	< 1.0	1	0.75	0.75
LC_SPDC	2/23/2021	< 1.0	1	0.66	0.66
LC_SPDC	2/24/2021	< 1.0	1	1.17	1.17
LC_SPDC	2/25/2021	< 1.0	1	0.75	0.75
LC_SPDC	2/26/2021			0.27	0.27
LC_SPDC	2/27/2021			0.58	0.58
LC_SPDC	2/28/2021			0.58	0.58
LC_SPDC	3/1/2021	< 1.0	1	0.95	0.95
LC_SPDC	3/2/2021			0.34	0.34
LC_SPDC	3/3/2021			0.81	0.81
LC_SPDC	3/5/2021			14.39	14.39
LC_SPDC	3/6/2021			25.65	25.65
LC_SPDC	3/7/2021	29.8	29.8	28.84	28.84
LC_SPDC	3/8/2021			27.12	27.12
LC_SPDC	3/8/2021	< 1.0	1	12.12	12.12
LC_SPDC	3/10/2021			9.5	9.5
LC_SPDC	3/11/2021	11.4	11.4	10.3	10.3
LC_SPDC	3/12/2021			0	0
LC_SPDC	3/13/2021			13.17	13.17
LC_SPDC	3/14/2021			16.30	16.3
LC_SPDC	3/15/2021			16.42	16.42
LC_SPDC	3/16/2021	17.0	17	16.28	16.28
LC_SPDC	3/17/2021			18.05	18.05
LC_SPDC	3/18/2021			16.74	16.74
LC_SPDC	3/19/2021	17.7	17.7	19.12	19.12
LC_SPDC	3/20/2021			18.16	18.16
LC_SPDC	3/21/2021			17.33	17.33
LC_SPDC	3/22/2021	19.8	19.8	14.90	14.9
LC_SPDC	3/23/2021			14.36	14.36
LC_SPDC	3/24/2021	12.5	12.5	13.14	13.14
LC_SPDC	3/25/2021			11.64	11.64
LC_SPDC	3/26/2021			10.99	10.99
LC_SPDC	3/29/2021	12.7	12.7	8.98	8.98
LC_SPDC	3/30/2021			7.98	7.98
LC_SPDC	3/31/2021			7.52	7.52
LC_SPDC	4/1/2021	31.6	31.6	7.10	7.1
LC_SPDC	4/2/2021			7.43	7.43
LC_SPDC	4/3/2021			8.35	8.35
LC_SPDC	4/4/2021			9.76	9.76
LC_SPDC	4/5/2021	< 1.0	1	10.92	10.92
LC_SPDC	4/6/2021			9.66	9.66
LC_SPDC	4/7/2021	13.2	13.2	10.32	10.32
LC_SPDC	4/8/2021			9.56	9.56
LC_SPDC	4/9/2021			10.59	10.59
LC_SPDC	4/10/2021			9.95	9.95
LC_SPDC	4/11/2021			9.81	9.81
LC_SPDC	4/12/2021	10.3	10.3	7.76	7.76
LC_SPDC	4/13/2021			12.61	12.61
LC_SPDC	4/15/2021	13.0	13	11.22	11.22
LC_SPDC	4/17/2021			15.67	15.67
LC_SPDC	4/18/2021			25.06	25.06
LC_SPDC	4/19/2021			23.08	23.08

	Parameter	TOTAL SUSPENDED SOLIDS, LAB		TURBIDITY, FIELD	
	Fraction	N		N	
	Unit	mg/l		ntu	
Location	Date	Result Text	Result Value	Result Text	Result Value
LC_SPDC	4/20/2021	17.5	17.5	16.22	16.22
LC_SPDC	4/21/2021			15.60	15.6
LC_SPDC	4/22/2021	24.0	24	18.35	18.35
LC_SPDC	4/26/2021	14.2	14.2	12.32	12.32
LC_SPDC	4/28/2021	13.4	13.4	8.93	8.93
LC_SPDC	4/30/2021			10.97	10.97
LC_SPDC	5/3/2021			10.27	10.27
LC_SPDC	5/4/2021	12.0	12	9.31	9.31
LC_SPDC	5/6/2021	14.9	14.9	10.62	10.62
LC_SPDC	5/10/2021			16.43	16.43
LC_SPDC	5/11/2021			14.65	14.65
LC_SPDC	5/12/2021	18.1	18.1	11.25	11.25
LC_SPDC	5/14/2021			9.43	9.43
LC_SPDC	5/17/2021	31.8	31.8	7.16	7.16
LC_SPDC	5/19/2021	12.6	12.6		
LC_SPDC	5/25/2021	8.7	8.7	4.97	4.97
LC_SPDC	5/27/2021	17.9	17.9	20.78	20.78
LC_SPDC	6/1/2021	4.6	4.6	5.57	5.57
LC_SPDC	6/2/2021	7.1	7.1	5.56	5.56
LC_SPDC	6/8/2021	1.9	1.9	5.85	5.85
LC_SPDC	6/10/2021	1.5	1.5	4.74	4.74
LC_SPDC	6/14/2021	1.6	1.6	5.85	5.85
LC_SPDC	6/16/2021	1.9	1.9	1.36	1.36
LC_SPDC	6/22/2021	< 1.0	1	0.58	0.58
LC_SPDC	6/24/2021	2.5	2.5	0.73	0.73
LC_SPDC	6/29/2021	4.1	4.1		
LC_SPDC	6/30/2021	3.4	3.4	1.90	1.9
LC_SPDC	7/5/2021	5.3	5.3	2.08	2.08
LC_SPDC	7/7/2021	4.7	4.7	2.2	2.2
LC_SPDC	7/13/2021	4.1	4.1	3.98	3.98
LC_SPDC	7/15/2021	2.1	2.1	1.35	1.35
LC_SPDC	7/20/2021	< 1.0	1	1.44	1.44
LC_SPDC	7/22/2021	1.6	1.6	1.27	1.27
LC_SPDC	7/27/2021	< 1.0	1	0.63	0.63
LC_SPDC	7/30/2021	< 1.0	1	1.27	1.27
LC_SPDC	8/3/2021	1.9	1.9		
LC_SPDC	8/5/2021	6.2	6.2	7.07	7.07
LC_SPDC	8/9/2021	1.2	1.2	0.55	0.55
LC_SPDC	8/11/2021	2.3	2.3	1.36	1.36
LC_SPDC	8/17/2021	2.6	2.6	2.60	2.6
LC_SPDC	8/19/2021	1.7	1.7	1.1	1.1
LC_SPDC	8/24/2021	< 1.0	1	1.02	1.02
LC_SPDC	8/26/2021	1.3	1.3	1.8	1.8
LC_SPDC	8/30/2021	< 1.0	1	1.2	1.2
LC_SPDC	9/8/2021	< 1.0	1	1.12	1.12
LC_SPDC	9/12/2021	< 1.0	1	0.3	0.3
LC_SPDC	9/21/2021	< 1.0	1	0.8	0.8
LC_SPDC	9/27/2021	1.2	1.2	1.1	1.1
LC_SPDC	9/30/2021	< 1.0	1	0.8	0.8
LC_SPDC	10/6/2021	< 1.0	1	3.3	3.3
LC_SPDC	10/12/2021	1.4	1.4	1.99	1.99
LC_SPDC	10/18/2021	< 1.0	1	0.89	0.89
LC_SPDC	10/26/2021	< 1.0	1	0.69	0.69
LC_SPDC	11/2/2021	2.9	2.9	0.71	0.71
LC_SPDC	11/8/2021	< 1.0	1	0.55	0.55
LC_SPDC	11/15/2021	7.2	7.2	4.3	4.3
LC_SPDC	11/23/2021	< 1.0	1	0.63	0.63
LC_SPDC	11/30/2021	< 1.0	1	0.62	0.62
LC_SPDC	12/8/2021	< 1.0	1	1.57	1.57
LC_SPDC	12/13/2021	< 1.0	1	0	0
LC_SPDC	12/20/2021	1.1	1.1	0.38	0.38
LC_SPDC	12/30/2021	< 1.0	1	0.89	0.89

E308146 Discharge from Horseshoe Pit (LC_HSP)

Parameter		TOTAL SUSPENDED SOLIDS, LAB		TURBIDITY, FIELD	
Fraction		N		N	
Unit		mg/l		ntu	
Location	Date	Result Text	Result Value	Result Text	Result Value
LC_HSP	1/8/2021	24.1	24.1	2.21	2.21
LC_HSP	3/1/2021	10.0	10	82.09	82.09
LC_HSP	3/22/2021	< 1.0	1	1.9	1.9
LC_HSP	3/29/2021	1.2	1.2	0.37	0.37
LC_HSP	4/6/2021	< 1.0	1	2.15	2.15
LC_HSP	4/12/2021	< 1.0	1	0.83	0.83
LC_HSP	4/20/2021	< 1.0	1	1.04	1.04
LC_HSP	4/27/2021	< 1.0	1	1.47	1.47
LC_HSP	5/4/2021	< 1.0	1	2.25	2.25
LC_HSP	5/13/2021	1.1	1.1	1.81	1.81
LC_HSP	5/17/2021	5.9	5.9	3.07	3.07
LC_HSP	5/27/2021	1.2	1.2	1.75	1.75
LC_HSP	6/3/2021	30.7	30.7	45.88	45.88
LC_HSP	6/8/2021	5.6	5.6	16.39	16.39
LC_HSP	6/10/2021	2.2	2.2	13.31	13.31
LC_HSP	6/14/2021	2.8	2.8	5.79	5.79
LC_HSP	6/21/2021	3.2	3.2	2.68	2.68
LC_HSP	6/28/2021	< 1.0	1	0.98	0.98
LC_HSP	7/6/2021	2.5	2.5	3.8	3.8
LC_HSP	7/12/2021	2.2	2.2	2.67	2.67
LC_HSP	7/20/2021	< 1.0	1	2.47	2.47
LC_HSP	7/30/2021	< 1.0	1	2.06	2.06
LC_HSP	8/4/2021	< 1.0	1	1.94	1.94
LC_HSP	8/9/2021	4.1	4.1	6.34	6.34
LC_HSP	8/16/2021	7.5	7.5	8.33	8.33
LC_HSP	8/24/2021	1.5	1.5	4.02	4.02
LC_HSP	8/31/2021	11.2	11.2	10.64	10.64
LC_HSP	9/9/2021	6.8	6.8	6.46	6.46
LC_HSP	9/14/2021	1.1	1.1	2.54	2.54
LC_HSP	9/20/2021	2.2	2.2	3.99	3.99
LC_HSP	9/27/2021	4.9	4.9	3.3	3.3
LC_HSP	10/5/2021	5.2	5.2	3.27	3.27
LC_HSP	10/13/2021	< 1.0	1	2	2
LC_HSP	10/18/2021	6.4	6.4	2.93	2.93
LC_HSP	10/25/2021	1.6	1.6	1.47	1.47
LC_HSP	11/1/2021	2.2	2.2	2.07	2.07
LC_HSP	11/8/2021	2.5	2.5	1.83	1.83
LC_HSP	11/16/2021	9.5	9.5	3.9	3.9
LC_HSP	11/22/2021	1.8	1.8	1.64	1.64
LC_HSP	11/29/2021	< 1.0	1	2.02	2.02
LC_HSP	12/9/2021	2.4	2.4	1.37	1.37
LC_HSP	12/14/2021	< 1.0	1	0	0

Appendix J – 2021 Sediment Characterization

TECK COAL LIMITED (LINE CREEK)
ATTN: Tom Jeffery
PO BOX 2003
SPARWOOD BC V0B 2G0

Date Received: 04-JUN-21
Report Date: 16-JUN-21 15:11 (MT)
Version: FINAL

Client Phone: 250-425-6111

Certificate of Analysis

Lab Work Order #: L2596964

Project P.O. #:	VPO00739930
Job Reference:	LINE CREEK OPERATION
C of C Numbers:	RLPA 20210603
Legal Site Desc:	

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-1 LC_RLPA_SO_2021-06-03_NP1							
Sampled By: SF on 03-JUN-21 @ 12:10							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1460		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
EPH19-32	1100		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	90.4		60-140	%	05-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1430		200	mg/kg		11-JUN-21	
HEPH	1090		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.6	DLCI	1.6	mg/kg	05-JUN-21	06-JUN-21	R5479921
Acenaphthylene	0.269		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Anthracene	<0.064	DLCI	0.064	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benz(a)anthracene	1.15		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(a)pyrene	0.526		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.33		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(g,h,i)perylene	0.523		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(k)fluoranthene	0.097		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Chrysene	<3.5	DLCI	3.5	mg/kg	05-JUN-21	06-JUN-21	R5479921
Dibenz(a,h)anthracene	0.286		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluoranthene	0.727		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluorene	4.67		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.169		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
2-Methylnaphthalene	38.4		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Naphthalene	12.6		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Phenanthrene	18.0		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Pyrene	1.32		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
1-Methylnaphthalene	26.0		0.050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Quinoline	<0.090	DLCI	0.090	mg/kg	05-JUN-21	06-JUN-21	R5479921
IACR (CCME)	16.0		0.95		05-JUN-21	06-JUN-21	R5479921
B(a)P Total Potency Equivalent	1.11		0.027	mg/kg	05-JUN-21	06-JUN-21	R5479921
Surrogate: d8-Naphthalene	87.9		50-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Acenaphthene	N/A	SMI	-	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Phenanthrene	92.5		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d12-Chrysene	83.2		60-130	%	05-JUN-21	06-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0396		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.64		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Arsenic (As)	1.46		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	324		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.52		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	0.617		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	3.88		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	2.44		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	14.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Lead (Pb)	6.02		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	1.99		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	8.68		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	505		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	410		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	2.99		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	0.13		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-1 LC_RLPA_SO_2021-06-03_NP1							
Sampled By: SF on 03-JUN-21 @ 12:10							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Strontium (Sr)	108		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	<2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	0.765		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	20.8		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	31.3		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	7.92		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.736		0.0050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	5.33		0.014	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	1.14		0.015	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	3.51		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	12.1		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.050		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Surrogate: 4-Bromofluorobenzene	92.7		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	77.3		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	15.6		0.071	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	144		10	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	77.0		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							
VPH (C6-C10)	121		22	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	26.8		0.25	%		06-JUN-21	R5479282
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-1 LC_RLPA_SO_2021-06-03_NP1							
Sampled By: SF on 03-JUN-21 @ 12:10							
Matrix: SO							
Target Volatiles in TCLP Leachate							
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	100.8		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	127.9		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	90.2		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	89.4		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	83.4		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	89.8		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	<2.5		2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	338		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	3.22		0.15	mg/L		09-JUN-21	R5481337
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	44.2		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-1 LC_RLPA_SO_2021-06-03_NP1							
Sampled By: SF on 03-JUN-21 @ 12:10							
Matrix: SO							
Metals by ICPMS (TCLP)							
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
L2596964-2 LC_RLPA_SO_2021-06-03_NP2							
Sampled By: SF on 03-JUN-21 @ 12:20							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1370		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
EPH19-32	920		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	104.5		60-140	%	05-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1340		200	mg/kg		11-JUN-21	
HEPH	920		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.6	DLCI	1.6	mg/kg	05-JUN-21	06-JUN-21	R5479921
Acenaphthylene	0.226		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Anthracene	<0.016	DLCI	0.016	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benz(a)anthracene	<1.5	DLCI	1.5	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(a)pyrene	0.481		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.15		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(g,h,i)perylene	0.480		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(k)fluoranthene	0.048		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Chrysene	<3.3	DLCI	3.3	mg/kg	05-JUN-21	06-JUN-21	R5479921
Dibenz(a,h)anthracene	0.276		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluoranthene	0.601		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluorene	<5.4	DLCI	5.4	mg/kg	05-JUN-21	06-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.154		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
2-Methylnaphthalene	35.8		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Naphthalene	10.7		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Phenanthrene	17.1		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Pyrene	0.962		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
1-Methylnaphthalene	22.3		0.050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Quinoline	<0.12	DLCI	0.12	mg/kg	05-JUN-21	06-JUN-21	R5479921
IACR (CCME)	13.2		3.1		05-JUN-21	06-JUN-21	R5479921
B(a)P Total Potency Equivalent	0.988		0.099	mg/kg	05-JUN-21	06-JUN-21	R5479921
Surrogate: d8-Naphthalene	89.0		50-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Acenaphthene	61.4		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Phenanthrene	96.6		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d12-Chrysene	84.6		60-130	%	05-JUN-21	06-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0381		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.45		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Arsenic (As)	1.17		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	159		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.54		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	0.576		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	2.83		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	1.90		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	13.2		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-2 LC_RLPA_SO_2021-06-03_NP2							
Sampled By: SF on 03-JUN-21 @ 12:20							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Lead (Pb)	5.39		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	1.52		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	5.44		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	481		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	320		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	1.88		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	0.11		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Strontium (Sr)	92.9		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	<2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	0.604		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	16.6		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	30.7		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	7.63		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	2.11		0.0050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	10.8		0.014	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	2.11		0.015	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	4.98		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	18.4		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.050		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Surrogate: 4-Bromofluorobenzene	80.3		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	72.6		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	23.3		0.071	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	184		10	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	97.0		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							
VPH (C6-C10)	145		28	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	28.8		0.25	%		06-JUN-21	R5479282
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-2 LC_RLPA_SO_2021-06-03_NP2							
Sampled By: SF on 03-JUN-21 @ 12:20							
Matrix: SO							
Target Volatiles in TCLP Leachate							
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	100.7		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	122.6		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	89.9		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	84.0		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	80.4		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	84.7		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	<2.5		2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	68.2		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	3.66		0.15	mg/L		09-JUN-21	R5481337

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-2 LC_RLPA_SO_2021-06-03_NP2							
Sampled By: SF on 03-JUN-21 @ 12:20							
Matrix: SO							
Metals by ICPMS (TCLP)							
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	16.3		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
L2596964-3 LC_RLPA_SO_2021-06-03_NP3							
Sampled By: SF on 03-JUN-21 @ 12:30							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1510		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
EPH19-32	930		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	101.0		60-140	%	05-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1480		200	mg/kg		11-JUN-21	
HEPH	920		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.7	DLCI	1.7	mg/kg	05-JUN-21	06-JUN-21	R5479921
Acenaphthylene	0.240		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Anthracene	<0.065	DLCI	0.065	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benz(a)anthracene	<1.3	DLCI	1.3	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(a)pyrene	0.514		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.26		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(g,h,i)perylene	0.524		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(k)fluoranthene	0.062		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Chrysene	<3.4	DLCI	3.4	mg/kg	05-JUN-21	06-JUN-21	R5479921
Dibenz(a,h)anthracene	<0.27	DLCI	0.27	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluoranthene	0.627		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluorene	<5.8	DLCI	5.8	mg/kg	05-JUN-21	06-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.172		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
2-Methylnaphthalene	38.9		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Naphthalene	11.9		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Phenanthrene	17.3		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Pyrene	1.12		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
1-Methylnaphthalene	24.0		0.050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Quinoline	<0.12	DLCI	0.12	mg/kg	05-JUN-21	06-JUN-21	R5479921
IACR (CCME)	13.2		3.5		05-JUN-21	06-JUN-21	R5479921
B(a)P Total Potency Equivalent	0.89		0.22	mg/kg	05-JUN-21	06-JUN-21	R5479921
Surrogate: d8-Naphthalene	72.7		50-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Acenaphthene	98.0		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Phenanthrene	82.9		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d12-Chrysene	80.0		60-130	%	05-JUN-21	06-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0383		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.46		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-3 LC_RLPA_SO_2021-06-03_NP3							
Sampled By: SF on 03-JUN-21 @ 12:30							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Arsenic (As)	1.03		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	233		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.71		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	0.411		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	2.93		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	2.59		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	12.8		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Lead (Pb)	5.38		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	1.47		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	5.63		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	375		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	270		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	1.25		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	<0.10		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Strontium (Sr)	88.0		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	0.513		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	15.2		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	25.9		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.11		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	2.33	DLIS	0.012	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	17.3	DLIS	0.032	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	3.51	DLIS	0.035	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.46	DLIS	0.46	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	9.07	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	30.6	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.12	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
Surrogate: 4-Bromofluorobenzene	80.5		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	78.1		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	39.6		0.16	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	285	DLIS	23	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	81.2		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							
VPH (C6-C10)	222		43	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	30.6		0.25	%		06-JUN-21	R5479282
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-3 LC_RLPA_SO_2021-06-03_NP3							
Sampled By: SF on 03-JUN-21 @ 12:30							
Matrix: SO							
Target Volatiles in TCLP Leachate							
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	99.8		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	124.8		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	90.9		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	87.0		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	84.0		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	96.5		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	2.9	RRV	2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-3 LC_RLPA_SO_2021-06-03_NP3							
Sampled By: SF on 03-JUN-21 @ 12:30							
Matrix: SO							
Metals by ICPMS (TCLP)							
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	68.2		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	4.89		0.15	mg/L		09-JUN-21	R5481337
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	12.4		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
L2596964-4 LC_RLPA_SO_2021-06-03_NP4							
Sampled By: SF on 03-JUN-21 @ 12:40							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1540		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
EPH19-32	900		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	102.5		60-140	%	05-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1510		200	mg/kg		11-JUN-21	
HEPH	900		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.8	DLCI	1.8	mg/kg	05-JUN-21	06-JUN-21	R5479921
Acenaphthylene	0.203		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Anthracene	<0.028	DLCI	0.028	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benz(a)anthracene	0.988		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(a)pyrene	0.536		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.28		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(g,h,i)perylene	0.547		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(k)fluoranthene	0.133		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Chrysene	3.32		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Dibenz(a,h)anthracene	0.302		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluoranthene	0.629		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluorene	5.89		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.206		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
2-Methylnaphthalene	39.6		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Naphthalene	13.0		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Phenanthrene	17.8		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Pyrene	1.23		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
1-Methylnaphthalene	25.0		0.050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Quinoline	<0.15	DLCI	0.15	mg/kg	05-JUN-21	06-JUN-21	R5479921
IACR (CCME)	16.3		0.15		05-JUN-21	06-JUN-21	R5479921
B(a)P Total Potency Equivalent	1.14		0.020	mg/kg	05-JUN-21	06-JUN-21	R5479921
Surrogate: d8-Naphthalene	80.3		50-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Acenaphthene	87.1		60-130	%	05-JUN-21	06-JUN-21	R5479921

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-4 LC_RLPA_SO_2021-06-03_NP4							
Sampled By: SF on 03-JUN-21 @ 12:40							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Surrogate: d10-Phenanthrene	90.8		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d12-Chrysene	81.4		60-130	%	05-JUN-21	06-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0369		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.58		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Arsenic (As)	1.21		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	213		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.50		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	0.506		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	3.80		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	2.05		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	13.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Lead (Pb)	5.57		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	1.49		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	5.77		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	483		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	340		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	1.49		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	0.12		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Strontium (Sr)	94.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	<2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	0.592		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	21.4		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	26.4		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.96		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	1.02		0.0050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	6.43		0.014	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	1.61		0.015	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	4.06		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	13.1		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.050		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Surrogate: 4-Bromofluorobenzene	85.4		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	72.6		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	17.2		0.071	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	152		10	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	75.4		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							
VPH (C6-C10)	125		23	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	33.6		0.25	%		06-JUN-21	R5479282
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-4 LC_RLPA_SO_2021-06-03_NP4							
Sampled By: SF on 03-JUN-21 @ 12:40							
Matrix: SO							
TCLP Leachable Cresols and Nitrobenzene							
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	100.3		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	122.5		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	91.9		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	92.5		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	88.0		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	94.1		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-4 LC_RLPA_SO_2021-06-03_NP4							
Sampled By: SF on 03-JUN-21 @ 12:40							
Matrix: SO							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	<2.5		2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	57.6		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	5.09		0.15	mg/L		09-JUN-21	R5481337
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	13.6		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
L2596964-5 LC_RLPA_SO_2021-06-03_NP5							
Sampled By: SF on 03-JUN-21 @ 12:50							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1490		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
EPH19-32	1260		200	mg/kg	05-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	107.7		60-140	%	05-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1460		200	mg/kg		11-JUN-21	
HEPH	1260		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.7	DLCI	1.7	mg/kg	05-JUN-21	06-JUN-21	R5479921
Acenaphthylene	0.351		0.0050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Anthracene	<0.0080	DLCI	0.0080	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benz(a)anthracene	1.42		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(a)pyrene	0.484		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.23		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(g,h,i)perylene	0.370		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Benzo(k)fluoranthene	0.114		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Chrysene	3.54		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Dibenz(a,h)anthracene	<0.27	DLCI	0.27	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluoranthene	0.911		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Fluorene	4.13		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.145		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
2-Methylnaphthalene	28.4		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Naphthalene	6.27		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Phenanthrene	24.3		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921
Pyrene	1.34		0.010	mg/kg	05-JUN-21	06-JUN-21	R5479921

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-5 LC_RLPA_SO_2021-06-03_NP5							
Sampled By: SF on 03-JUN-21 @ 12:50							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
1-Methylnaphthalene	21.8		0.050	mg/kg	05-JUN-21	06-JUN-21	R5479921
Quinoline	<0.070	DLCI	0.070	mg/kg	05-JUN-21	06-JUN-21	R5479921
IACR (CCME)	16.4		0.68		05-JUN-21	06-JUN-21	R5479921
B(a)P Total Potency Equivalent	0.95		0.14	mg/kg	05-JUN-21	06-JUN-21	R5479921
Surrogate: d8-Naphthalene	88.9		50-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Acenaphthene	94.6		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d10-Phenanthrene	88.8		60-130	%	05-JUN-21	06-JUN-21	R5479921
Surrogate: d12-Chrysene	65.3		60-130	%	05-JUN-21	06-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0700		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	1.03		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Arsenic (As)	3.10		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	478		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.91		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	1.48		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	5.98		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	3.98		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	29.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Lead (Pb)	11.9		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	3.98		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	18.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	716		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	560		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	10.5		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	0.31		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Strontium (Sr)	131		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	<2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	1.61		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	30.1		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	64.7		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	5.45		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.067	DLIS	0.012	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	0.610	DLIS	0.032	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	0.295	DLIS	0.035	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.46	DLIS	0.46	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	1.29	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	2.87	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.12	DLIS	0.12	mg/kg	05-JUN-21	14-JUN-21	R5490029
Surrogate: 4-Bromofluorobenzene	77.6		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	70.1		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	4.17		0.16	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	108	DLIS	23	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	71.2		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-5 LC_RLPA_SO_2021-06-03_NP5							
Sampled By: SF on 03-JUN-21 @ 12:50							
Matrix: SO							
VPH Calculation							
VPH (C6-C10)	103		23	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	32.0		0.25	%		06-JUN-21	R5479282
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	100.8		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	126.8		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	91.3		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-5 LC_RLPA_SO_2021-06-03_NP5							
Sampled By: SF on 03-JUN-21 @ 12:50							
Matrix: SO							
PAH TCLP List							
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	97.2		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	93.1		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	100.5		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	<2.5		2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	31.5		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	6.97		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
L2596964-6 LC_RLPA_SO_2021-06-03_NP6							
Sampled By: SF on 03-JUN-21 @ 13:00							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1530		200	mg/kg	06-JUN-21	11-JUN-21	R5486816
EPH19-32	1290		200	mg/kg	06-JUN-21	11-JUN-21	R5486816
Surrogate: 2-Bromobenzotrifluoride	94.8		60-140	%	06-JUN-21	11-JUN-21	R5486816
LEPHs and HEPHs							
LEPH	1500		200	mg/kg		11-JUN-21	
HEPH	1290		200	mg/kg		11-JUN-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.7	DLCI	1.7	mg/kg	06-JUN-21	07-JUN-21	R5479921
Acenaphthylene	0.374		0.0050	mg/kg	06-JUN-21	07-JUN-21	R5479921
Anthracene	<0.035	DLCI	0.035	mg/kg	06-JUN-21	07-JUN-21	R5479921
Benz(a)anthracene	1.45		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Benzo(a)pyrene	0.474		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Benzo(b&j)fluoranthene	1.21		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Benzo(g,h,i)perylene	0.363		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Benzo(k)fluoranthene	0.162		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Chrysene	<3.8	DLCI	3.8	mg/kg	06-JUN-21	07-JUN-21	R5479921

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-6 LC_RLPA_SO_2021-06-03_NP6							
Sampled By: SF on 03-JUN-21 @ 13:00							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Dibenz(a,h)anthracene	<0.27	DLCI	0.27	mg/kg	06-JUN-21	07-JUN-21	R5479921
Fluoranthene	0.876		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Fluorene	3.79		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Indeno(1,2,3-c,d)pyrene	0.152		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
2-Methylnaphthalene	24.5		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Naphthalene	5.44		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Phenanthrene	23.2		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
Pyrene	1.41		0.010	mg/kg	06-JUN-21	07-JUN-21	R5479921
1-Methylnaphthalene	19.4		0.050	mg/kg	06-JUN-21	07-JUN-21	R5479921
Quinoline	<0.070	DLCI	0.070	mg/kg	06-JUN-21	07-JUN-21	R5479921
IACR (CCME)	15.9		1.6		06-JUN-21	07-JUN-21	R5479921
B(a)P Total Potency Equivalent	0.93		0.16	mg/kg	06-JUN-21	07-JUN-21	R5479921
Surrogate: d8-Naphthalene	87.6		50-130	%	06-JUN-21	07-JUN-21	R5479921
Surrogate: d10-Acenaphthene	102.6		60-130	%	06-JUN-21	07-JUN-21	R5479921
Surrogate: d10-Phenanthrene	85.0		60-130	%	06-JUN-21	07-JUN-21	R5479921
Surrogate: d12-Chrysene	71.0		60-130	%	06-JUN-21	07-JUN-21	R5479921
BC Contaminated Sites Regulations Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0777		0.0050	mg/kg	14-JUN-21	15-JUN-21	R5490946
Metals in Soil by CRC ICPMS							
Antimony (Sb)	1.20		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Arsenic (As)	3.19		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Barium (Ba)	502		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Beryllium (Be)	0.86		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cadmium (Cd)	1.32		0.020	mg/kg	14-JUN-21	15-JUN-21	R5490978
Chromium (Cr)	5.75		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Cobalt (Co)	2.92		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Copper (Cu)	27.7		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Lead (Pb)	11.9		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Molybdenum (Mo)	4.73		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Nickel (Ni)	15.4		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Phosphorus (P)	693		50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Potassium (K)	590		100	mg/kg	14-JUN-21	15-JUN-21	R5490978
Selenium (Se)	12.3		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Silver (Ag)	0.35		0.10	mg/kg	14-JUN-21	15-JUN-21	R5490978
Strontium (Sr)	128		0.50	mg/kg	14-JUN-21	15-JUN-21	R5490978
Thallium (Tl)	<0.050		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Tin (Sn)	<2.0		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
Uranium (U)	1.67		0.050	mg/kg	14-JUN-21	15-JUN-21	R5490978
Vanadium (V)	30.1		0.20	mg/kg	14-JUN-21	15-JUN-21	R5490978
Zinc (Zn)	55.5		2.0	mg/kg	14-JUN-21	15-JUN-21	R5490978
pH (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	5.31		0.10	pH		14-JUN-21	R5490484
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.0591		0.0050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Toluene	0.507		0.014	mg/kg	05-JUN-21	14-JUN-21	R5490029
Ethylbenzene	0.240		0.015	mg/kg	05-JUN-21	14-JUN-21	R5490029
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	05-JUN-21	14-JUN-21	R5490029
o-Xylene	0.972		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
m+p-Xylene	2.18		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029
Styrene	<0.050		0.050	mg/kg	05-JUN-21	14-JUN-21	R5490029

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-6 LC_RLPA_SO_2021-06-03_NP6							
Sampled By: SF on 03-JUN-21 @ 13:00							
Matrix: SO							
BTEX, Styrene and MTBE							
Surrogate: 4-Bromofluorobenzene	74.1		70-130	%	05-JUN-21	14-JUN-21	R5490029
Surrogate: 1,4-Difluorobenzene	71.0		70-130	%	05-JUN-21	14-JUN-21	R5490029
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	3.15		0.071	mg/kg		14-JUN-21	
VHs							
Volatile Hydrocarbons (VH6-10)	74		10	mg/kg	05-JUN-21	14-JUN-21	R5490033
Surrogate: 3,4-Dichlorotoluene	70.4		70-130	%	05-JUN-21	14-JUN-21	R5490033
VPH Calculation							
VPH (C6-C10)	70		11	mg/kg		14-JUN-21	
Miscellaneous Parameters							
Moisture	35.5		0.25	%		07-JUN-21	R5479436
Leachable Fluoride (F)	<10		10	mg/L		08-JUN-21	R5484139
TCLP Leachable Cresols and Nitrobenzene							
Total Cresols	<1.2		1.2	mg/L	08-JUN-21	11-JUN-21	R5481045
Nitrobenzene	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
o-Cresol	<0.50		0.50	mg/L	08-JUN-21	11-JUN-21	R5481045
m&p-Cresol	<1.0		1.0	mg/L	08-JUN-21	11-JUN-21	R5481045
Target Volatiles in TCLP Leachate							
Vinyl Chloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,1-Dichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chloroform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichloroethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Methyl Ethyl Ketone	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Carbon Tetrachloride	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Benzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Trichloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromodichloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Dibromochloromethane	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Bromoform	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Toluene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Tetrachloroethylene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Chlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Ethylbenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Xylenes	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,4-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
1,2-Dichlorobenzene	<0.10		0.10	mg/L	07-JUN-21	11-JUN-21	R5488541
Pyridine	<5.0		5.0	mg/L	07-JUN-21	11-JUN-21	R5488541
Surrogate: 1,4-Difluorobenzene	99.7		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 3,4-Dichlorotoluene	117.2		70-130	%	07-JUN-21	11-JUN-21	R5488541
Surrogate: 4-Bromofluorobenzene	91.0		70-130	%	07-JUN-21	11-JUN-21	R5488541
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		10-JUN-21	R5488112
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		10-JUN-21	R5488112
Single PAH in Leachate							
PAH TCLP List							
Acenaphthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Acenaphthylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(a)pyrene	<0.0010		0.0010	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(b&j)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2596964-6 LC_RLPA_SO_2021-06-03_NP6							
Sampled By: SF on 03-JUN-21 @ 13:00							
Matrix: SO							
PAH TCLP List							
Benzo(g,h,i)perylene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Benzo(k)fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Chrysene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Dibenzo(ah)anthracene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluoranthene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Fluorene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Indeno(1,2,3-cd)pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Naphthalene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Phenanthrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Pyrene	<0.0050		0.0050	mg/L	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Acenaphthene	94.0		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d10-Phenanthrene	86.1		50-150	%	10-JUN-21	11-JUN-21	R5489519
Surrogate: d12-Chrysene	94.9		50-150	%	10-JUN-21	11-JUN-21	R5489519
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		09-JUN-21	R5481361
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Arsenic (As)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Barium (Ba)-Leachable	<2.5		2.5	mg/L		09-JUN-21	R5481337
Beryllium (Be)-Leachable	<25		25	ug/L		09-JUN-21	R5481337
Boron (B)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337
Cadmium (Cd)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Calcium (Ca)-Leachable	33.8		2.0	mg/L		09-JUN-21	R5481337
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Cobalt (Co)-Leachable	<50		50	ug/L		09-JUN-21	R5481337
Copper (Cu)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Iron (Fe)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Lead (Pb)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Magnesium (Mg)-Leachable	5.59		0.50	mg/L		09-JUN-21	R5481337
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		09-JUN-21	R5481337
Selenium (Se)-Leachable	<1000		1000	ug/L		09-JUN-21	R5481337
Silver (Ag)-Leachable	<0.050		0.050	mg/L		09-JUN-21	R5481337
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		09-JUN-21	R5481337
Uranium (U)-Leachable	<2.0		2.0	mg/L		09-JUN-21	R5481337
Vanadium (V)-Leachable	<0.15		0.15	mg/L		09-JUN-21	R5481337
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		09-JUN-21	R5481337

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLIS	Detection Limit Adjusted: Insufficient Sample
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
RRV	Reported Result Verified By Repeat Analysis
SMI	Surrogate recovery could not be measured due to sample matrix interference.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXSM-MEOH-HS-MS-CL	Soil	BTEX, Styrene and MTBE	EPA 8260C/5021A

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

CNB-TCLP-CL	Waste	TCLP Leachable Cresols and Nitrobenzene	EPA 1311 AND EPA 3511/8270-GC/MS

Samples are leached according to TCLP protocol (US EPA 1311), and then the aqueous leachate is extracted as per US EPA 3511. The final extract is analyzed by capillary column gas chromatography with mass spectrometric detection (GC/MS).

EPH-TMB-H/A-FID-CL	Soil	EPH in solids by Tumbler	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

F-TCLP-CL	Waste	Fluoride (F)	EPA 1311/300.1

Sample is leached according to TCLP protocol as per EPA 1311. Inorganic anions in the TCLP extract are analyzed by Ion Chromatography with conductivity and/or UV detection.

HG-200.2-CVAA-CL	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

HG-TCLP-L-CVAA-CL	Waste	Leachable Mercury (Hg) in soil by CVAA	EPA 1311/1631E

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry.

LEPH/HEPH-CALC-CL	Soil	LEPHs and HEPHs	BC MELP; CSR-Analytical Method 3

: Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-CL	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

MET-TCLP-CCMS-BC-CL	Waste	Metals by ICPMS (TCLP)	EPA 1311/6020A

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the US Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

MOISTURE-CL	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

This analysis is carried out gravimetrically by drying the sample at 105 C

OGG-SW-SOX-TOT-VA	Soil	Waste Oil By Gravimetric	BCMELP 66000-03/SWR

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Waste Oil Content in Solids and/or Liquids (Hazardous Waste Regulation)
This analysis is carried out according to the method "Determination of Waste Oil Content in Solids and Liquids for Hazardous Waste Regulation PBM", from the BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment, and Biological Materials, 2005 edition. Use Waste Oil Content (as mg/Wet kg) to compare with the Hazardous Waste Regulation "waste oil" standard. Use Waste Oil Content (HWR 41.1, mg/kg) to compare with the Total Oil standard in section 41.1 of the Hazardous Waste Regulation.

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

PAH-TCLP-CL	Waste	PAH TCLP List	EPA 1311 AND EPA 3510/8270-GC/MS

Samples are leached according to TCLP protocol (EPA 1311), and then the aqueous leachate is extracted as per EPA 3510. The extracts are analyzed on GC/MSD.

PAH-TMB-H/A-MS-CL	Soil	PAH Tumbler Extraction (Hexane/Acetone)	EPA 3570/8270-GC/MS

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-CL	Waste	pH (1:2 Soil:Water Extraction)	CSSS Ch. 16

Soil and de-ionized water (by volume) are mixed in a defined ratio. The slurry is allowed to stand, shaken, and then allowed to stand again prior to taking measurements. After equilibration, the pH of the liquid portion of the extract is measured by a pH meter. Field Measurement is recommended where accurate pH measurements are required, due to the 15 minute recommended hold time.

VH-MEOH-HS-FID-CL	Soil	VHs	BC Env. Lab Manual (VH in Solids)

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). . The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999)

VOC-WASTE-TCLP-CL	Waste	Target Volatiles in TCLP Leachate	EPA 1311 (Leach)/ Modified from EPA 8260

A representative sample of waste is extracted, in a Zero Headspace Sampler, with the amount of extraction fluid equal to 20 times the weight of the solid phase. The extraction is set up in a rotator for a minimum of 18 hours. The pH of the fluid used is a function of the alkalinity of the solid phase of the waste. Following extraction, the liquid extract is separated from the solid phase by filtration and preserved.

The extract, with added reagents, is then heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VPH-CALC-CL	Soil	VPH Calculation	BC MOE LABORATORY MANUAL (2005)

These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Volatile Petroleum Hydrocarbons in Solids or Water" (Version 2.1, July 20, 1999). According to this method, the concentrations of specific Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes and Styrene) are subtracted from the collective concentration of Volatile Hydrocarbons (VH) that elute between n-hexane (nC6) and n-decane (nC10). Analysis of Volatile Hydrocarbons adheres to all prescribed elements of BCMELP method "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

XYLENES-SUM-CALC-CL	Soil	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

RLPA 20210603

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2596964 Report Date: 16-JUN-21

Client: TECK COAL LIMITED (LINE CREEK)
PO BOX 2003
SPARWOOD BC V0B 2G0
Contact: Tom Jeffery

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTXSM-MEOH-HS-MS-CL	**Soil**							
Batch R5490029								
WG3548705-3 DUP		**L2596964-1**						
Benzene		0.736	0.609		mg/kg	19	40	14-JUN-21
Toluene		5.33	4.35		mg/kg	20	40	14-JUN-21
Ethylbenzene		1.14	0.985		mg/kg	14	40	14-JUN-21
Methyl-tert-Butyl Ether		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	14-JUN-21
o-Xylene		3.51	2.95		mg/kg	17	40	14-JUN-21
m+p-Xylene		12.1	9.85		mg/kg	20	40	14-JUN-21
Styrene		<0.050	<0.050	RPD-NA	mg/kg	N/A	40	14-JUN-21
WG3548705-2 LCS								
Benzene			108.8		%		70-130	14-JUN-21
Toluene			97.6		%		70-130	14-JUN-21
Ethylbenzene			85.4		%		70-130	14-JUN-21
Methyl-tert-Butyl Ether			104.1		%		70-130	14-JUN-21
o-Xylene			94.3		%		70-130	14-JUN-21
m+p-Xylene			94.0		%		70-130	14-JUN-21
Styrene			94.5		%		70-130	14-JUN-21
WG3548705-1 MB								
Benzene			<0.0050		mg/kg		0.005	14-JUN-21
Toluene			<0.014		mg/kg		0.014	14-JUN-21
Ethylbenzene			<0.015		mg/kg		0.015	14-JUN-21
Methyl-tert-Butyl Ether			<0.20		mg/kg		0.2	14-JUN-21
o-Xylene			<0.050		mg/kg		0.05	14-JUN-21
m+p-Xylene			<0.050		mg/kg		0.05	14-JUN-21
Styrene			<0.050		mg/kg		0.05	14-JUN-21
Surrogate: 4-Bromofluorobenzene			95.9		%		70-130	14-JUN-21
Surrogate: 1,4-Difluorobenzene			83.0		%		70-130	14-JUN-21
EPH-TMB-H/A-FID-CL	**Soil**							
Batch R5486816								
WG3548698-4 DUP		**L2596964-1**						
EPH10-19		1460	1490		mg/kg	1.9	40	11-JUN-21
EPH19-32		1100	1200		mg/kg	8.4	40	11-JUN-21
TEH10-30		2440	2550		mg/kg	4.4	40	11-JUN-21
WG3548957-5 DUP		**L2596964-6**						
EPH10-19		1530	1570		mg/kg	2.6	40	11-JUN-21
EPH19-32		1290	1350		mg/kg	4.6	40	11-JUN-21
TEH10-30		2820	2920		mg/kg	3.5	40	11-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EPH-TMB-H/A-FID-CL	**Soil**							
Batch R5486816								
WG3548698-3 IRM		**ALS PHC3 RM**						
EPH10-19			96.7		%		70-130	11-JUN-21
EPH19-32			84.1		%		70-130	11-JUN-21
TEH10-30			95.8		%		70-130	11-JUN-21
WG3548957-3 IRM		**ALS PHC3 RM**						
EPH10-19			89.8		%		70-130	11-JUN-21
EPH19-32			78.4		%		70-130	11-JUN-21
TEH10-30			89.2		%		70-130	11-JUN-21
WG3548698-2 LCS								
EPH10-19			103.9		%		70-130	11-JUN-21
EPH19-32			93.0		%		70-130	11-JUN-21
TEH10-30			99.5		%		70-130	11-JUN-21
WG3548957-2 LCS								
EPH10-19			103.7		%		70-130	11-JUN-21
EPH19-32			97.6		%		70-130	11-JUN-21
TEH10-30			101.6		%		70-130	11-JUN-21
WG3548698-1 MB								
EPH10-19			<200		mg/kg		200	11-JUN-21
EPH19-32			<200		mg/kg		200	11-JUN-21
TEH10-30			<200		mg/kg		200	11-JUN-21
Surrogate: 2-Bromobenzotrifluoride			93.0		%		60-140	11-JUN-21
WG3548957-1 MB								
EPH10-19			<200		mg/kg		200	11-JUN-21
EPH19-32			<200		mg/kg		200	11-JUN-21
TEH10-30			<200		mg/kg		200	11-JUN-21
Surrogate: 2-Bromobenzotrifluoride			102.1		%		60-140	11-JUN-21
HG-200.2-CVAA-CL	**Soil**							
Batch R5490946								
WG3554763-3 CRM		**TILL-2**						
Mercury (Hg)			74.9		%		70-130	15-JUN-21
WG3554763-2 LCS								
Mercury (Hg)			95.8		%		80-120	15-JUN-21
WG3554763-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-JUN-21
MET-200.2-CCMS-CL	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5490978								
WG3554763-3 CRM		**TILL-2**						
Antimony (Sb)			95.5		%		70-130	15-JUN-21
Arsenic (As)			97.2		%		70-130	15-JUN-21
Barium (Ba)			96.2		%		70-130	15-JUN-21
Beryllium (Be)			93.7		%		70-130	15-JUN-21
Cadmium (Cd)			102.3		%		70-130	15-JUN-21
Chromium (Cr)			102.6		%		70-130	15-JUN-21
Cobalt (Co)			98.5		%		70-130	15-JUN-21
Copper (Cu)			100.2		%		70-130	15-JUN-21
Lead (Pb)			87.6		%		70-130	15-JUN-21
Molybdenum (Mo)			87.4		%		70-130	15-JUN-21
Nickel (Ni)			101.2		%		70-130	15-JUN-21
Phosphorus (P)			94.4		%		70-130	15-JUN-21
Potassium (K)			94.3		%		70-130	15-JUN-21
Selenium (Se)			0.42		mg/kg		0.15-0.55	15-JUN-21
Silver (Ag)			0.28		mg/kg		0.16-0.36	15-JUN-21
Strontium (Sr)			84.1		%		70-130	15-JUN-21
Thallium (Tl)			84.5		%		70-130	15-JUN-21
Tin (Sn)			2.1		mg/kg		0.2-4.2	15-JUN-21
Uranium (U)			87.4		%		70-130	15-JUN-21
Vanadium (V)			106.5		%		70-130	15-JUN-21
Zinc (Zn)			98.7		%		70-130	15-JUN-21
WG3554763-4 DUP		**L2596964-6**						
Antimony (Sb)		1.20	0.94		mg/kg	25	30	15-JUN-21
Arsenic (As)		3.19	3.20		mg/kg	0.5	30	15-JUN-21
Barium (Ba)		502	449		mg/kg	11	40	15-JUN-21
Beryllium (Be)		0.86	0.77		mg/kg	11	30	15-JUN-21
Cadmium (Cd)		1.32	1.33		mg/kg	0.8	30	15-JUN-21
Chromium (Cr)		5.75	6.15		mg/kg	6.8	30	15-JUN-21
Cobalt (Co)		2.92	2.96		mg/kg	1.2	30	15-JUN-21
Copper (Cu)		27.7	27.5		mg/kg	0.5	30	15-JUN-21
Lead (Pb)		11.9	10.7		mg/kg	11	40	15-JUN-21
Molybdenum (Mo)		4.73	5.15		mg/kg	8.4	40	15-JUN-21
Nickel (Ni)		15.4	15.7		mg/kg	1.9	30	15-JUN-21
Phosphorus (P)		693	680		mg/kg	2.0	30	15-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5490978								
WG3554763-4 DUP		**L2596964-6**						
Potassium (K)		590	590		mg/kg	0.3	40	15-JUN-21
Selenium (Se)		12.3	11.9		mg/kg	3.5	30	15-JUN-21
Silver (Ag)		0.35	0.28		mg/kg	20	40	15-JUN-21
Strontium (Sr)		128	109		mg/kg	16	40	15-JUN-21
Thallium (Tl)		<0.050	<0.050	RPD-NA	mg/kg	N/A	30	15-JUN-21
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	15-JUN-21
Uranium (U)		1.67	1.49		mg/kg	11	30	15-JUN-21
Vanadium (V)		30.1	29.2		mg/kg	2.9	30	15-JUN-21
Zinc (Zn)		55.5	55.4		mg/kg	0.2	30	15-JUN-21
WG3554763-2 LCS								
Antimony (Sb)			111.4		%		80-120	15-JUN-21
Arsenic (As)			94.8		%		80-120	15-JUN-21
Barium (Ba)			100.8		%		80-120	15-JUN-21
Beryllium (Be)			98.6		%		80-120	15-JUN-21
Cadmium (Cd)			99.1		%		80-120	15-JUN-21
Chromium (Cr)			100.6		%		80-120	15-JUN-21
Cobalt (Co)			98.5		%		80-120	15-JUN-21
Copper (Cu)			97.1		%		80-120	15-JUN-21
Lead (Pb)			99.7		%		80-120	15-JUN-21
Molybdenum (Mo)			90.7		%		80-120	15-JUN-21
Nickel (Ni)			98.0		%		80-120	15-JUN-21
Phosphorus (P)			102.7		%		80-120	15-JUN-21
Potassium (K)			105.2		%		80-120	15-JUN-21
Selenium (Se)			107.2		%		80-120	15-JUN-21
Silver (Ag)			95.0		%		80-120	15-JUN-21
Strontium (Sr)			83.8		%		80-120	15-JUN-21
Thallium (Tl)			100.2		%		80-120	15-JUN-21
Tin (Sn)			94.2		%		80-120	15-JUN-21
Uranium (U)			91.2		%		80-120	15-JUN-21
Vanadium (V)			105.6		%		80-120	15-JUN-21
Zinc (Zn)			95.8		%		80-120	15-JUN-21
WG3554763-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-JUN-21
Arsenic (As)			<0.10		mg/kg		0.1	15-JUN-21
Barium (Ba)			<0.50		mg/kg		0.5	15-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5490978								
WG3554763-1 MB								
Beryllium (Be)			<0.10		mg/kg		0.1	15-JUN-21
Cadmium (Cd)			<0.020		mg/kg		0.02	15-JUN-21
Chromium (Cr)			<0.50		mg/kg		0.5	15-JUN-21
Cobalt (Co)			<0.10		mg/kg		0.1	15-JUN-21
Copper (Cu)			<0.50		mg/kg		0.5	15-JUN-21
Lead (Pb)			<0.50		mg/kg		0.5	15-JUN-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	15-JUN-21
Nickel (Ni)			<0.50		mg/kg		0.5	15-JUN-21
Phosphorus (P)			<50		mg/kg		50	15-JUN-21
Potassium (K)			<100		mg/kg		100	15-JUN-21
Selenium (Se)			<0.20		mg/kg		0.2	15-JUN-21
Silver (Ag)			<0.10		mg/kg		0.1	15-JUN-21
Strontium (Sr)			<0.50		mg/kg		0.5	15-JUN-21
Thallium (Tl)			<0.050		mg/kg		0.05	15-JUN-21
Tin (Sn)			<2.0		mg/kg		2	15-JUN-21
Uranium (U)			<0.050		mg/kg		0.05	15-JUN-21
Vanadium (V)			<0.20		mg/kg		0.2	15-JUN-21
Zinc (Zn)			<2.0		mg/kg		2	15-JUN-21
MOISTURE-CL	**Soil**							
Batch R5479282								
WG3548702-3 DUP		**L2596964-1**						
Moisture		26.8	25.0		%	6.8	20	06-JUN-21
WG3548702-2 LCS								
Moisture			99.2		%		90-110	06-JUN-21
WG3548702-1 MB								
Moisture			<0.25		%		0.25	06-JUN-21
Batch R5479436								
WG3548954-3 DUP		**L2596964-6**						
Moisture		35.5	34.9		%	1.7	20	07-JUN-21
WG3548954-2 LCS								
Moisture			100.4		%		90-110	07-JUN-21
WG3548954-1 MB								
Moisture			<0.25		%		0.25	07-JUN-21
OGG-SW-SOX-TOT-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
OGG-SW-SOX-TOT-VA	**Soil**							
Batch R5488112								
WG3552653-3 DUP		**L2596964-2**						
Waste Oil Content - mg/Wkg		<1000	<1000	RPD-NA	mg/kg wwt	N/A	40	10-JUN-21
Waste Oil Content (HWR 41.1, mg/kg)		<1000	<1000	RPD-NA	mg/kg	N/A	40	10-JUN-21
WG3552653-2 LCS								
Waste Oil Content - mg/Wkg			94.0		%		70-130	10-JUN-21
Waste Oil Content (HWR 41.1, mg/kg)			94.0		%		70-130	10-JUN-21
WG3552653-1 MB								
Waste Oil Content - mg/Wkg			<1000		mg/kg wwt		1000	10-JUN-21
Waste Oil Content (HWR 41.1, mg/kg)			<1000		mg/kg		1000	10-JUN-21
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-5 DUP		**L2596964-1**						
Acenaphthene		<1.6	<1.6	RPD-NA	mg/kg	N/A	50	06-JUN-21
Acenaphthylene		0.269	0.225		mg/kg	18	50	06-JUN-21
Anthracene		<0.064	<0.064	RPD-NA	mg/kg	N/A	50	06-JUN-21
Benz(a)anthracene		1.15	1.11		mg/kg	3.9	50	06-JUN-21
Benzo(a)pyrene		0.526	0.488		mg/kg	7.5	50	06-JUN-21
Benzo(b&j)fluoranthene		1.33	1.29		mg/kg	2.9	50	06-JUN-21
Benzo(g,h,i)perylene		0.523	0.506		mg/kg	3.2	50	06-JUN-21
Benzo(k)fluoranthene		0.097	0.099		mg/kg	1.6	50	06-JUN-21
Chrysene		<3.5	<3.5	RPD-NA	mg/kg	N/A	50	06-JUN-21
Dibenz(a,h)anthracene		0.286	0.296		mg/kg	3.7	50	06-JUN-21
Fluoranthene		0.727	0.701		mg/kg	3.7	50	06-JUN-21
Fluorene		4.67	4.57		mg/kg	2.1	50	06-JUN-21
Indeno(1,2,3-c,d)pyrene		0.169	0.183		mg/kg	8.3	50	06-JUN-21
2-Methylnaphthalene		38.4	36.2		mg/kg	6.0	50	06-JUN-21
Naphthalene		12.6	11.8		mg/kg	6.8	50	06-JUN-21
Phenanthrene		18.0	17.5		mg/kg	2.7	50	06-JUN-21
Pyrene		1.32	1.18		mg/kg	11	50	06-JUN-21
1-Methylnaphthalene		26.0	24.6		mg/kg	5.6	50	06-JUN-21
Quinoline		<0.090	<0.090	RPD-NA	mg/kg	N/A	50	06-JUN-21
WG3549699-9 DUP		**L2596964-6**						
Acenaphthene		<1.7	<1.7	RPD-NA	mg/kg	N/A	50	07-JUN-21
Acenaphthylene		0.374	0.320		mg/kg	16	50	07-JUN-21
Anthracene		<0.035	<0.035	RPD-NA	mg/kg	N/A	50	07-JUN-21
Benz(a)anthracene		1.45	1.25		mg/kg	15	50	07-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-9 DUP		**L2596964-6**						
Benzo(a)pyrene		0.474	0.546		mg/kg	14	50	07-JUN-21
Benzo(b&j)fluoranthene		1.21	1.19		mg/kg	1.5	50	07-JUN-21
Benzo(g,h,i)perylene		0.363	0.354		mg/kg	2.5	50	07-JUN-21
Benzo(k)fluoranthene		0.162	0.145		mg/kg	11	50	07-JUN-21
Chrysene		<3.8	<3.8	RPD-NA	mg/kg	N/A	50	07-JUN-21
Dibenz(a,h)anthracene		<0.27	<0.27	RPD-NA	mg/kg	N/A	50	07-JUN-21
Fluoranthene		0.876	0.871		mg/kg	0.6	50	07-JUN-21
Fluorene		3.79	3.83		mg/kg	1.1	50	07-JUN-21
Indeno(1,2,3-c,d)pyrene		0.152	0.168		mg/kg	10	50	07-JUN-21
2-Methylnaphthalene		24.5	24.4		mg/kg	0.5	50	07-JUN-21
Naphthalene		5.44	5.40		mg/kg	0.8	50	07-JUN-21
Phenanthrene		23.2	23.3		mg/kg	0.5	50	07-JUN-21
Pyrene		1.41	1.36		mg/kg	4.0	50	07-JUN-21
1-Methylnaphthalene		19.4	19.2		mg/kg	0.9	50	07-JUN-21
Quinoline		<0.070	<0.070	RPD-NA	mg/kg	N/A	50	07-JUN-21
WG3549699-10 IRM		**ALS PAH RM2**						
Acenaphthene			93.9		%		60-130	07-JUN-21
Acenaphthylene			92.0		%		60-130	07-JUN-21
Anthracene			100.7		%		60-130	07-JUN-21
Benz(a)anthracene			97.1		%		60-130	07-JUN-21
Benzo(a)pyrene			99.7		%		60-130	07-JUN-21
Benzo(b&j)fluoranthene			93.1		%		60-130	07-JUN-21
Benzo(g,h,i)perylene			88.0		%		60-130	07-JUN-21
Benzo(k)fluoranthene			98.7		%		60-130	07-JUN-21
Chrysene			95.9		%		60-130	07-JUN-21
Dibenz(a,h)anthracene			81.2		%		60-130	07-JUN-21
Fluoranthene			91.7		%		60-130	07-JUN-21
Fluorene			92.9		%		60-130	07-JUN-21
Indeno(1,2,3-c,d)pyrene			117.8		%		60-130	07-JUN-21
2-Methylnaphthalene			92.6		%		60-130	07-JUN-21
Naphthalene			96.4		%		50-130	07-JUN-21
Phenanthrene			94.2		%		60-130	07-JUN-21
Pyrene			93.2		%		60-130	07-JUN-21
1-Methylnaphthalene			90.5		%		60-130	07-JUN-21
WG3549699-3 IRM		**ALS PAH RM2**						

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-3 IRM		**ALS PAH RM2**						
Acenaphthene			99.2		%		60-130	06-JUN-21
Acenaphthylene			100.0		%		60-130	06-JUN-21
Anthracene			107.1		%		60-130	06-JUN-21
Benz(a)anthracene			98.2		%		60-130	06-JUN-21
Benzo(a)pyrene			97.3		%		60-130	06-JUN-21
Benzo(b&j)fluoranthene			93.8		%		60-130	06-JUN-21
Benzo(g,h,i)perylene			91.5		%		60-130	06-JUN-21
Benzo(k)fluoranthene			83.3		%		60-130	06-JUN-21
Chrysene			97.9		%		60-130	06-JUN-21
Dibenz(a,h)anthracene			87.8		%		60-130	06-JUN-21
Fluoranthene			95.1		%		60-130	06-JUN-21
Fluorene			98.0		%		60-130	06-JUN-21
Indeno(1,2,3-c,d)pyrene			119.0		%		60-130	06-JUN-21
2-Methylnaphthalene			95.5		%		60-130	06-JUN-21
Naphthalene			98.8		%		50-130	06-JUN-21
Phenanthrene			97.3		%		60-130	06-JUN-21
Pyrene			96.8		%		60-130	06-JUN-21
1-Methylnaphthalene			92.8		%		60-130	06-JUN-21
WG3549699-6 IRM		**ALS PAH RM2**						
Acenaphthene			105.4		%		60-130	06-JUN-21
Acenaphthylene			108.8		%		60-130	06-JUN-21
Anthracene			117.6		%		60-130	06-JUN-21
Benz(a)anthracene			111.6		%		60-130	06-JUN-21
Benzo(a)pyrene			111.8		%		60-130	06-JUN-21
Benzo(b&j)fluoranthene			109.4		%		60-130	06-JUN-21
Benzo(g,h,i)perylene			103.3		%		60-130	06-JUN-21
Benzo(k)fluoranthene			97.6		%		60-130	06-JUN-21
Chrysene			110.2		%		60-130	06-JUN-21
Dibenz(a,h)anthracene			99.9		%		60-130	06-JUN-21
Fluoranthene			104.7		%		60-130	06-JUN-21
Fluorene			102.6		%		60-130	06-JUN-21
Indeno(1,2,3-c,d)pyrene			125.8		%		60-130	06-JUN-21
2-Methylnaphthalene			104.4		%		60-130	06-JUN-21
Naphthalene			107.6		%		50-130	06-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-6 IRM		**ALS PAH RM2**						
Phenanthrene			105.1		%		60-130	06-JUN-21
Pyrene			106.4		%		60-130	06-JUN-21
1-Methylnaphthalene			100.8		%		60-130	06-JUN-21
WG3549699-11 LCS								
Acenaphthene			86.9		%		60-130	07-JUN-21
Acenaphthylene			83.8		%		60-130	07-JUN-21
Anthracene			86.0		%		60-130	07-JUN-21
Benz(a)anthracene			89.5		%		60-130	07-JUN-21
Benzo(a)pyrene			88.3		%		60-130	07-JUN-21
Benzo(b&j)fluoranthene			87.4		%		60-130	07-JUN-21
Benzo(g,h,i)perylene			82.0		%		60-130	07-JUN-21
Benzo(k)fluoranthene			93.8		%		60-130	07-JUN-21
Chrysene			85.3		%		60-130	07-JUN-21
Dibenz(a,h)anthracene			76.8		%		60-130	07-JUN-21
Fluoranthene			86.3		%		60-130	07-JUN-21
Fluorene			83.2		%		60-130	07-JUN-21
Indeno(1,2,3-c,d)pyrene			92.6		%		60-130	07-JUN-21
2-Methylnaphthalene			87.2		%		60-130	07-JUN-21
Naphthalene			91.5		%		50-130	07-JUN-21
Phenanthrene			89.5		%		60-130	07-JUN-21
Pyrene			88.9		%		60-130	07-JUN-21
1-Methylnaphthalene			88.2		%		60-130	07-JUN-21
Quinoline			80.5		%		60-130	07-JUN-21
WG3549699-14 LCS								
Acenaphthene			100.7		%		60-130	07-JUN-21
Acenaphthylene			95.6		%		60-130	07-JUN-21
Anthracene			100.5		%		60-130	07-JUN-21
Benz(a)anthracene			103.8		%		60-130	07-JUN-21
Benzo(a)pyrene			100.2		%		60-130	07-JUN-21
Benzo(b&j)fluoranthene			99.9		%		60-130	07-JUN-21
Benzo(g,h,i)perylene			96.6		%		60-130	07-JUN-21
Benzo(k)fluoranthene			107.0		%		60-130	07-JUN-21
Chrysene			98.4		%		60-130	07-JUN-21
Dibenz(a,h)anthracene			90.3		%		60-130	07-JUN-21
Fluoranthene			99.4		%		60-130	07-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-14 LCS								
Fluorene			97.6		%		60-130	07-JUN-21
Indeno(1,2,3-c,d)pyrene			101.7		%		60-130	07-JUN-21
2-Methylnaphthalene			100.1		%		60-130	07-JUN-21
Naphthalene			104.2		%		50-130	07-JUN-21
Phenanthrene			103.8		%		60-130	07-JUN-21
Pyrene			102.1		%		60-130	07-JUN-21
1-Methylnaphthalene			100.2		%		60-130	07-JUN-21
Quinoline			95.0		%		60-130	07-JUN-21
WG3549699-2 LCS								
Acenaphthene			102.7		%		60-130	06-JUN-21
Acenaphthylene			97.9		%		60-130	06-JUN-21
Anthracene			100.4		%		60-130	06-JUN-21
Benz(a)anthracene			103.1		%		60-130	06-JUN-21
Benzo(a)pyrene			103.3		%		60-130	06-JUN-21
Benzo(b&j)fluoranthene			101.0		%		60-130	06-JUN-21
Benzo(g,h,i)perylene			95.2		%		60-130	06-JUN-21
Benzo(k)fluoranthene			109.4		%		60-130	06-JUN-21
Chrysene			98.5		%		60-130	06-JUN-21
Dibenz(a,h)anthracene			91.4		%		60-130	06-JUN-21
Fluoranthene			99.9		%		60-130	06-JUN-21
Fluorene			98.5		%		60-130	06-JUN-21
Indeno(1,2,3-c,d)pyrene			99.5		%		60-130	06-JUN-21
2-Methylnaphthalene			101.8		%		60-130	06-JUN-21
Naphthalene			108.7		%		50-130	06-JUN-21
Phenanthrene			104.0		%		60-130	06-JUN-21
Pyrene			103.6		%		60-130	06-JUN-21
1-Methylnaphthalene			103.7		%		60-130	06-JUN-21
Quinoline			95.4		%		60-130	06-JUN-21
WG3549699-7 LCS								
Acenaphthene			109.9		%		60-130	06-JUN-21
Acenaphthylene			104.3		%		60-130	06-JUN-21
Anthracene			110.2		%		60-130	06-JUN-21
Benz(a)anthracene			113.2		%		60-130	06-JUN-21
Benzo(a)pyrene			113.2		%		60-130	06-JUN-21
Benzo(b&j)fluoranthene			110.2		%		60-130	06-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-7 LCS								
Benzo(g,h,i)perylene			103.9		%		60-130	06-JUN-21
Benzo(k)fluoranthene			116.4		%		60-130	06-JUN-21
Chrysene			106.5		%		60-130	06-JUN-21
Dibenz(a,h)anthracene			99.5		%		60-130	06-JUN-21
Fluoranthene			108.6		%		60-130	06-JUN-21
Fluorene			105.8		%		60-130	06-JUN-21
Indeno(1,2,3-c,d)pyrene			115.2		%		60-130	06-JUN-21
2-Methylnaphthalene			108.2		%		60-130	06-JUN-21
Naphthalene			114.3		%		50-130	06-JUN-21
Phenanthrene			113.4		%		60-130	06-JUN-21
Pyrene			111.2		%		60-130	06-JUN-21
1-Methylnaphthalene			109.8		%		60-130	06-JUN-21
Quinoline			102.1		%		60-130	06-JUN-21
WG3549699-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	06-JUN-21
Acenaphthylene			<0.0050		mg/kg		0.005	06-JUN-21
Anthracene			<0.0040		mg/kg		0.004	06-JUN-21
Benz(a)anthracene			<0.010		mg/kg		0.01	06-JUN-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	06-JUN-21
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	06-JUN-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	06-JUN-21
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	06-JUN-21
Chrysene			<0.010		mg/kg		0.01	06-JUN-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	06-JUN-21
Fluoranthene			<0.010		mg/kg		0.01	06-JUN-21
Fluorene			<0.010		mg/kg		0.01	06-JUN-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	06-JUN-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	06-JUN-21
Naphthalene			<0.010		mg/kg		0.01	06-JUN-21
Phenanthrene			<0.010		mg/kg		0.01	06-JUN-21
Pyrene			<0.010		mg/kg		0.01	06-JUN-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	06-JUN-21
Quinoline			<0.050		mg/kg		0.05	06-JUN-21
Surrogate: d8-Naphthalene			96.8		%		50-130	06-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-1 MB								
Surrogate: d10-Acenaphthene			101.8		%		60-130	06-JUN-21
Surrogate: d10-Phenanthrene			98.8		%		60-130	06-JUN-21
Surrogate: d12-Chrysene			107.0		%		60-130	06-JUN-21
WG3549699-12 MB								
Acenaphthene			<0.0050		mg/kg		0.005	07-JUN-21
Acenaphthylene			<0.0050		mg/kg		0.005	07-JUN-21
Anthracene			<0.0040		mg/kg		0.004	07-JUN-21
Benz(a)anthracene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Chrysene			<0.010		mg/kg		0.01	07-JUN-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	07-JUN-21
Fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Fluorene			<0.010		mg/kg		0.01	07-JUN-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	07-JUN-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	07-JUN-21
Naphthalene			<0.010		mg/kg		0.01	07-JUN-21
Phenanthrene			<0.010		mg/kg		0.01	07-JUN-21
Pyrene			<0.010		mg/kg		0.01	07-JUN-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	07-JUN-21
Quinoline			<0.050		mg/kg		0.05	07-JUN-21
Surrogate: d8-Naphthalene			102.1		%		50-130	07-JUN-21
Surrogate: d10-Acenaphthene			105.3		%		60-130	07-JUN-21
Surrogate: d10-Phenanthrene			101.3		%		60-130	07-JUN-21
Surrogate: d12-Chrysene			107.4		%		60-130	07-JUN-21
WG3549699-8 MB								
Acenaphthene			<0.0050		mg/kg		0.005	07-JUN-21
Acenaphthylene			<0.0050		mg/kg		0.005	07-JUN-21
Anthracene			<0.0040		mg/kg		0.004	07-JUN-21
Benz(a)anthracene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	07-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5479921								
WG3549699-8 MB								
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Chrysene			<0.010		mg/kg		0.01	07-JUN-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	07-JUN-21
Fluoranthene			<0.010		mg/kg		0.01	07-JUN-21
Fluorene			<0.010		mg/kg		0.01	07-JUN-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	07-JUN-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	07-JUN-21
Naphthalene			<0.010		mg/kg		0.01	07-JUN-21
Phenanthrene			<0.010		mg/kg		0.01	07-JUN-21
Pyrene			<0.010		mg/kg		0.01	07-JUN-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	07-JUN-21
Quinoline			<0.050		mg/kg		0.05	07-JUN-21
Surrogate: d8-Naphthalene			91.5		%		50-130	07-JUN-21
Surrogate: d10-Acenaphthene			92.8		%		60-130	07-JUN-21
Surrogate: d10-Phenanthrene			92.2		%		60-130	07-JUN-21
Surrogate: d12-Chrysene			100.1		%		60-130	07-JUN-21
VH-MEOH-HS-FID-CL	**Soil**							
Batch R5490033								
WG3548705-3 DUP		**L2596964-1**						
Volatile Hydrocarbons (VH6-10)		144	133		mg/kg	7.7	30	14-JUN-21
WG3548705-2 LCS								
Volatile Hydrocarbons (VH6-10)			89.9		%		70-130	14-JUN-21
WG3548705-1 MB								
Volatile Hydrocarbons (VH6-10)			<10		mg/kg		10	14-JUN-21
Surrogate: 3,4-Dichlorotoluene			91.7		%		70-130	14-JUN-21
CNB-TCLP-CL	**Waste**							
Batch R5481045								
WG3550583-4 MB								
Total Cresols			<1.2		mg/L		1.2	11-JUN-21
Nitrobenzene			<1.0		mg/L		1	11-JUN-21
o-Cresol			<0.50		mg/L		0.5	11-JUN-21
m&p-Cresol			<1.0		mg/L		1	11-JUN-21
WG3550583-5 MS		**L2596964-1**						
Total Cresols			89.9		%		50-140	11-JUN-21
Nitrobenzene			96.4		%		50-140	11-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CNB-TCLP-CL	**Waste**							
Batch R5481045								
WG3550583-5 MS		**L2596964-1**						
o-Cresol			91.2		%		50-150	11-JUN-21
m&p-Cresol			88.6		%		50-150	11-JUN-21
F-TCLP-CL	**Waste**							
Batch R5484139								
WG3549747-3 MB								
Leachable Fluoride (F)			<10		mg/L		10	08-JUN-21
HG-TCLP-L-CVAA-CL	**Waste**							
Batch R5481361								
WG3549747-3 MB								
Mercury (Hg)-Leachable			<0.0010		mg/L		0.001	09-JUN-21
MET-TCLP-CCMS-BC-CL	**Waste**							
Batch R5481337								
WG3549747-3 MB								
Antimony (Sb)-Leachable			<1.0		mg/L		1	09-JUN-21
Arsenic (As)-Leachable			<1.0		mg/L		1	09-JUN-21
Barium (Ba)-Leachable			<2.5		mg/L		2.5	09-JUN-21
Beryllium (Be)-Leachable			<0.025		mg/L		0.025	09-JUN-21
Boron (B)-Leachable			<0.50		mg/L		0.5	09-JUN-21
Cadmium (Cd)-Leachable			<0.050		mg/L		0.05	09-JUN-21
Calcium (Ca)-Leachable			2.8	MB-LOR	mg/L		2	09-JUN-21
Chromium (Cr)-Leachable			<0.25		mg/L		0.25	09-JUN-21
Cobalt (Co)-Leachable			<0.050		mg/L		0.05	09-JUN-21
Copper (Cu)-Leachable			<0.050		mg/L		0.05	09-JUN-21
Iron (Fe)-Leachable			<0.15		mg/L		0.15	09-JUN-21
Lead (Pb)-Leachable			<0.25		mg/L		0.25	09-JUN-21
Magnesium (Mg)-Leachable			<0.50		mg/L		0.5	09-JUN-21
Nickel (Ni)-Leachable			<0.25		mg/L		0.25	09-JUN-21
Selenium (Se)-Leachable			<1.0		mg/L		1	09-JUN-21
Silver (Ag)-Leachable			<0.050		mg/L		0.05	09-JUN-21
Thallium (Tl)-Leachable			<1.0		mg/L		1	09-JUN-21
Uranium (U)-Leachable			<2.0		mg/L		2	09-JUN-21
Vanadium (V)-Leachable			<0.15		mg/L		0.15	09-JUN-21
Zinc (Zn)-Leachable			<0.50		mg/L		0.5	09-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-CL	**Waste**							
Batch R5489519								
WG3554354-1 MB								
Acenaphthene			<0.0050		mg/L		0.005	11-JUN-21
Acenaphthylene			<0.0050		mg/L		0.005	11-JUN-21
Anthracene			<0.0050		mg/L		0.005	11-JUN-21
Benzo(a)anthracene			<0.0050		mg/L		0.005	11-JUN-21
Benzo(a)pyrene			<0.0010		mg/L		0.001	11-JUN-21
Benzo(b&j)fluoranthene			<0.0050		mg/L		0.005	11-JUN-21
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	11-JUN-21
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	11-JUN-21
Chrysene			<0.0050		mg/L		0.005	11-JUN-21
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	11-JUN-21
Fluoranthene			<0.0050		mg/L		0.005	11-JUN-21
Fluorene			<0.0050		mg/L		0.005	11-JUN-21
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	11-JUN-21
Naphthalene			<0.0050		mg/L		0.005	11-JUN-21
Phenanthrene			<0.0050		mg/L		0.005	11-JUN-21
Pyrene			<0.0050		mg/L		0.005	11-JUN-21
Surrogate: d10-Acenaphthene			105.4		%		50-150	11-JUN-21
Surrogate: d10-Phenanthrene			88.6		%		50-150	11-JUN-21
Surrogate: d12-Chrysene			104.3		%		50-150	11-JUN-21
WG3554354-3 MB								
Acenaphthene			<0.0050		mg/L		0.005	14-JUN-21
Acenaphthylene			<0.0050		mg/L		0.005	14-JUN-21
Anthracene			<0.0050		mg/L		0.005	14-JUN-21
Benzo(a)anthracene			<0.0050		mg/L		0.005	14-JUN-21
Benzo(a)pyrene			<0.0010		mg/L		0.001	14-JUN-21
Benzo(b&j)fluoranthene			<0.0050		mg/L		0.005	14-JUN-21
Benzo(g,h,i)perylene			<0.0050		mg/L		0.005	14-JUN-21
Benzo(k)fluoranthene			<0.0050		mg/L		0.005	14-JUN-21
Chrysene			<0.0050		mg/L		0.005	14-JUN-21
Dibenzo(ah)anthracene			<0.0050		mg/L		0.005	14-JUN-21
Fluoranthene			<0.0050		mg/L		0.005	14-JUN-21
Fluorene			<0.0050		mg/L		0.005	14-JUN-21
Indeno(1,2,3-cd)pyrene			<0.0050		mg/L		0.005	14-JUN-21
Naphthalene			<0.0050		mg/L		0.005	14-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TCLP-CL	**Waste**							
Batch R5489519								
WG3554354-3 MB								
Phenanthrene			<0.0050		mg/L		0.005	14-JUN-21
Pyrene			<0.0050		mg/L		0.005	14-JUN-21
Surrogate: d10-Acenaphthene			96.8		%		50-150	14-JUN-21
Surrogate: d10-Phenanthrene			83.8		%		50-150	14-JUN-21
Surrogate: d12-Chrysene			95.0		%		50-150	14-JUN-21
WG3554354-2 MS		**L2596964-1**						
Acenaphthene			111.3		%		50-140	11-JUN-21
Acenaphthylene			103.7		%		50-140	11-JUN-21
Anthracene			98.6		%		50-140	11-JUN-21
Benzo(a)anthracene			103.6		%		50-140	11-JUN-21
Benzo(a)pyrene			107.5		%		50-140	11-JUN-21
Benzo(b&j)fluoranthene			111.8		%		50-140	11-JUN-21
Benzo(g,h,i)perylene			119.4		%		50-140	11-JUN-21
Benzo(k)fluoranthene			114.8		%		50-140	11-JUN-21
Chrysene			110.5		%		50-140	11-JUN-21
Dibenzo(ah)anthracene			115.4		%		50-140	11-JUN-21
Fluoranthene			112.7		%		50-140	11-JUN-21
Fluorene			107.3		%		50-140	11-JUN-21
Indeno(1,2,3-cd)pyrene			113.8		%		50-140	11-JUN-21
Naphthalene			100.2		%		50-140	11-JUN-21
Phenanthrene			105.8		%		50-140	11-JUN-21
Pyrene			115.5		%		50-140	11-JUN-21
PH-1:2-CL	**Waste**							
Batch R5490484								
WG3555071-3 DUP		**L2596964-6**						
pH (1:2 soil:water)		5.31	5.25	J	pH	0.06	0.2	14-JUN-21
WG3555071-2 IRM		**SAL-STD10**						
WG3555071-1 LCS								
pH (1:2 soil:water)			7.03		pH		6.8-7.2	14-JUN-21
VOC-WASTE-TCLP-CL	**Waste**							
Batch R5488541								
WG3553941-1 MB								
Vinyl Chloride			<0.10		mg/L		0.1	11-JUN-21
1,1-Dichloroethylene			<0.10		mg/L		0.1	11-JUN-21
Dichloromethane			<0.10		mg/L		0.1	11-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-WASTE-TCLP-CL	**Waste**							
Batch R5488541								
WG3553941-1 MB								
Chloroform			<0.10		mg/L		0.1	11-JUN-21
1,2-Dichloroethane			<0.10		mg/L		0.1	11-JUN-21
Methyl Ethyl Ketone			<0.10		mg/L		0.1	11-JUN-21
Carbon Tetrachloride			<0.10		mg/L		0.1	11-JUN-21
Benzene			<0.10		mg/L		0.1	11-JUN-21
Trichloroethylene			<0.10		mg/L		0.1	11-JUN-21
Bromodichloromethane			<0.10		mg/L		0.1	11-JUN-21
Dibromochloromethane			<0.10		mg/L		0.1	11-JUN-21
Bromoform			<0.10		mg/L		0.1	11-JUN-21
Toluene			<0.10		mg/L		0.1	11-JUN-21
Tetrachloroethylene			<0.10		mg/L		0.1	11-JUN-21
Chlorobenzene			<0.10		mg/L		0.1	11-JUN-21
Ethylbenzene			<0.10		mg/L		0.1	11-JUN-21
Xylenes			<0.10		mg/L		0.1	11-JUN-21
1,4-Dichlorobenzene			<0.10		mg/L		0.1	11-JUN-21
1,2-Dichlorobenzene			<0.10		mg/L		0.1	11-JUN-21
Pyridine			<5.0		mg/L		5	11-JUN-21
Surrogate: 1,4-Difluorobenzene			101.9		%		70-130	11-JUN-21
Surrogate: 3,4-Dichlorotoluene			91.1		%		70-130	11-JUN-21
Surrogate: 4-Bromofluorobenzene			88.8		%		70-130	11-JUN-21
WG3553941-3 MB								
Vinyl Chloride			<0.10		mg/L		0.1	12-JUN-21
1,1-Dichloroethylene			<0.10		mg/L		0.1	12-JUN-21
Dichloromethane			<0.10		mg/L		0.1	12-JUN-21
Chloroform			<0.10		mg/L		0.1	12-JUN-21
1,2-Dichloroethane			<0.10		mg/L		0.1	12-JUN-21
Methyl Ethyl Ketone			<0.10		mg/L		0.1	12-JUN-21
Carbon Tetrachloride			<0.10		mg/L		0.1	12-JUN-21
Benzene			<0.10		mg/L		0.1	12-JUN-21
Trichloroethylene			<0.10		mg/L		0.1	12-JUN-21
Bromodichloromethane			<0.10		mg/L		0.1	12-JUN-21
Dibromochloromethane			<0.10		mg/L		0.1	12-JUN-21
Bromoform			<0.10		mg/L		0.1	12-JUN-21
Toluene			<0.10		mg/L		0.1	12-JUN-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-WASTE-TCLP-CL	**Waste**							
Batch R5488541								
WG3553941-3 MB								
Tetrachloroethylene			<0.10		mg/L		0.1	12-JUN-21
Chlorobenzene			<0.10		mg/L		0.1	12-JUN-21
Ethylbenzene			<0.10		mg/L		0.1	12-JUN-21
Xylenes			<0.10		mg/L		0.1	12-JUN-21
1,4-Dichlorobenzene			<0.10		mg/L		0.1	12-JUN-21
1,2-Dichlorobenzene			<0.10		mg/L		0.1	12-JUN-21
Pyridine			<5.0		mg/L		5	12-JUN-21
Surrogate: 1,4-Difluorobenzene			102.4		%		70-130	12-JUN-21
Surrogate: 3,4-Dichlorotoluene			119.5		%		70-130	12-JUN-21
Surrogate: 4-Bromofluorobenzene			98.9		%		70-130	12-JUN-21
WG3553941-2 MS		**L2596964-6**						
Vinyl Chloride			85.8		%		50-140	11-JUN-21
1,1-Dichloroethylene			82.5		%		50-140	11-JUN-21
Dichloromethane			85.3		%		50-140	11-JUN-21
Chloroform			85.3		%		50-140	11-JUN-21
1,2-Dichloroethane			89.8		%		50-140	11-JUN-21
Methyl Ethyl Ketone			116.7		%		50-140	11-JUN-21
Carbon Tetrachloride			80.2		%		50-140	11-JUN-21
Benzene			84.4		%		50-140	11-JUN-21
Trichloroethylene			84.5		%		50-140	11-JUN-21
Bromodichloromethane			84.7		%		50-140	11-JUN-21
Dibromochloromethane			93.8		%		50-140	11-JUN-21
Bromoform			95.4		%		50-140	11-JUN-21
Toluene			85.4		%		50-140	11-JUN-21
Tetrachloroethylene			86.1		%		50-140	11-JUN-21
Chlorobenzene			93.3		%		50-140	11-JUN-21
Ethylbenzene			84.2		%		50-140	11-JUN-21
Xylenes			91.1		%		50-140	11-JUN-21
1,4-Dichlorobenzene			94.1		%		50-140	11-JUN-21
1,2-Dichlorobenzene			96.7		%		50-140	11-JUN-21
Pyridine			86.6		%		50-140	11-JUN-21

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

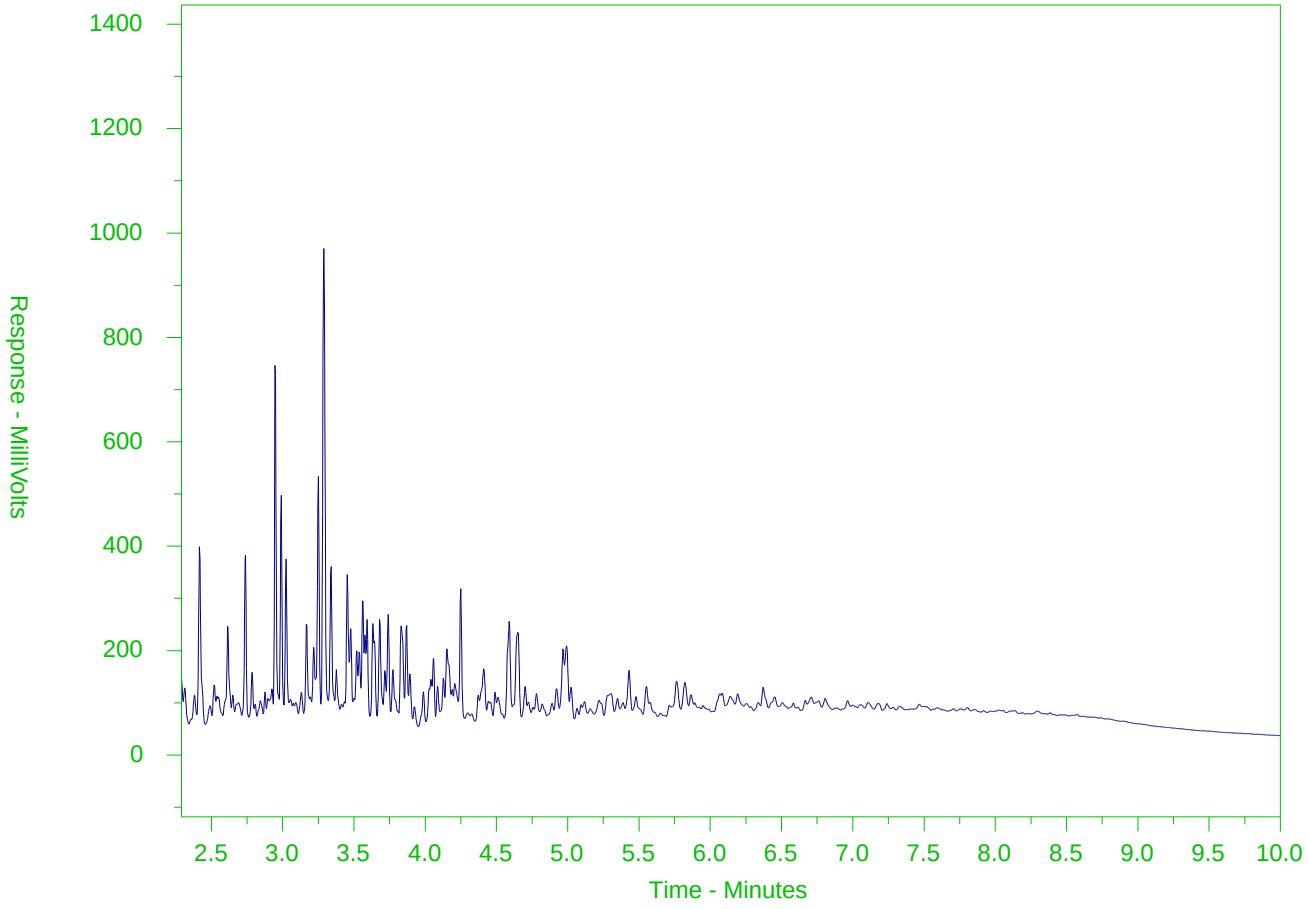
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-1
Client Sample ID: LC_RLPA_SO_2021-06-03_NP1



← EPH10-19 →	← EPH19-32 →	
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

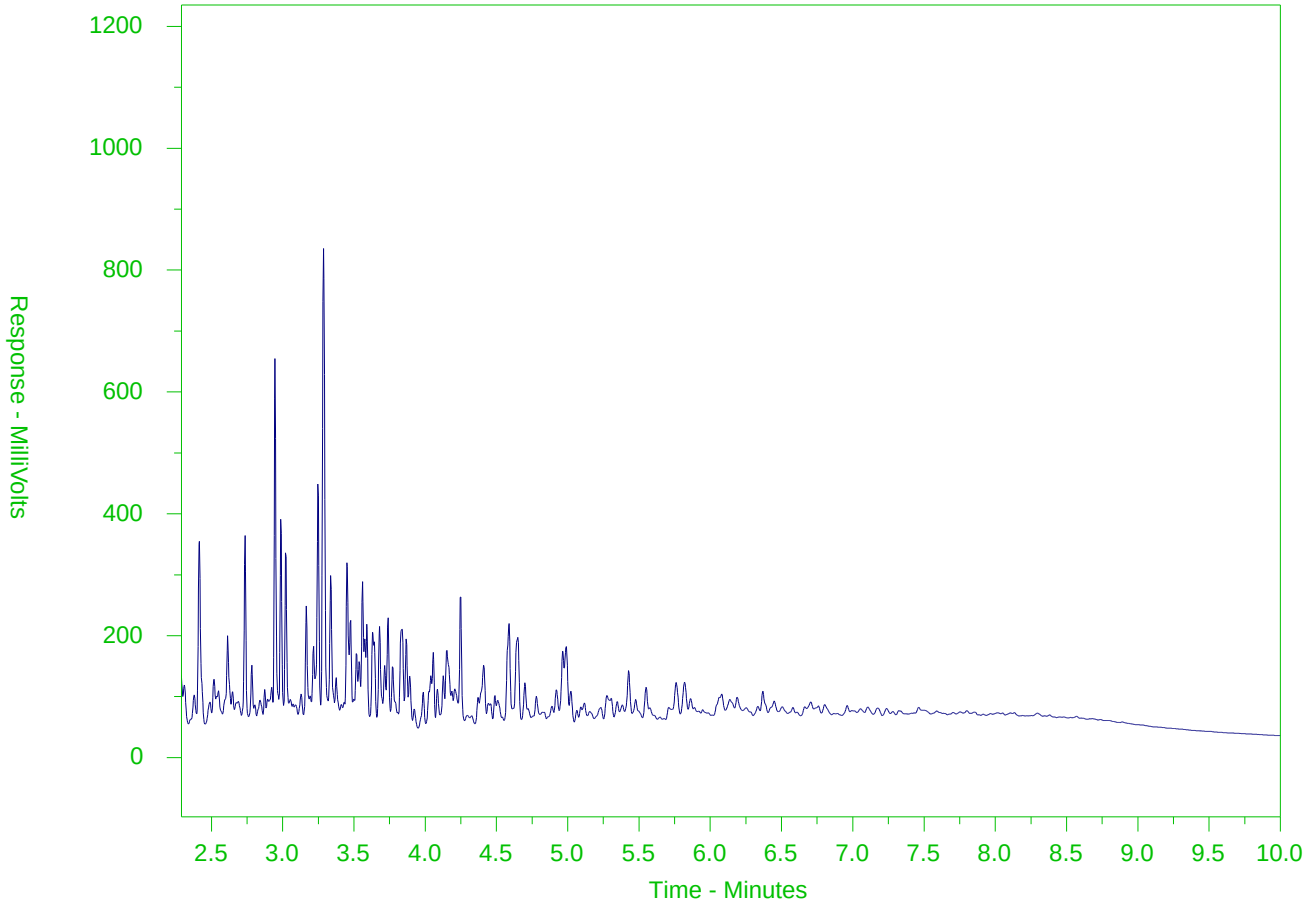
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-2
Client Sample ID: LC_RLPA_SO_2021-06-03_NP2



← EPH10-19 →	← EPH19-32 →	
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

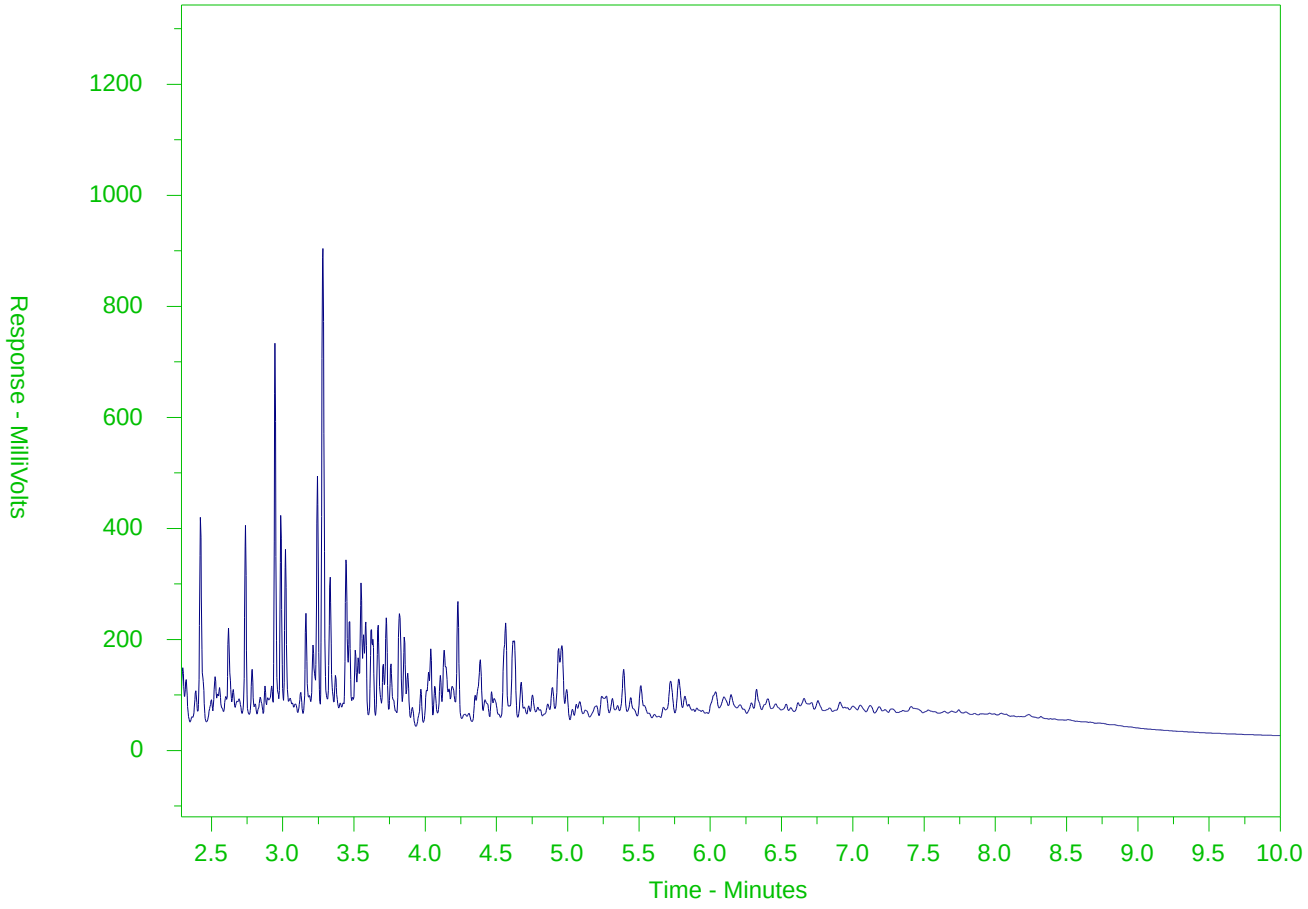
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-3
Client Sample ID: LC_RLPA_SO_2021-06-03_NP3



← EPH10-19 →	← EPH19-32 →	
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

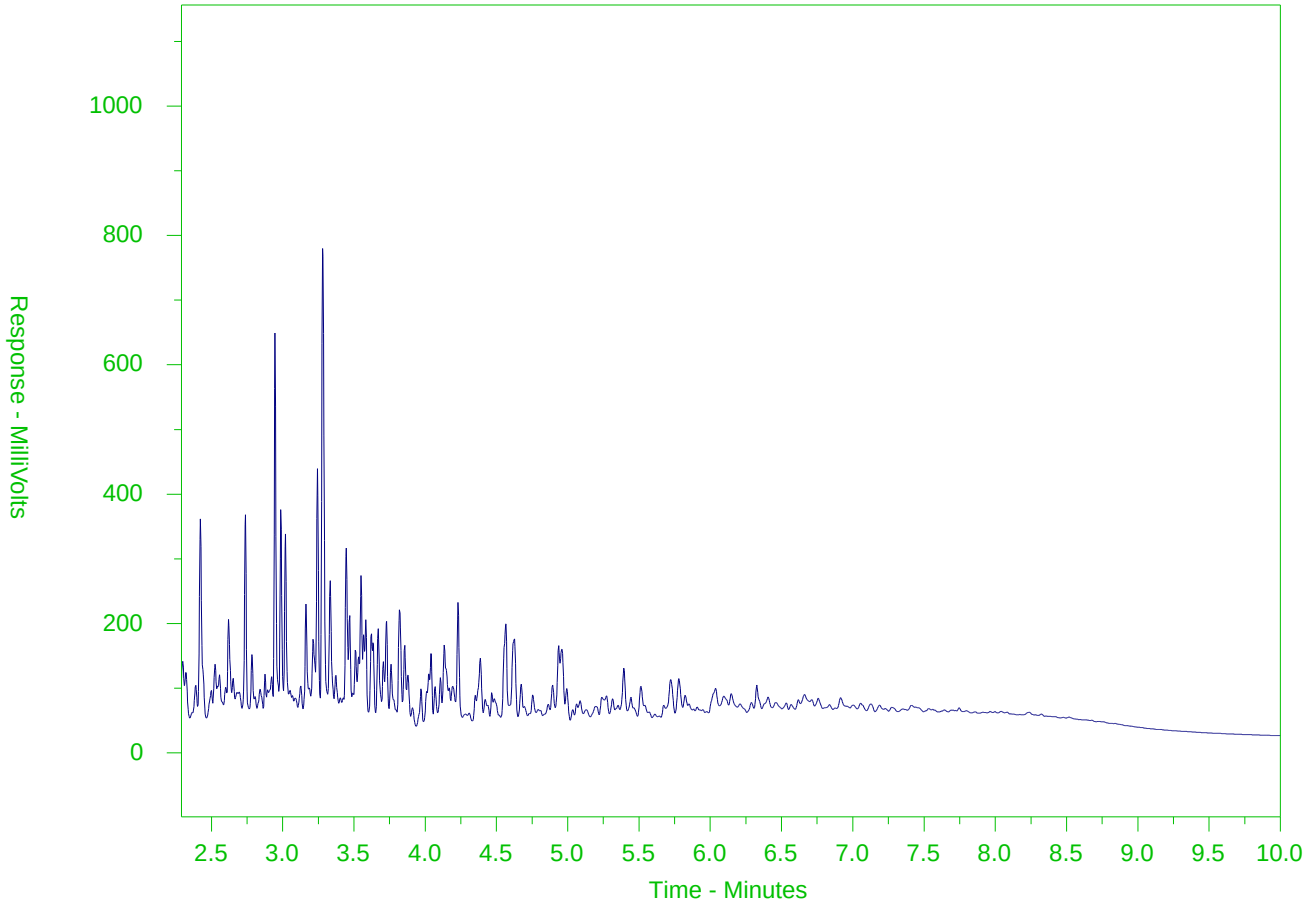
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-4
Client Sample ID: LC_RLPA_SO_2021-06-03_NP4



EPH10-19		EPH19-32
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

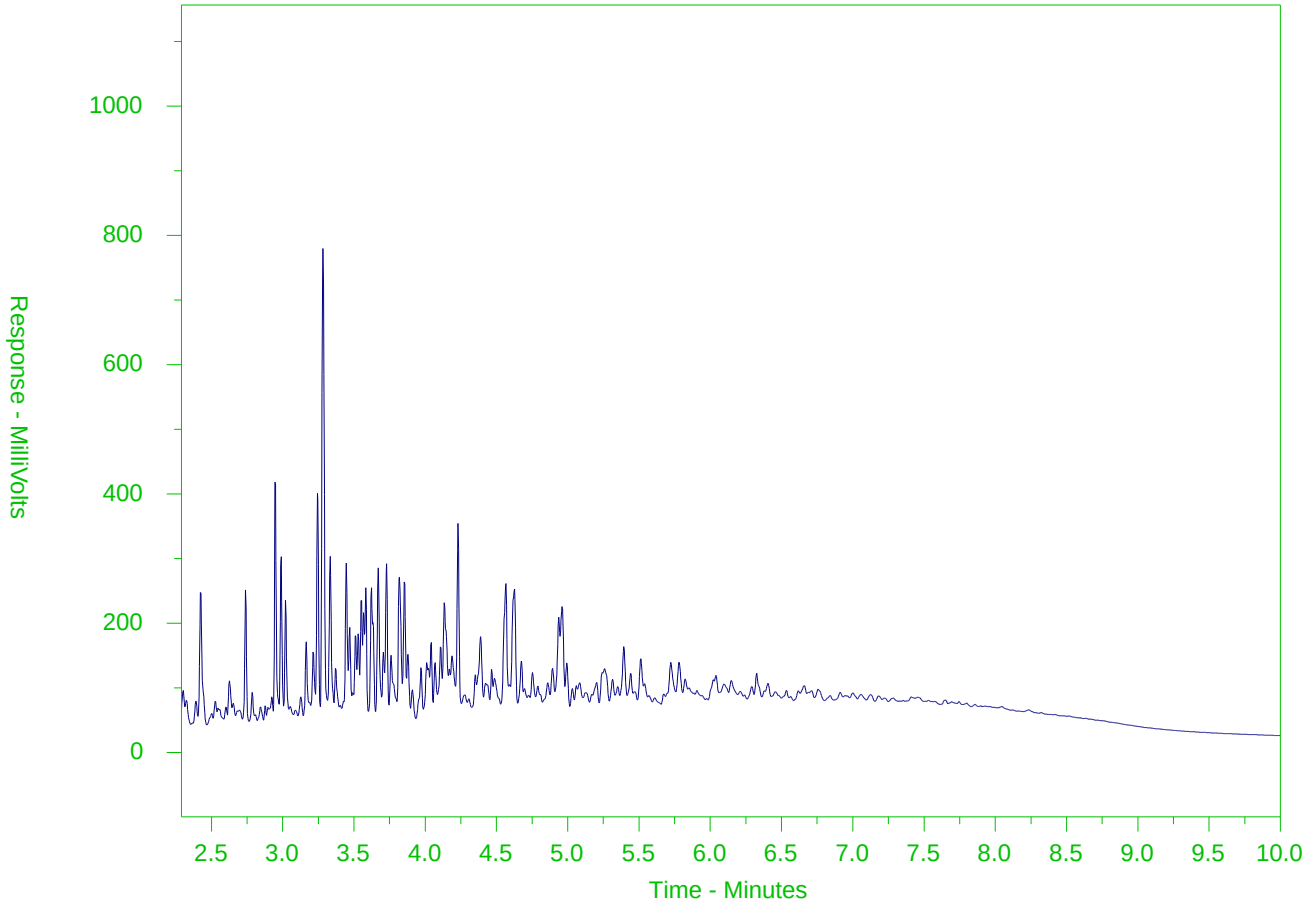
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-5
Client Sample ID: LC_RLPA_SO_2021-06-03_NP5



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

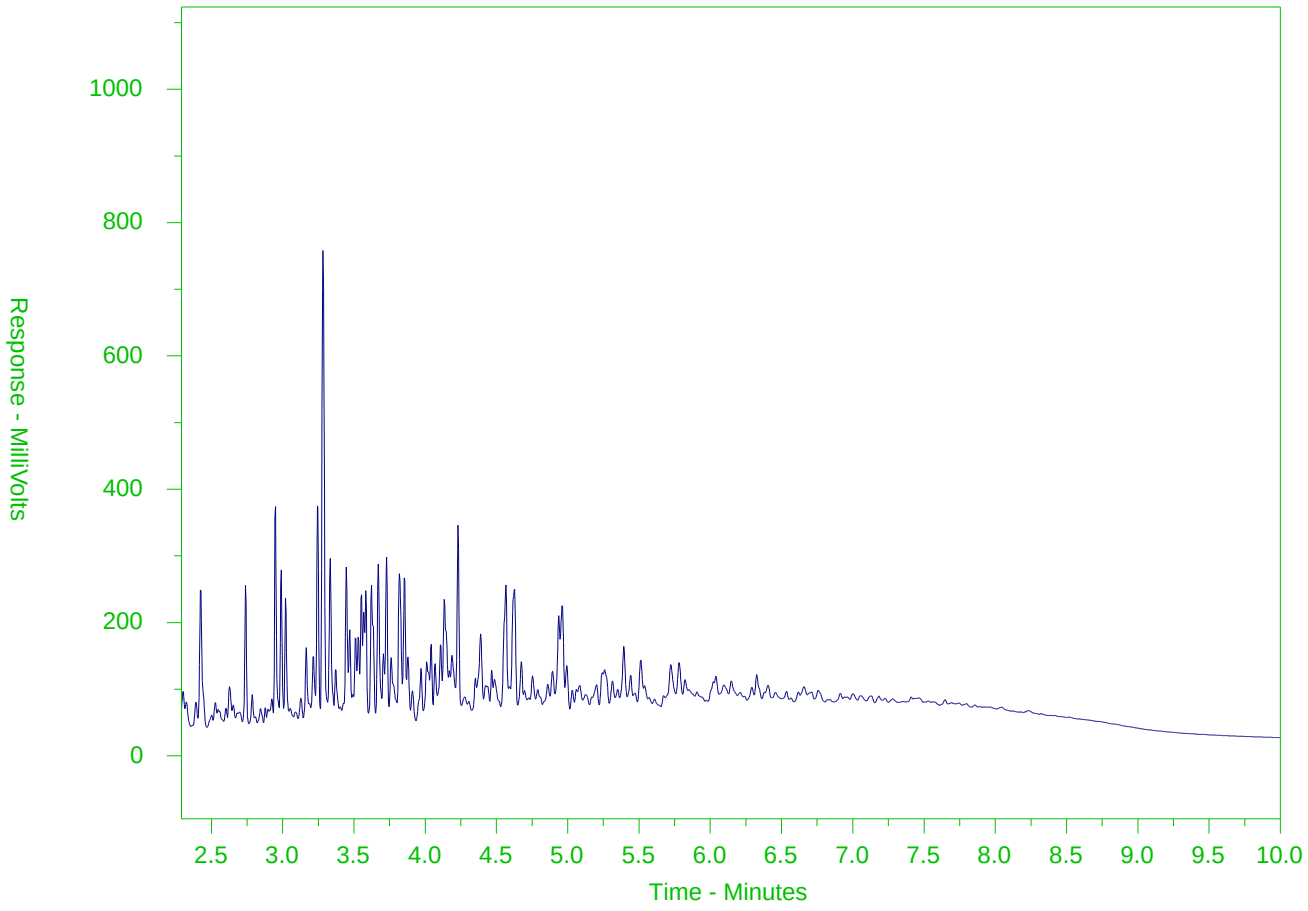
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2596964-6
Client Sample ID: LC_RLPA_SO_2021-06-03_NP6



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Teck

COC ID: RLPA 20210603 | TURNAROUND TIME: | RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name / Job#	Line Creek Operation			Lab Name	ALS Calgary			Report Format / Distribution	Excel	PDF	EDD
Project Manager	Tom Jeffery			Lab Contact	Lyudmyla Shvets			Email 1: tom.jeffery@teck.com	x	x	
Email	Tom.jeffery@teck.com			Email	Lyudmyla.Shvets@ALSGlobal.com			Email 2: teckcoal@equisonline.com			x
Address	Box 2003			Address	2559 29 Street NE			Email 3: drake.tymstra@teck.com	x	x	
	15km North Hwy 43							Email 4: shanise.fossen@teck.com	x	x	
City	Sparwood	Province	BC	City	Calgary	Province	AB	Email 4: tanya.dick@teck.com	x	x	
Postal Code	V0B 2G0	Country	Canada	Postal Code	T1Y 7B5	Country	Canada	PO number	VPO00739930		
Phone Number	250-425-3196			Phone Number	403 407 1794						

SAMPLE DETAILS — ANALYSIS REQUESTED (Filtered - F: Field, L: Lab, FL: Field & Lab, N: None)

L2596964

L2596964-COFC

Sample ID	Sample Location (sys_loc_code)	Field Matrix	Hazardous Material (Yes/No)	Date	Time (24hr)	G=Grab C=Comp	# Of Cont.	Fil.	PRESERV.	ANALYSIS Q68208
								N	NONE	
LC_RLPA_SO_2021-06-03_NP1	LC_RLPA	SO		6/3/2021	12:10	C	6			X
LC_RLPA_SO_2021-06-03_NP2	LC_RLPA	SO		6/3/2021	12:20	C	6			X
LC_RLPA_SO_2021-06-03_NP3	LC_RLPA	SO		6/3/2021	12:30	C	6			X
LC_RLPA_SO_2021-06-03_NP4	LC_RLPA	SO		6/3/2021	12:40	C	6			X
LC_RLPA_SO_2021-06-03_NP5	LC_RLPA	SO		6/3/2021	12:50	C	6			X
LC_RLPA_SO_2021-06-03_NP6	LC_RLPA	SO		6/3/2021	13:00	C	6			X

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
Please analyze according to quote Q68208 dated May 11, 2021 requested as per Teck Contact Chris Blurton LCO for soil analysis. Samples include 4 soil jars (or 6 if sample had 50% moisture) and 2 vials per ~~each~~ location.	S.Fossen	3-Jun		4/06 2:05

SERVICE REQUEST (~~rush~~ - subject to availability)

Regular (default)	
Priority (2-3 business days) - 50% surcharge	X
Emergency (1 Business Day) - 100% surcharge	
For Emergency <1 Day, ASAP or Weekend - Contact ALS	

Sampler's Name	S.Fossen	Mobile #	
Sampler's Signature		Date/Time	June 3, 2021

TECK COAL LIMITED (LINE CREEK)
ATTN: Tom Jeffery
PO BOX 2003
SPARWOOD BC V0B 2G0

Date Received: 10-SEP-21
Report Date: 12-OCT-21 19:00 (MT)
Version: FINAL REV. 3

Client Phone: 250-425-8478

Certificate of Analysis

Lab Work Order #: L2638180

Project P.O. #: VPO00739930
Job Reference: LINE CREEK OPERATION
C of C Numbers: Q3 Sludge 20210909
Legal Site Desc:

Comments: 12-OCT-2021 Additional analysis for F-TCLP-CL on L2638180-1 and -8

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-1 LC_NNCPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1100		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	830		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	109.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1070		200	mg/kg		17-SEP-21	
HEPH	830		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<1.1	DLCI	1.1	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	0.269		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.149		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.69	DLCI	0.69	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.386		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.886		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.374		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.050		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<2.3	DLCI	2.3	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	<0.18	DLCI	0.18	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.468		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	3.21		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.127		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	35.5		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	13.3		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	11.0		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.807		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	22.0		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.050		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	9.0		2.0		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.63		0.14	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	77.6		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	105.1		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	79.1		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	74.3		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	1.36		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	7.07		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	1.05		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.99		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	12.5		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	73.1		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	76.4		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	15.4		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	89		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	88.7		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	64		13	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-1 LC_NNCPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0561		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2910		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	0.65		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	2.67		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	323		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.51		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	5.9		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.05		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	7540		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	5.78		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	4.27		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	17.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	3850		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	7.15		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	2.1		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	2150		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	88.6		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	3.38		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	16.3		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	701		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	920		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	1.70		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.19		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	56		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	83.4		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	<0.050		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	5.5		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	0.746		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	20.4		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	76.1		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.4		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.40		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	26.5		0.25	%		14-SEP-21	R5584126
Leachable Fluoride (F)	<10		10	mg/L		07-OCT-21	R5615876
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	<2.5		2.5	mg/L		26-SEP-21	R5600024

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-1 LC_NNCPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
Metals by ICPMS (TCLP)							
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	173		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	11.7		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	46.7		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
L2638180-2 LC_NNCPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	670		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	420		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	112.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	660		200	mg/kg		17-SEP-21	
HEPH	420		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.79	DLCI	0.79	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	0.127		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.102		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.53	DLCI	0.53	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.226		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.570		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.253		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.030		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.2	DLCI	1.2	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	<0.12	DLCI	0.12	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.270		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	2.04		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.084		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	20.4		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	7.94		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	6.64		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	<0.50	DLCI	0.50	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	12.7		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.050		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	5.8		1.4		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.389		0.099	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	68.4		50-130	%	14-SEP-21	15-SEP-21	R5584006

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-2 LC_NNCPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Surrogate: d10-Acenaphthene	78.5		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	69.8		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	70.7		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	1.03		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	5.20		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.799		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.28		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	9.37		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	75.6		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	73.0		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	11.6		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	60		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	75.6		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	41		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0560		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2330		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	0.74		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	2.44		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	273		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.47		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	5.4		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	0.813		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	6260		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	4.34		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	2.89		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	15.3		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	4660		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	5.72		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	1920		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	77.6		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	2.46		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	10.8		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	683		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	750		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	1.47		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.16		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	<50		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	83.6		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.052		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-2 LC_NNCPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 15:00							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	6.8		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	0.636		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	15.2		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	59.7		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	1.8		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.62		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	18.0		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	<2.5		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	178		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	16.0		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	48.5		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
L2638180-3 LC_SBPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1310		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	2280		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	108.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1290		200	mg/kg		17-SEP-21	
HEPH	2280		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.72	DLCI	0.72	mg/kg	14-SEP-21	15-SEP-21	R5584006

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-3 LC_SBPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthylene	<0.20	DLCI	0.20	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0578		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.41	DLCI	0.41	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.224		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.648		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.224		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.043		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.6	DLCI	1.6	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	0.129		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	<0.30	DLCI	0.30	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	1.84		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.092		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	16.8		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	5.15		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	7.70		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.646		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	11.0		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.070	DLCI	0.070	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	6.5		1.1		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.462		0.037	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	68.3		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	70.7		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	70.4		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	70.0		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.258		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	2.39		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.777		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.76		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	8.85		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	76.6		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	79.6		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	11.6		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	74		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	70.5		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	59		11	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.101		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6340		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	1.89		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	5.12		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	669		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.81		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-3 LC_SBPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Boron (B)	10.3		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.88		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	14500		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	13.1		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	9.18		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	33.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	8600		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	12.6		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	5.2		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	4220		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	169		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	42.9		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	39.2		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	1270		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	2040		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	3.30		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.44		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	74		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	121		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.089		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	13.0		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	1.22		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	46.9		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	159		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.7		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.30		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	23.6		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	1900		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	2500		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	2.8		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	379		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	80		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	2.21		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	87.2		0.50	mg/L		26-SEP-21	R5600024

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-3 LC_SBPS_SO_Q3-2021_NP1							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Metals by ICPMS (TCLP)							
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	1.10		0.50	mg/L		26-SEP-21	R5600024
L2638180-4 LC_SBPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1630		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	3010		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	105.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1620		200	mg/kg		17-SEP-21	
HEPH	3000		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.79	DLCI	0.79	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	<0.21	DLCI	0.21	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0845		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.42	DLCI	0.42	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.210		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.664		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.243		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.025		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.8	DLCI	1.8	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	0.137		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.301		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	2.05		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.090		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	17.9		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	5.48		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	8.26		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.624		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	12.0		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.080	DLCI	0.080	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	6.6		1.1		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.456		0.039	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	63.5		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	93.5		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	73.3		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	68.0		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.252		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	2.16		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.764		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	3.57		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-4 LC_SBPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
BTEX, Styrene and MTBE							
m+p-Xylene	9.20		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	77.2		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	81.3		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	12.8		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	35		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	81.5		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	19		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0852		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6060		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	1.65		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	4.84		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	690		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.84		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	6.9		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.72		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	13200		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	13.0		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	9.19		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	33.1		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	8450		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	12.1		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	5.6		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	3600		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	167		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	33.7		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	39.3		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	1210		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	1910		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	2.59		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.41		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	76		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	106		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.069		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	5.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	6.4		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	1.16		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	41.9		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	152		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.8		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.40		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-4 LC_SBPS_SO_Q3-2021_NP2							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Moisture	23.8		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	2600		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	3500		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	<2.5		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	350		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	68		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	3.10		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	87.4		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	1.13		0.50	mg/L		26-SEP-21	R5600024
L2638180-5 LC_SBPS_SO_Q3-2021_NP3							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1560		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	3650		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	112.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1550		200	mg/kg		17-SEP-21	
HEPH	3650		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.60	DLCI	0.60	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	<0.16	DLCI	0.16	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0513		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.37	DLCI	0.37	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.200		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.541		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.227		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.017		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.4	DLCI	1.4	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	<0.12	DLCI	0.12	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.240		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	1.66		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-5 LC_SBPS_SO_Q3-2021_NP3							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Indeno(1,2,3-c,d)pyrene	0.077		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	15.1		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	5.02		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	6.38		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.511		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	9.83		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.10	DLCI	0.10	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	5.3		1.2		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.351		0.092	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	73.9		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	70.8		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	79.6		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	75.3		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.304		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	2.41		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.620		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.23		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	7.20		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	80.6		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	75.3		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	9.44		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	34		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	76.1		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	22		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0723		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5160		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	1.13		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	5.10		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	441		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.68		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	6.5		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.75		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	24900		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	11.6		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	6.40		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	24.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	11600		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	9.57		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	5.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	6680		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	220		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-5 LC_SBPS_SO_Q3-2021_NP3							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Molybdenum (Mo)	45.4		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	26.7		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	1100		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	1730		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	1.97		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.31		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	122		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	111		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.121		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	7.2		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	1.14		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	32.8		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	130		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.0		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.15		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	20.2		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	3400		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	4200		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	<2.5		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	627		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	61		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	3.74		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	56.8		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	0.51		0.50	mg/L		26-SEP-21	R5600024
L2638180-6 LC_SBPS_SO_Q3-2021_NP4							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-6 LC_SBPS_SO_Q3-2021_NP4							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1160		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	2820		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	128.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1150		200	mg/kg		17-SEP-21	
HEPH	2820		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.60	DLCI	0.60	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	<0.16	DLCI	0.16	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0296		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	0.356		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.191		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.539		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.216		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.023		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.4	DLCI	1.4	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	0.108		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.230		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	1.23		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.075		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	15.1		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	4.95		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	6.22		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.513		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	9.98		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.070	DLCI	0.070	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	5.97		0.44		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.407		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	65.9		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	78.3		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	70.3		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	66.5		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.242		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	1.57		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.535		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.51		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	6.10		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	73.3		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	71.2		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	8.61		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	17		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	85.2		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	<10		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-6 LC_SBPS_SO_Q3-2021_NP4							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0754		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5730		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	1.04		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	5.25		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	534		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.74		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	5.5		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.98		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	22700		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	12.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	8.29		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	29.8		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	10100		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	11.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	5.9		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	6130		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	199		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	59.8		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	34.6		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	1090		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	1920		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	2.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.37		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	148		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	126		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.098		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	4.5		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	1.21		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	35.8		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	157		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.9		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.23		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	22.2		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	3500		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	4500		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	<2.5		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-6 LC_SBPS_SO_Q3-2021_NP4							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 13:50							
Matrix: SO							
Metals by ICPMS (TCLP)							
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	444		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	0.67		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	54.4		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
L2638180-7 LC_SBPS_SO_Q3-2021_NP5							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	1100		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	1890		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	110.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	1090		200	mg/kg		17-SEP-21	
HEPH	1890		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.65	DLCI	0.65	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	0.154		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0876		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benz(a)anthracene	<0.38	DLCI	0.38	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.223		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.547		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.215		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.014		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.4	DLCI	1.4	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	0.103		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	0.282		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	1.80		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.078		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	16.8		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	5.79		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	6.94		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.551		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	11.0		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.080	DLCI	0.080	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	5.5		1.0		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.418		0.035	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	72.0		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	67.9		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	78.0		60-130	%	14-SEP-21	15-SEP-21	R5584006

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-7 LC_SBPS_SO_Q3-2021_NP5							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Surrogate: d12-Chrysene	72.1		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.488		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	2.05		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.585		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	2.54		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	6.74		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	87.2		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	75.4		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	9.27		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	13		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	82.0		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	<10		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0844		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5340		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	1.34		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	5.56		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	561		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.78		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	0.30		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	5.3		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	2.13		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121
Calcium (Ca)	19500		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	12.5		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	7.70		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	28.2		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	10500		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	11.2		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	4.2		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	5800		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	189		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	23.2		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	34.0		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	1190		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	1740		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	2.42		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.39		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	86		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	115		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.103		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	4.5		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-7 LC_SBPS_SO_Q3-2021_NP5							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	1.28		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	38.6		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	153		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	3.4		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.50		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	27.2		0.25	%		14-SEP-21	R5584126
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	1600		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	2200		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	2.8		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	415		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	57		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	9.23		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	70.6		0.50	mg/L		26-SEP-21	R5600024
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	0.56		0.50	mg/L		26-SEP-21	R5600024
L2638180-8 LC_SBPS_SO_Q3-2021_NP6							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
EPH and PAHs - BC CSR Regs							
EPH in solids by Tumbler							
EPH10-19	860		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
EPH19-32	850		200	mg/kg	14-SEP-21	17-SEP-21	R5585624
Surrogate: 2-Bromobenzotrifluoride	110.0		60-140	%	14-SEP-21	17-SEP-21	R5585624
LEPHs and HEPHs							
LEPH	850		200	mg/kg		17-SEP-21	
HEPH	850		200	mg/kg		17-SEP-21	
PAH Tumbler Extraction (Hexane/Acetone)							
Acenaphthene	<0.91	DLCI	0.91	mg/kg	14-SEP-21	15-SEP-21	R5584006
Acenaphthylene	0.160		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Anthracene	0.0890		0.0040	mg/kg	14-SEP-21	15-SEP-21	R5584006

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-8 LC_SBPS_SO_Q3-2021_NP6							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
PAH Tumbler Extraction (Hexane/Acetone)							
Benz(a)anthracene	<0.53	DLCI	0.53	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(a)pyrene	0.243		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(b&j)fluoranthene	0.725		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(g,h,i)perylene	0.300		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Benzo(k)fluoranthene	0.037		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Chrysene	<1.8	DLCI	1.8	mg/kg	14-SEP-21	15-SEP-21	R5584006
Dibenz(a,h)anthracene	0.158		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluoranthene	<0.36	DLCI	0.36	mg/kg	14-SEP-21	15-SEP-21	R5584006
Fluorene	2.23		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Indeno(1,2,3-c,d)pyrene	0.099		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
2-Methylnaphthalene	22.2		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Naphthalene	7.82		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Phenanthrene	8.13		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
Pyrene	0.629		0.010	mg/kg	14-SEP-21	15-SEP-21	R5584006
1-Methylnaphthalene	13.8		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
Quinoline	<0.050	DLCI	0.050	mg/kg	14-SEP-21	15-SEP-21	R5584006
IACR (CCME)	7.4		1.3		14-SEP-21	15-SEP-21	R5584006
B(a)P Total Potency Equivalent	0.526		0.045	mg/kg	14-SEP-21	15-SEP-21	R5584006
Surrogate: d8-Naphthalene	72.7		50-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Acenaphthene	81.1		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d10-Phenanthrene	77.7		60-130	%	14-SEP-21	15-SEP-21	R5584006
Surrogate: d12-Chrysene	75.6		60-130	%	14-SEP-21	15-SEP-21	R5584006
BTEX,VPH in soil							
BTEX, Styrene and MTBE							
Benzene	0.786		0.0050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Toluene	4.46		0.014	mg/kg	13-SEP-21	14-SEP-21	R5583975
Ethylbenzene	0.898		0.015	mg/kg	13-SEP-21	14-SEP-21	R5583975
Methyl-tert-Butyl Ether	<0.20		0.20	mg/kg	13-SEP-21	14-SEP-21	R5583975
o-Xylene	3.22		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
m+p-Xylene	10.9		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Styrene	<0.050		0.050	mg/kg	13-SEP-21	14-SEP-21	R5583975
Surrogate: 4-Bromofluorobenzene	74.4		70-130	%	13-SEP-21	14-SEP-21	R5583975
Surrogate: 1,4-Difluorobenzene	75.9		70-130	%	13-SEP-21	14-SEP-21	R5583975
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	14.1		0.071	mg/kg		14-SEP-21	
VHs							
Volatile Hydrocarbons (VH6-10)	56		10	mg/kg	13-SEP-21	14-SEP-21	R5583978
Surrogate: 3,4-Dichlorotoluene	79.7		70-130	%	13-SEP-21	14-SEP-21	R5583978
VPH Calculation							
VPH (C6-C10)	35		10	mg/kg		14-SEP-21	
Metals in Soil (CSR) with Extra Metals							
Mercury in Soil by CVAAS							
Mercury (Hg)	0.0571		0.0050	mg/kg	14-SEP-21	15-SEP-21	R5584768
Metals in Soil by CRC ICPMS							
Aluminum (Al)	3420		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Antimony (Sb)	0.81		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Arsenic (As)	3.12		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Barium (Ba)	324		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Beryllium (Be)	0.46		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Bismuth (Bi)	<0.20		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Boron (B)	5.2		5.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cadmium (Cd)	1.08		0.020	mg/kg	14-SEP-21	15-SEP-21	R5584121

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-8 LC_SBPS_SO_Q3-2021_NP6							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
Metals in Soil by CRC ICPMS							
Calcium (Ca)	10400		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Chromium (Cr)	7.69		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Cobalt (Co)	4.57		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Copper (Cu)	16.7		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Iron (Fe)	6650		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lead (Pb)	6.72		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Lithium (Li)	3.8		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Magnesium (Mg)	3330		20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Manganese (Mn)	107		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Molybdenum (Mo)	5.08		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Nickel (Ni)	18.3		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Phosphorus (P)	814		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Potassium (K)	1090		100	mg/kg	14-SEP-21	15-SEP-21	R5584121
Selenium (Se)	1.38		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Silver (Ag)	0.21		0.10	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sodium (Na)	<50		50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Strontium (Sr)	72.7		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Sulfur (S)	<1000		1000	mg/kg	14-SEP-21	15-SEP-21	R5584121
Thallium (Tl)	0.071		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tin (Sn)	<2.0		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Titanium (Ti)	7.8		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Tungsten (W)	<0.50		0.50	mg/kg	14-SEP-21	15-SEP-21	R5584121
Uranium (U)	0.748		0.050	mg/kg	14-SEP-21	15-SEP-21	R5584121
Vanadium (V)	20.6		0.20	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zinc (Zn)	87.8		2.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
Zirconium (Zr)	2.0		1.0	mg/kg	14-SEP-21	15-SEP-21	R5584121
pH in soil (1:2 Soil:Water Extraction)							
pH (1:2 soil:water)	8.42		0.10	pH		14-SEP-21	R5583846
Miscellaneous Parameters							
Moisture	24.8		0.25	%		14-SEP-21	R5584126
Leachable Fluoride (F)	<10		10	mg/L		07-OCT-21	R5615876
Waste Oil By Gravimetric							
Waste Oil Content - mg/Wkg	<1000		1000	mg/kg wwt		17-SEP-21	R5588138
Waste Oil Content (HWR 41.1, mg/kg)	<1000		1000	mg/kg		17-SEP-21	R5588138
TCLP Leachable Metals							
Leachable Mercury (Hg) in soil by CVAA							
Mercury (Hg)-Leachable	<0.0010		0.0010	mg/L		25-SEP-21	R5599684
Metals by ICPMS (TCLP)							
Antimony (Sb)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Arsenic (As)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Barium (Ba)-Leachable	2.7		2.5	mg/L		26-SEP-21	R5600024
Beryllium (Be)-Leachable	<25		25	ug/L		26-SEP-21	R5600024
Boron (B)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024
Cadmium (Cd)-Leachable	<50		50	ug/L		26-SEP-21	R5600024
Calcium (Ca)-Leachable	349		2.0	mg/L		26-SEP-21	R5600024
Chromium (Cr)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Cobalt (Co)-Leachable	56		50	ug/L		26-SEP-21	R5600024
Copper (Cu)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Iron (Fe)-Leachable	8.32		0.15	mg/L		26-SEP-21	R5600024
Lead (Pb)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Magnesium (Mg)-Leachable	64.6		0.50	mg/L		26-SEP-21	R5600024

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2638180-8 LC_SBPS_SO_Q3-2021_NP6							
Sampled By: D. Tymstra/T.Dick on 09-SEP-21 @ 14:30							
Matrix: SO							
Metals by ICPMS (TCLP)							
Nickel (Ni)-Leachable	<0.25		0.25	mg/L		26-SEP-21	R5600024
Selenium (Se)-Leachable	<1000		1000	ug/L		26-SEP-21	R5600024
Silver (Ag)-Leachable	<0.050		0.050	mg/L		26-SEP-21	R5600024
Thallium (Tl)-Leachable	<1.0		1.0	mg/L		26-SEP-21	R5600024
Uranium (U)-Leachable	<2.0		2.0	mg/L		26-SEP-21	R5600024
Vanadium (V)-Leachable	<0.15		0.15	mg/L		26-SEP-21	R5600024
Zinc (Zn)-Leachable	<0.50		0.50	mg/L		26-SEP-21	R5600024

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTXSM-MEOH-HS-MS-CL	Soil	BTEX, Styrene and MTBE	EPA 8260C/5021A

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

EPH-TMB-H/A-FID-CL	Soil	EPH in solids by Tumbler	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

F-TCLP-CL	Waste	Fluoride (F)	EPA 1311/300.1

Sample is leached according to TCLP protocol as per EPA 1311. Inorganic anions in the TCLP extract are analyzed by Ion Chromatography with conductivity and/or UV detection.

HG-200.2-CVAA-CL	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

HG-TCLP-L-CVAA-CL	Waste	Leachable Mercury (Hg) in soil by CVAA	EPA 1311/1631E

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry.

LEPH/HEPH-CALC-CL	Soil	LEPHs and HEPHs	BC MELP; CSR-Analytical Method 3

: Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-CL	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

MET-TCLP-CCMS-BC-CL	Waste	Metals by ICPMS (TCLP)	EPA 1311/6020A

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the US Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

MOISTURE-CL	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

This analysis is carried out gravimetrically by drying the sample at 105 C

OGG-SW-SOX-SG-VA	Soil	Waste Oil By Gravimetric	BCMELP 66000-03/SG

Waste Oil Content in Solids and/or Liquids (Hazardous Waste Regulation) This analysis is carried out according to the method "Determination of Waste Oil Content in Solids and Liquids for Hazardous Waste Regulation PBM", from the BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment, and Biological Materials, 2005 edition. Use Waste Oil Content (as mg/Wet kg) to compare with the Hazardous Waste Regulation "waste oil" standard. Use Waste Oil Content (HWR 41.1, mg/kg) to compare with the Total Oil standard in section 41.1 of the Hazardous Waste Regulation.

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
OGG-SW-SOX-TOT-VA	Soil	Waste Oil By Gravimetric	BCMELP 66000-03/SWR

Waste Oil Content in Solids and/or Liquids (Hazardous Waste Regulation)
This analysis is carried out according to the method "Determination of Waste Oil Content in Solids and Liquids for Hazardous Waste Regulation PBM", from the BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment, and Biological Materials, 2005 edition. Use Waste Oil Content (as mg/Wet kg) to compare with the Hazardous Waste Regulation "waste oil" standard. Use Waste Oil Content (HWR 41.1, mg/kg) to compare with the Total Oil standard in section 41.1 of the Hazardous Waste Regulation.

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

PAH-TMB-H/A-MS-CL	Soil	PAH Tumbler Extraction (Hexane/Acetone)	EPA 3570/8270-GC/MS

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-CL	Soil	pH in soil (1:2 Soil:Water Extraction)	CSSS Ch. 16

Soil and de-ionized water (by volume) are mixed in a defined ratio. The slurry is allowed to stand, shaken, and then allowed to stand again prior to taking measurements. After equilibration, the pH of the liquid portion of the extract is measured by a pH meter. Field Measurement is recommended where accurate pH measurements are required, due to the 15 minute recommended hold time.

VH-MEOH-HS-FID-CL	Soil	VHs	BC Env. Lab Manual (VH in Solids)

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). . The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999)

VPH-CALC-CL	Soil	VPH Calculation	BC MOE LABORATORY MANUAL (2005)

These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Volatile Petroleum Hydrocarbons in Solids or Water" (Version 2.1, July 20, 1999). According to this method, the concentrations of specific Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes and Styrene) are subtracted from the collective concentration of Volatile Hydrocarbons (VH) that elute between n-hexane (nC6) and n-decane (nC10). Analysis of Volatile Hydrocarbons adheres to all prescribed elements of BCMELP method "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

XYLENES-SUM-CALC-CL	Soil	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Q3 Sludge 20210909

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: TECK COAL LIMITED (LINE CREEK)
PO BOX 2003
SPARWOOD BC V0B 2G0
Contact: Tom Jeffery

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTXSM-MEOH-HS-MS-CL	**Soil**							
Batch R5583975								
WG3616153-12 DUP		**L2638180-1**						
Benzene		1.36	1.44		mg/kg	5.6	40	14-SEP-21
Toluene		7.07	7.57		mg/kg	6.8	40	14-SEP-21
Ethylbenzene		1.05	1.13		mg/kg	7.3	40	14-SEP-21
Methyl-tert-Butyl Ether		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	14-SEP-21
o-Xylene		2.99	3.11		mg/kg	3.9	40	14-SEP-21
m+p-Xylene		12.5	12.7		mg/kg	1.9	40	14-SEP-21
Styrene		<0.050	<0.050	RPD-NA	mg/kg	N/A	40	14-SEP-21
WG3616153-2 LCS								
Benzene			83.2		%		70-130	14-SEP-21
Toluene			77.3		%		70-130	14-SEP-21
Ethylbenzene			85.2		%		70-130	14-SEP-21
Methyl-tert-Butyl Ether			84.3		%		70-130	14-SEP-21
o-Xylene			88.5		%		70-130	14-SEP-21
m+p-Xylene			85.4		%		70-130	14-SEP-21
Styrene			88.9		%		70-130	14-SEP-21
WG3616153-1 MB								
Benzene			<0.0050		mg/kg		0.005	14-SEP-21
Toluene			<0.014		mg/kg		0.014	14-SEP-21
Ethylbenzene			<0.015		mg/kg		0.015	14-SEP-21
Methyl-tert-Butyl Ether			<0.20		mg/kg		0.2	14-SEP-21
o-Xylene			<0.050		mg/kg		0.05	14-SEP-21
m+p-Xylene			<0.050		mg/kg		0.05	14-SEP-21
Styrene			<0.050		mg/kg		0.05	14-SEP-21
Surrogate: 4-Bromofluorobenzene			84.6		%		70-130	14-SEP-21
Surrogate: 1,4-Difluorobenzene			79.0		%		70-130	14-SEP-21
EPH-TMB-H/A-FID-CL	**Soil**							
Batch R5585624								
WG3616774-3 IRM		**ALS PHC3 RM**						
EPH10-19			97.4		%		70-130	17-SEP-21
EPH19-32			94.0		%		70-130	17-SEP-21
TEH10-30			95.9		%		70-130	17-SEP-21
WG3616774-2 LCS								
EPH10-19			104.9		%		70-130	17-SEP-21
EPH19-32			96.5		%		70-130	17-SEP-21
TEH10-30			103.6		%		70-130	17-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EPH-TMB-H/A-FID-CL	**Soil**							
Batch R5585624								
WG3616774-1 MB								
EPH10-19			<200		mg/kg		200	17-SEP-21
EPH19-32			<200		mg/kg		200	17-SEP-21
TEH10-30			<200		mg/kg		200	17-SEP-21
Surrogate: 2-Bromobenzotrifluoride			125.0		%		60-140	17-SEP-21
HG-200.2-CVAA-CL	**Soil**							
Batch R5584768								
WG3616638-4 CRM		**TILL-2**						
Mercury (Hg)			120.0		%		70-130	15-SEP-21
WG3616638-3 LCS								
Mercury (Hg)			92.9		%		80-120	15-SEP-21
WG3616638-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-SEP-21
MET-200.2-CCMS-CL	**Soil**							
Batch R5584121								
WG3616638-4 CRM		**TILL-2**						
Aluminum (Al)			89.9		%		70-130	14-SEP-21
Antimony (Sb)			89.1		%		70-130	14-SEP-21
Arsenic (As)			91.2		%		70-130	14-SEP-21
Barium (Ba)			87.2		%		70-130	14-SEP-21
Beryllium (Be)			86.2		%		70-130	14-SEP-21
Bismuth (Bi)			90.3		%		70-130	14-SEP-21
Cadmium (Cd)			91.2		%		70-130	14-SEP-21
Calcium (Ca)			86.9		%		70-130	14-SEP-21
Chromium (Cr)			91.3		%		70-130	14-SEP-21
Cobalt (Co)			90.7		%		70-130	14-SEP-21
Copper (Cu)			88.8		%		70-130	14-SEP-21
Iron (Fe)			88.5		%		70-130	14-SEP-21
Lead (Pb)			92.7		%		70-130	14-SEP-21
Lithium (Li)			90.5		%		70-130	14-SEP-21
Magnesium (Mg)			90.2		%		70-130	14-SEP-21
Manganese (Mn)			85.4		%		70-130	14-SEP-21
Molybdenum (Mo)			91.5		%		70-130	14-SEP-21
Nickel (Ni)			91.7		%		70-130	14-SEP-21
Phosphorus (P)			85.8		%		70-130	14-SEP-21
Potassium (K)			85.5		%		70-130	14-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5584121								
WG3616638-4 CRM		**TILL-2**						
Selenium (Se)			0.33		mg/kg		0.15-0.55	14-SEP-21
Silver (Ag)			0.24		mg/kg		0.16-0.36	14-SEP-21
Sodium (Na)			85.8		%		70-130	14-SEP-21
Strontium (Sr)			87.4		%		70-130	14-SEP-21
Thallium (Tl)			87.3		%		70-130	14-SEP-21
Tin (Sn)			2.0		mg/kg		0.2-4.2	14-SEP-21
Titanium (Ti)			83.7		%		70-130	14-SEP-21
Tungsten (W)			1.23		mg/kg		1-2	14-SEP-21
Uranium (U)			81.5		%		70-130	14-SEP-21
Vanadium (V)			86.1		%		70-130	14-SEP-21
Zinc (Zn)			89.1		%		70-130	14-SEP-21
Zirconium (Zr)			87.1		%		70-130	14-SEP-21
WG3616638-3 LCS								
Aluminum (Al)			93.9		%		80-120	14-SEP-21
Antimony (Sb)			96.1		%		80-120	14-SEP-21
Arsenic (As)			93.0		%		80-120	14-SEP-21
Barium (Ba)			95.4		%		80-120	14-SEP-21
Beryllium (Be)			92.2		%		80-120	14-SEP-21
Bismuth (Bi)			92.4		%		80-120	14-SEP-21
Boron (B)			84.0		%		80-120	14-SEP-21
Cadmium (Cd)			92.6		%		80-120	14-SEP-21
Calcium (Ca)			89.1		%		80-120	14-SEP-21
Chromium (Cr)			94.5		%		80-120	14-SEP-21
Cobalt (Co)			93.6		%		80-120	14-SEP-21
Copper (Cu)			90.6		%		80-120	14-SEP-21
Iron (Fe)			101.4		%		80-120	14-SEP-21
Lead (Pb)			93.2		%		80-120	14-SEP-21
Lithium (Li)			90.5		%		80-120	14-SEP-21
Magnesium (Mg)			96.7		%		80-120	14-SEP-21
Manganese (Mn)			93.7		%		80-120	14-SEP-21
Molybdenum (Mo)			95.4		%		80-120	14-SEP-21
Nickel (Ni)			93.8		%		80-120	14-SEP-21
Phosphorus (P)			90.3		%		80-120	14-SEP-21
Potassium (K)			95.0		%		80-120	14-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5584121								
WG3616638-3 LCS								
Selenium (Se)			88.0		%		80-120	14-SEP-21
Silver (Ag)			87.2		%		80-120	14-SEP-21
Sodium (Na)			96.0		%		80-120	14-SEP-21
Strontium (Sr)			98.7		%		80-120	14-SEP-21
Sulfur (S)			95.5		%		80-120	14-SEP-21
Thallium (Tl)			92.9		%		80-120	14-SEP-21
Tin (Sn)			94.7		%		80-120	14-SEP-21
Titanium (Ti)			92.4		%		80-120	14-SEP-21
Tungsten (W)			87.2		%		80-120	14-SEP-21
Uranium (U)			84.5		%		80-120	14-SEP-21
Vanadium (V)			93.8		%		80-120	14-SEP-21
Zinc (Zn)			91.2		%		80-120	14-SEP-21
Zirconium (Zr)			91.6		%		80-120	14-SEP-21
WG3616638-1 MB								
Aluminum (Al)			<50		mg/kg		50	14-SEP-21
Antimony (Sb)			<0.10		mg/kg		0.1	14-SEP-21
Arsenic (As)			<0.10		mg/kg		0.1	14-SEP-21
Barium (Ba)			<0.50		mg/kg		0.5	14-SEP-21
Beryllium (Be)			<0.10		mg/kg		0.1	14-SEP-21
Bismuth (Bi)			<0.20		mg/kg		0.2	14-SEP-21
Boron (B)			<5.0		mg/kg		5	14-SEP-21
Cadmium (Cd)			<0.020		mg/kg		0.02	14-SEP-21
Calcium (Ca)			<50		mg/kg		50	14-SEP-21
Chromium (Cr)			<0.50		mg/kg		0.5	14-SEP-21
Cobalt (Co)			<0.10		mg/kg		0.1	14-SEP-21
Copper (Cu)			<0.50		mg/kg		0.5	14-SEP-21
Iron (Fe)			<50		mg/kg		50	14-SEP-21
Lead (Pb)			<0.50		mg/kg		0.5	14-SEP-21
Lithium (Li)			<2.0		mg/kg		2	14-SEP-21
Magnesium (Mg)			<20		mg/kg		20	14-SEP-21
Manganese (Mn)			<1.0		mg/kg		1	14-SEP-21
Molybdenum (Mo)			<0.10		mg/kg		0.1	14-SEP-21
Nickel (Ni)			<0.50		mg/kg		0.5	14-SEP-21
Phosphorus (P)			<50		mg/kg		50	14-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-CL	**Soil**							
Batch R5584121								
WG3616638-1 MB								
Potassium (K)			<100		mg/kg		100	14-SEP-21
Selenium (Se)			<0.20		mg/kg		0.2	14-SEP-21
Silver (Ag)			<0.10		mg/kg		0.1	14-SEP-21
Sodium (Na)			<50		mg/kg		50	14-SEP-21
Strontium (Sr)			<0.50		mg/kg		0.5	14-SEP-21
Sulfur (S)			<1000		mg/kg		1000	14-SEP-21
Thallium (Tl)			<0.050		mg/kg		0.05	14-SEP-21
Tin (Sn)			<2.0		mg/kg		2	14-SEP-21
Titanium (Ti)			<1.0		mg/kg		1	14-SEP-21
Tungsten (W)			<0.50		mg/kg		0.5	14-SEP-21
Uranium (U)			<0.050		mg/kg		0.05	14-SEP-21
Vanadium (V)			<0.20		mg/kg		0.2	14-SEP-21
Zinc (Zn)			<2.0		mg/kg		2	14-SEP-21
Zirconium (Zr)			<1.0		mg/kg		1	14-SEP-21
MOISTURE-CL	**Soil**							
Batch R5584126								
WG3616778-2 LCS								
Moisture			98.7		%		90-110	14-SEP-21
WG3616778-1 MB								
Moisture			<0.25		%		0.25	14-SEP-21
OGG-SW-SOX-SG-VA	**Soil**							
Batch R5588138								
WG3619642-4 LCS								
Waste Oil Content - mg/Wkg			80.6		%		70-130	17-SEP-21
Waste Oil Content (HWR 41.1, mg/kg)			80.6		%		70-130	17-SEP-21
WG3619642-1 MB								
Waste Oil Content - mg/Wkg			<1000		mg/kg wwt		1000	17-SEP-21
Waste Oil Content (HWR 41.1, mg/kg)			<1000		mg/kg wwt		1000	17-SEP-21
OGG-SW-SOX-TOT-VA	**Soil**							
Batch R5588138								
WG3619642-3 DUP		**L2638180-1**						
Waste Oil Content - mg/Wkg		<1000	<1000	RPD-NA	mg/kg wwt	N/A	40	17-SEP-21
Waste Oil Content (HWR 41.1, mg/kg)		<1000	<1000	RPD-NA	mg/kg	N/A	40	17-SEP-21
WG3619642-2 LCS								
Waste Oil Content - mg/Wkg			95.5		%		70-130	17-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
OGG-SW-SOX-TOT-VA	**Soil**							
Batch R5588138								
WG3619642-2 LCS								
Waste Oil Content (HWR 41.1, mg/kg)			95.5		%		70-130	17-SEP-21
WG3619642-1 MB								
Waste Oil Content - mg/Wkg			<1000		mg/kg wwt		1000	17-SEP-21
Waste Oil Content (HWR 41.1, mg/kg)			<1000		mg/kg		1000	17-SEP-21
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5584006								
WG3616386-4 IRM		**ALS PAH RM2**						
Acenaphthene			79.1		%		60-130	13-SEP-21
Acenaphthylene			86.6		%		60-130	13-SEP-21
Anthracene			88.3		%		60-130	13-SEP-21
Benz(a)anthracene			82.2		%		60-130	13-SEP-21
Benzo(a)pyrene			80.9		%		60-130	13-SEP-21
Benzo(b&j)fluoranthene			76.6		%		60-130	13-SEP-21
Benzo(g,h,i)perylene			76.9		%		60-130	13-SEP-21
Benzo(k)fluoranthene			79.2		%		60-130	13-SEP-21
Chrysene			79.4		%		60-130	13-SEP-21
Dibenz(a,h)anthracene			74.0		%		60-130	13-SEP-21
Fluoranthene			74.7		%		60-130	13-SEP-21
Fluorene			78.7		%		60-130	13-SEP-21
Indeno(1,2,3-c,d)pyrene			114.2		%		60-130	13-SEP-21
2-Methylnaphthalene			78.1		%		60-130	13-SEP-21
Naphthalene			75.5		%		50-130	13-SEP-21
Phenanthrene			76.5		%		60-130	13-SEP-21
Pyrene			76.1		%		60-130	13-SEP-21
1-Methylnaphthalene			78.1		%		60-130	13-SEP-21
WG3616386-7 IRM		**ALS PAH RM2**						
Acenaphthene			104.6		%		60-130	14-SEP-21
Acenaphthylene			111.4		%		60-130	14-SEP-21
Anthracene			113.7		%		60-130	14-SEP-21
Benz(a)anthracene			106.4		%		60-130	14-SEP-21
Benzo(a)pyrene			102.1		%		60-130	14-SEP-21
Benzo(b&j)fluoranthene			96.5		%		60-130	14-SEP-21
Benzo(g,h,i)perylene			104.0		%		60-130	14-SEP-21
Benzo(k)fluoranthene			93.4		%		60-130	14-SEP-21
Chrysene			107.5		%		60-130	14-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5584006								
WG3616386-7 IRM		**ALS PAH RM2**						
Dibenz(a,h)anthracene			105.9		%		60-130	14-SEP-21
Fluoranthene			98.2		%		60-130	14-SEP-21
Fluorene			102.4		%		60-130	14-SEP-21
Indeno(1,2,3-c,d)pyrene			124.4		%		60-130	14-SEP-21
2-Methylnaphthalene			101.0		%		60-130	14-SEP-21
Naphthalene			95.8		%		50-130	14-SEP-21
Phenanthrene			99.9		%		60-130	14-SEP-21
Pyrene			100.1		%		60-130	14-SEP-21
1-Methylnaphthalene			99.2		%		60-130	14-SEP-21
WG3616386-3 LCS								
Acenaphthene			87.1		%		60-130	13-SEP-21
Acenaphthylene			77.4		%		60-130	13-SEP-21
Anthracene			81.3		%		60-130	13-SEP-21
Benz(a)anthracene			85.6		%		60-130	13-SEP-21
Benzo(a)pyrene			81.0		%		60-130	13-SEP-21
Benzo(b&j)fluoranthene			78.8		%		60-130	13-SEP-21
Benzo(g,h,i)perylene			83.7		%		60-130	13-SEP-21
Benzo(k)fluoranthene			84.0		%		60-130	13-SEP-21
Chrysene			81.8		%		60-130	13-SEP-21
Dibenz(a,h)anthracene			78.3		%		60-130	13-SEP-21
Fluoranthene			87.4		%		60-130	13-SEP-21
Fluorene			84.7		%		60-130	13-SEP-21
Indeno(1,2,3-c,d)pyrene			88.2		%		60-130	13-SEP-21
2-Methylnaphthalene			88.3		%		60-130	13-SEP-21
Naphthalene			85.0		%		50-130	13-SEP-21
Phenanthrene			92.7		%		60-130	13-SEP-21
Pyrene			87.1		%		60-130	13-SEP-21
1-Methylnaphthalene			91.3		%		60-130	13-SEP-21
Quinoline			79.7		%		60-130	13-SEP-21
WG3616386-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	13-SEP-21
Acenaphthylene			<0.0050		mg/kg		0.005	13-SEP-21
Anthracene			<0.0040		mg/kg		0.004	13-SEP-21
Benz(a)anthracene			<0.010		mg/kg		0.01	13-SEP-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	13-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5584006								
WG3616386-1 MB								
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	13-SEP-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	13-SEP-21
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	13-SEP-21
Chrysene			<0.010		mg/kg		0.01	13-SEP-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	13-SEP-21
Fluoranthene			<0.010		mg/kg		0.01	13-SEP-21
Fluorene			<0.010		mg/kg		0.01	13-SEP-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	13-SEP-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	13-SEP-21
Naphthalene			<0.010		mg/kg		0.01	13-SEP-21
Phenanthrene			<0.010		mg/kg		0.01	13-SEP-21
Pyrene			<0.010		mg/kg		0.01	13-SEP-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	13-SEP-21
Quinoline			<0.050		mg/kg		0.05	13-SEP-21
Surrogate: d8-Naphthalene			85.1		%		50-130	13-SEP-21
Surrogate: d10-Acenaphthene			82.9		%		60-130	13-SEP-21
Surrogate: d10-Phenanthrene			85.3		%		60-130	13-SEP-21
Surrogate: d12-Chrysene			88.3		%		60-130	13-SEP-21
WG3616386-5 MB								
Acenaphthene			<0.0050		mg/kg		0.005	14-SEP-21
Acenaphthylene			<0.0050		mg/kg		0.005	14-SEP-21
Anthracene			<0.0040		mg/kg		0.004	14-SEP-21
Benz(a)anthracene			<0.010		mg/kg		0.01	14-SEP-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	14-SEP-21
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	14-SEP-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	14-SEP-21
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	14-SEP-21
Chrysene			<0.010		mg/kg		0.01	14-SEP-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	14-SEP-21
Fluoranthene			<0.010		mg/kg		0.01	14-SEP-21
Fluorene			<0.010		mg/kg		0.01	14-SEP-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	14-SEP-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	14-SEP-21
Naphthalene			<0.010		mg/kg		0.01	14-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-CL	**Soil**							
Batch R5584006								
WG3616386-5 MB								
Phenanthrene			<0.010		mg/kg		0.01	14-SEP-21
Pyrene			<0.010		mg/kg		0.01	14-SEP-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	14-SEP-21
Quinoline			<0.050		mg/kg		0.05	14-SEP-21
Surrogate: d8-Naphthalene			93.8		%		50-130	14-SEP-21
Surrogate: d10-Acenaphthene			102.3		%		60-130	14-SEP-21
Surrogate: d10-Phenanthrene			99.5		%		60-130	14-SEP-21
Surrogate: d12-Chrysene			105.1		%		60-130	14-SEP-21
WG3616386-8 MB								
Acenaphthene			<0.0050		mg/kg		0.005	15-SEP-21
Acenaphthylene			<0.0050		mg/kg		0.005	15-SEP-21
Anthracene			<0.0040		mg/kg		0.004	15-SEP-21
Benz(a)anthracene			<0.010		mg/kg		0.01	15-SEP-21
Benzo(a)pyrene			<0.010		mg/kg		0.01	15-SEP-21
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	15-SEP-21
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	15-SEP-21
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	15-SEP-21
Chrysene			<0.010		mg/kg		0.01	15-SEP-21
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	15-SEP-21
Fluoranthene			<0.010		mg/kg		0.01	15-SEP-21
Fluorene			<0.010		mg/kg		0.01	15-SEP-21
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	15-SEP-21
2-Methylnaphthalene			<0.010		mg/kg		0.01	15-SEP-21
Naphthalene			<0.010		mg/kg		0.01	15-SEP-21
Phenanthrene			<0.010		mg/kg		0.01	15-SEP-21
Pyrene			<0.010		mg/kg		0.01	15-SEP-21
1-Methylnaphthalene			<0.050		mg/kg		0.05	15-SEP-21
Quinoline			<0.050		mg/kg		0.05	15-SEP-21
Surrogate: d8-Naphthalene			71.2		%		50-130	15-SEP-21
Surrogate: d10-Acenaphthene			79.4		%		60-130	15-SEP-21
Surrogate: d10-Phenanthrene			82.6		%		60-130	15-SEP-21
Surrogate: d12-Chrysene			86.7		%		60-130	15-SEP-21
PH-1:2-CL	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-1:2-CL	**Soil**							
Batch R5583846								
WG3616860-3 DUP		**L2638180-1**						
pH (1:2 soil:water)		8.40	8.38	J	pH	0.02	0.2	14-SEP-21
WG3616860-2 IRM		**SAL-STD11**						
pH (1:2 soil:water)			7.93		pH		7.7-8.3	14-SEP-21
WG3616860-1 LCS								
pH (1:2 soil:water)			7.02		pH		6.8-7.2	14-SEP-21
VH-MEOH-HS-FID-CL	**Soil**							
Batch R5583978								
WG3616153-12 DUP		**L2638180-1**						
Volatile Hydrocarbons (VH6-10)		89	86		mg/kg	3.4	30	14-SEP-21
WG3616153-2 LCS								
Volatile Hydrocarbons (VH6-10)			125.4		%		70-130	14-SEP-21
WG3616153-1 MB								
Volatile Hydrocarbons (VH6-10)			<10		mg/kg		10	14-SEP-21
Surrogate: 3,4-Dichlorotoluene			97.1		%		70-130	14-SEP-21
F-TCLP-CL	**Waste**							
Batch R5615876								
WG3635911-1 MB								
Leachable Fluoride (F)			<10		mg/L		10	07-OCT-21
WG3635911-2 MS		**L2638180-8**						
Leachable Fluoride (F)			86.0		%		50-140	07-OCT-21
HG-TCLP-L-CVAA-CL	**Waste**							
Batch R5599684								
WG3624826-1 MB								
Mercury (Hg)-Leachable			<0.0010		mg/L		0.001	25-SEP-21
MET-TCLP-CCMS-BC-CL	**Waste**							
Batch R5600024								
WG3624826-1 MB								
Antimony (Sb)-Leachable			<1.0		mg/L		1	26-SEP-21
Arsenic (As)-Leachable			<1.0		mg/L		1	26-SEP-21
Barium (Ba)-Leachable			<2.5		mg/L		2.5	26-SEP-21
Beryllium (Be)-Leachable			<0.025		mg/L		0.025	26-SEP-21
Boron (B)-Leachable			<0.50		mg/L		0.5	26-SEP-21
Cadmium (Cd)-Leachable			<0.050		mg/L		0.05	26-SEP-21
Calcium (Ca)-Leachable			<2.0		mg/L		2	26-SEP-21
Chromium (Cr)-Leachable			<0.25		mg/L		0.25	26-SEP-21

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-CCMS-BC-CL	**Waste**							
Batch	**R5600024**							
WG3624826-1	**MB**							
Cobalt (Co)-Leachable			<0.050		mg/L		0.05	26-SEP-21
Copper (Cu)-Leachable			<0.050		mg/L		0.05	26-SEP-21
Iron (Fe)-Leachable			<0.15		mg/L		0.15	26-SEP-21
Lead (Pb)-Leachable			<0.25		mg/L		0.25	26-SEP-21
Magnesium (Mg)-Leachable			<0.50		mg/L		0.5	26-SEP-21
Nickel (Ni)-Leachable			<0.25		mg/L		0.25	26-SEP-21
Selenium (Se)-Leachable			<1.0		mg/L		1	26-SEP-21
Silver (Ag)-Leachable			<0.050		mg/L		0.05	26-SEP-21
Thallium (Tl)-Leachable			<1.0		mg/L		1	26-SEP-21
Uranium (U)-Leachable			<2.0		mg/L		2	26-SEP-21
Vanadium (V)-Leachable			<0.15		mg/L		0.15	26-SEP-21
Zinc (Zn)-Leachable			<0.50		mg/L		0.5	26-SEP-21

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

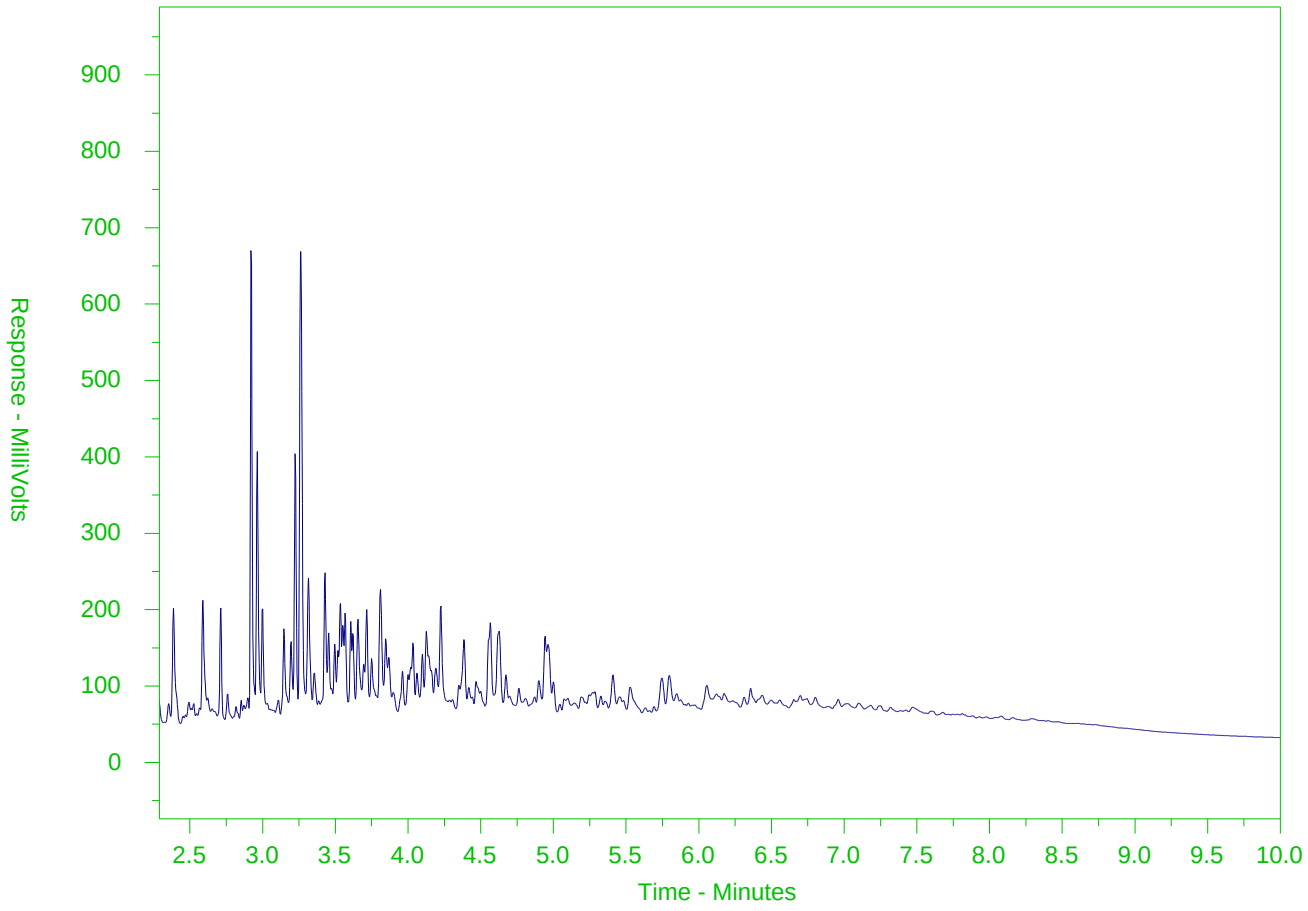
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-1
Client Sample ID: LC_NNCPS_SO_Q3-2021_NP1



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

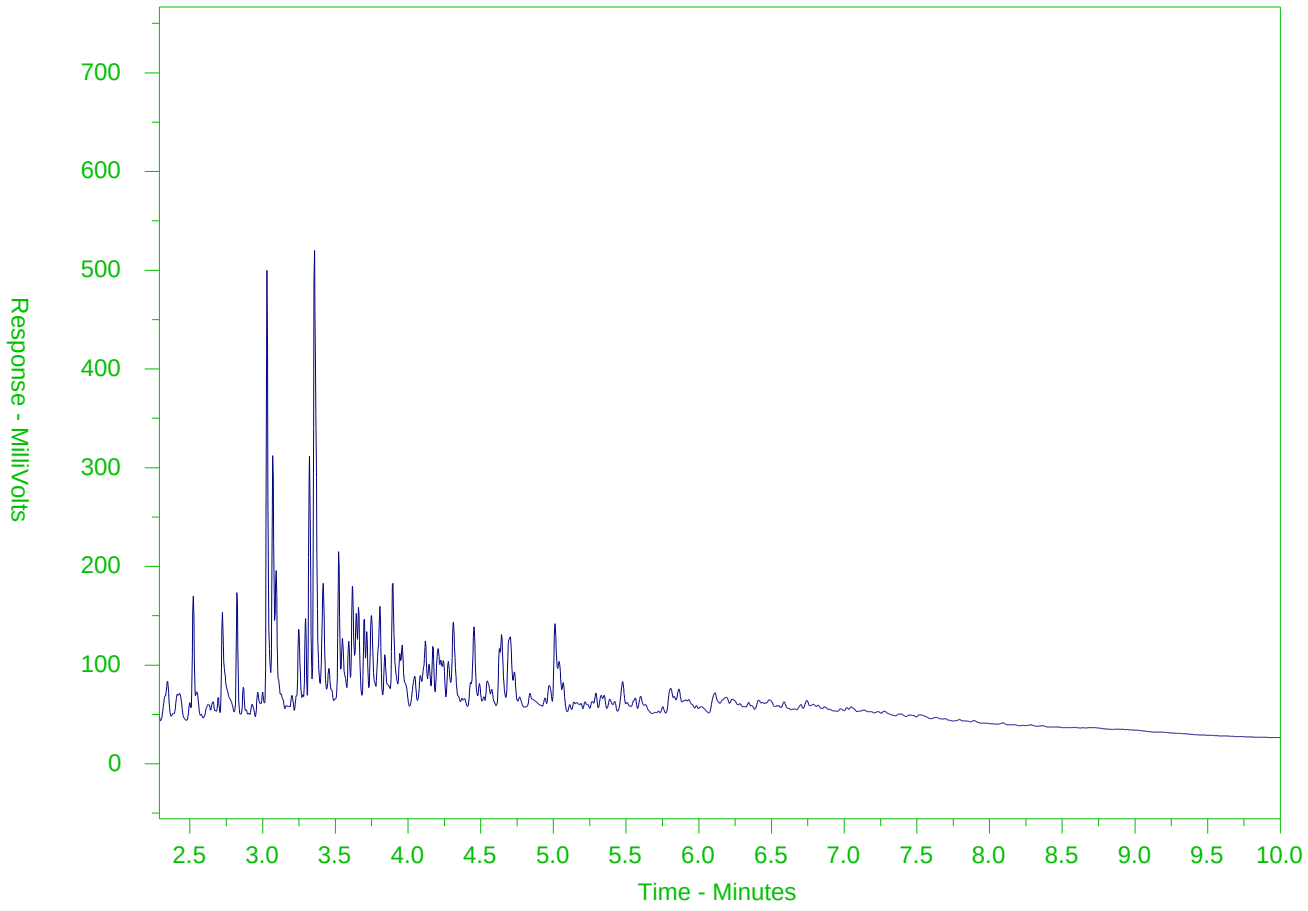
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-2
Client Sample ID: LC_NNCPS_SO_Q3-2021_NP2



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

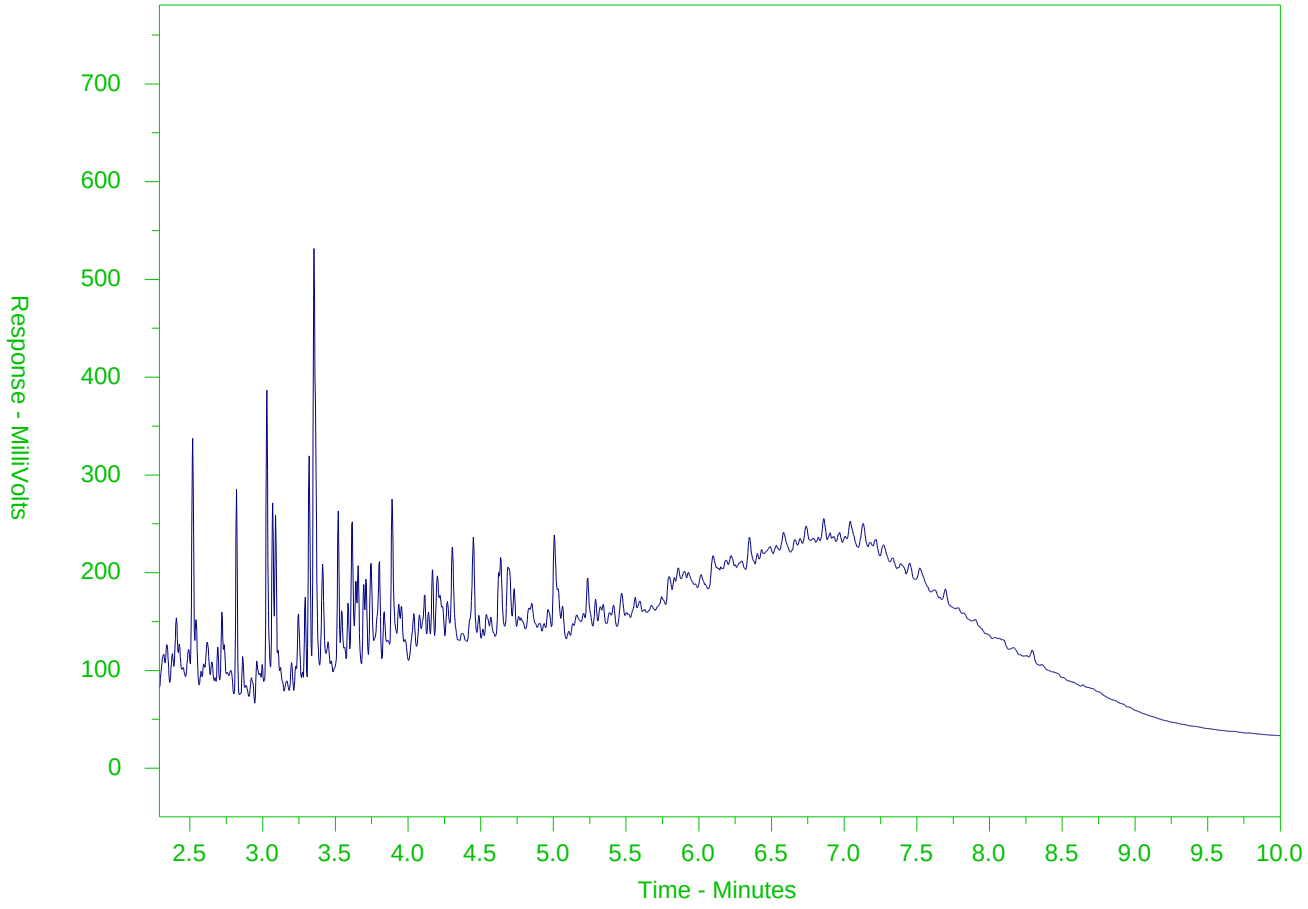
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-3
Client Sample ID: LC_SBPS_SO_Q3-2021_NP1



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

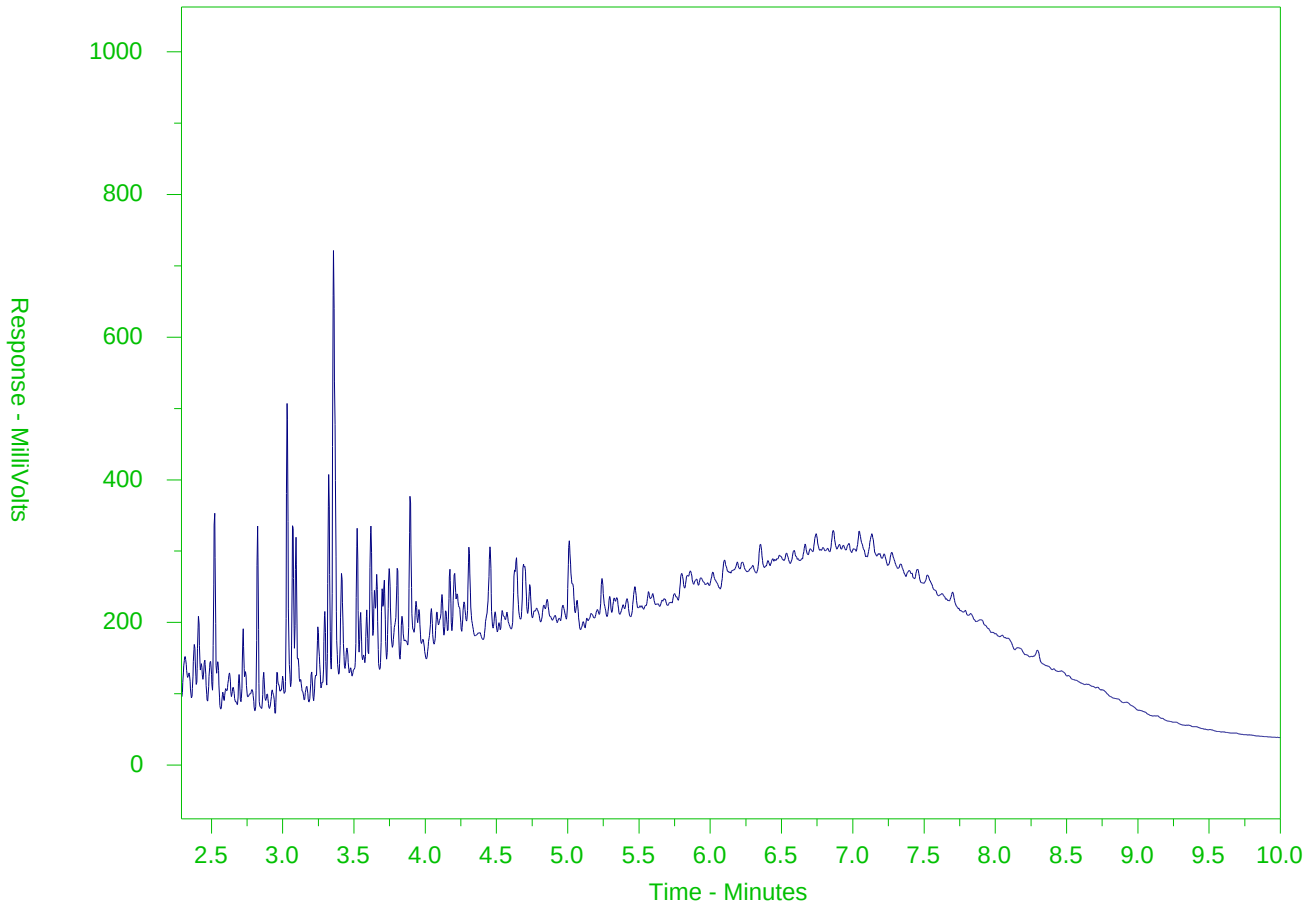
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-4
Client Sample ID: LC_SBPS_SO_Q3-2021_NP2



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

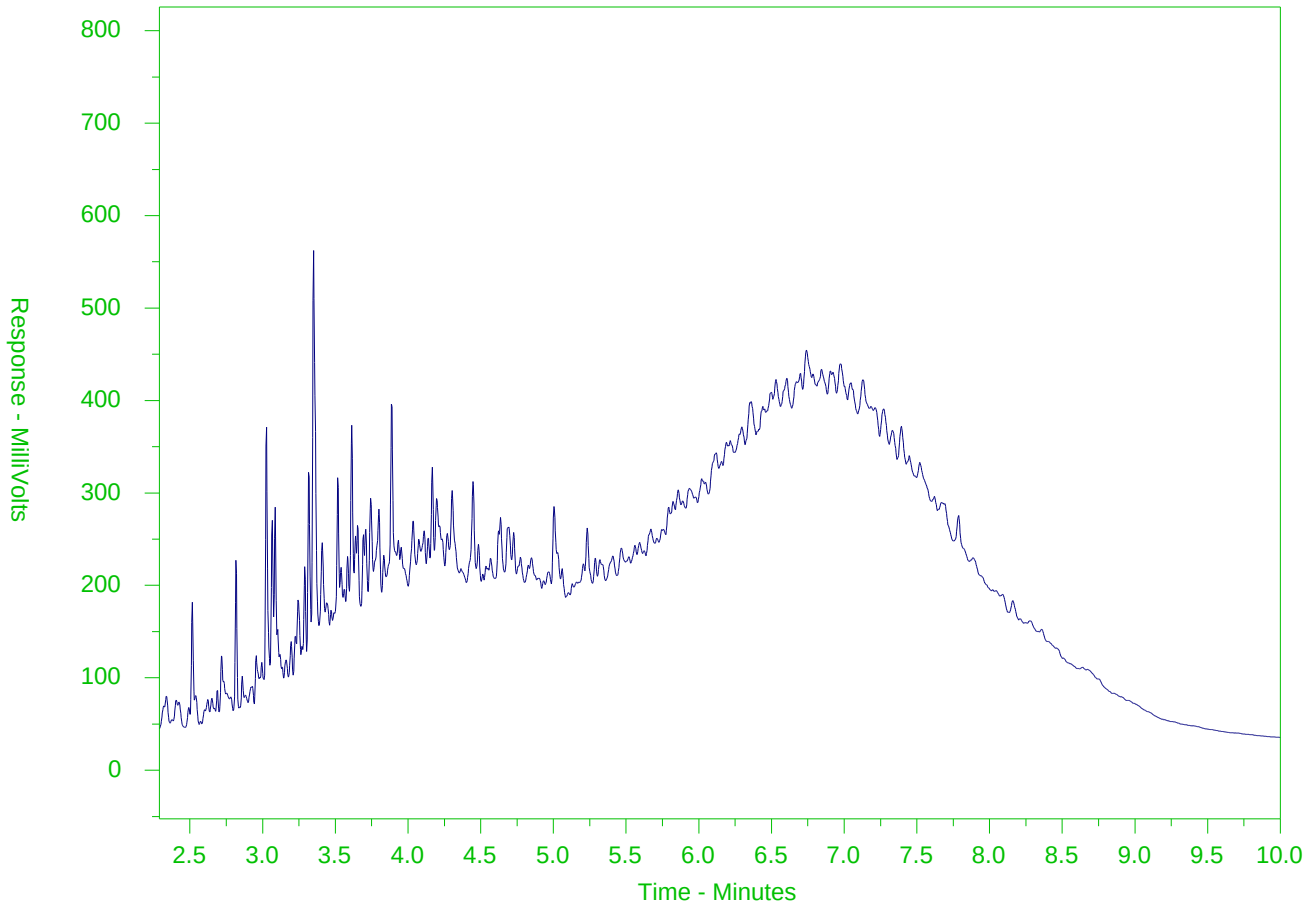
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-5
Client Sample ID: LC_SBPS_SO_Q3-2021_NP3



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

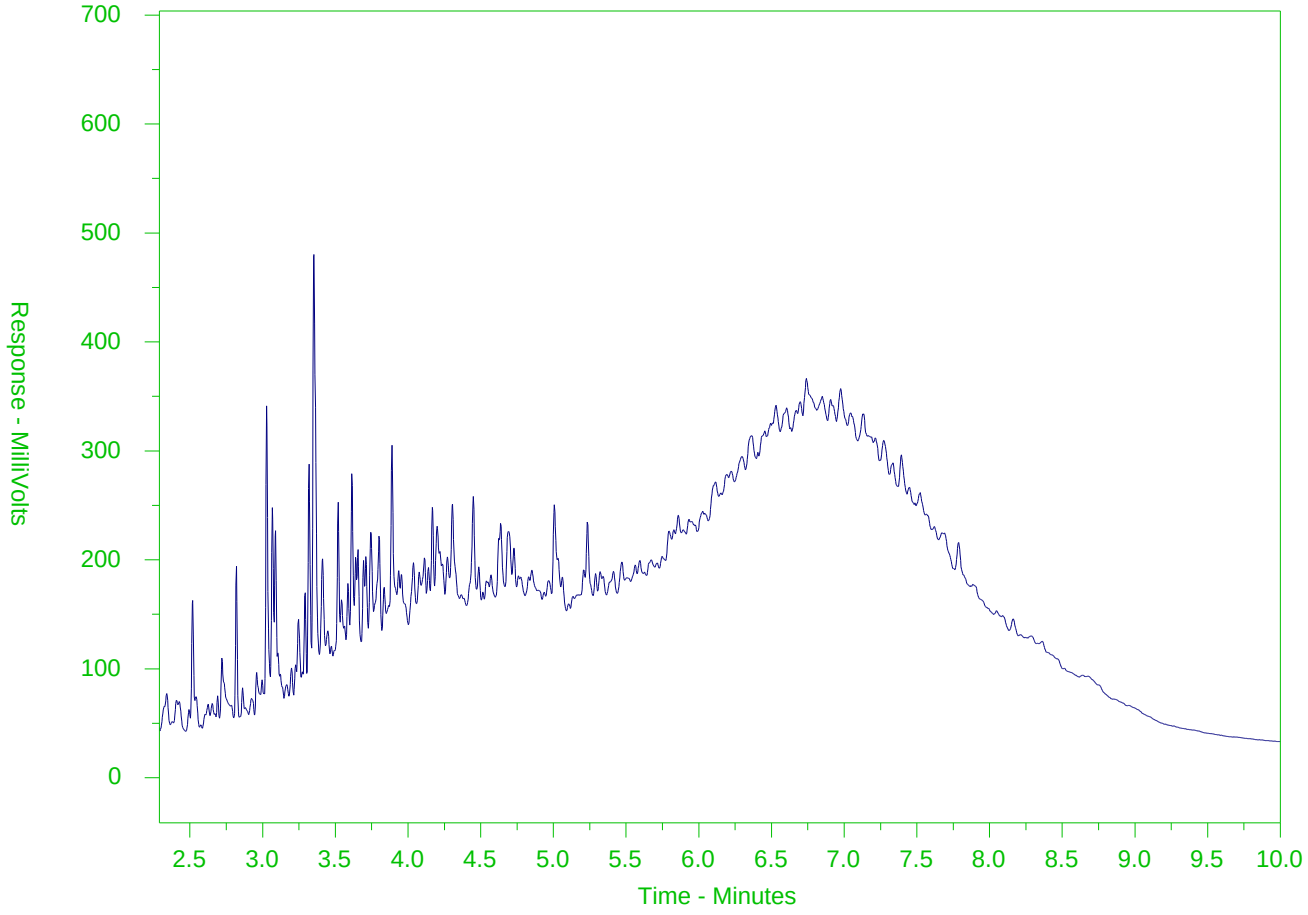
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-6
Client Sample ID: LC_SBPS_SO_Q3-2021_NP4



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

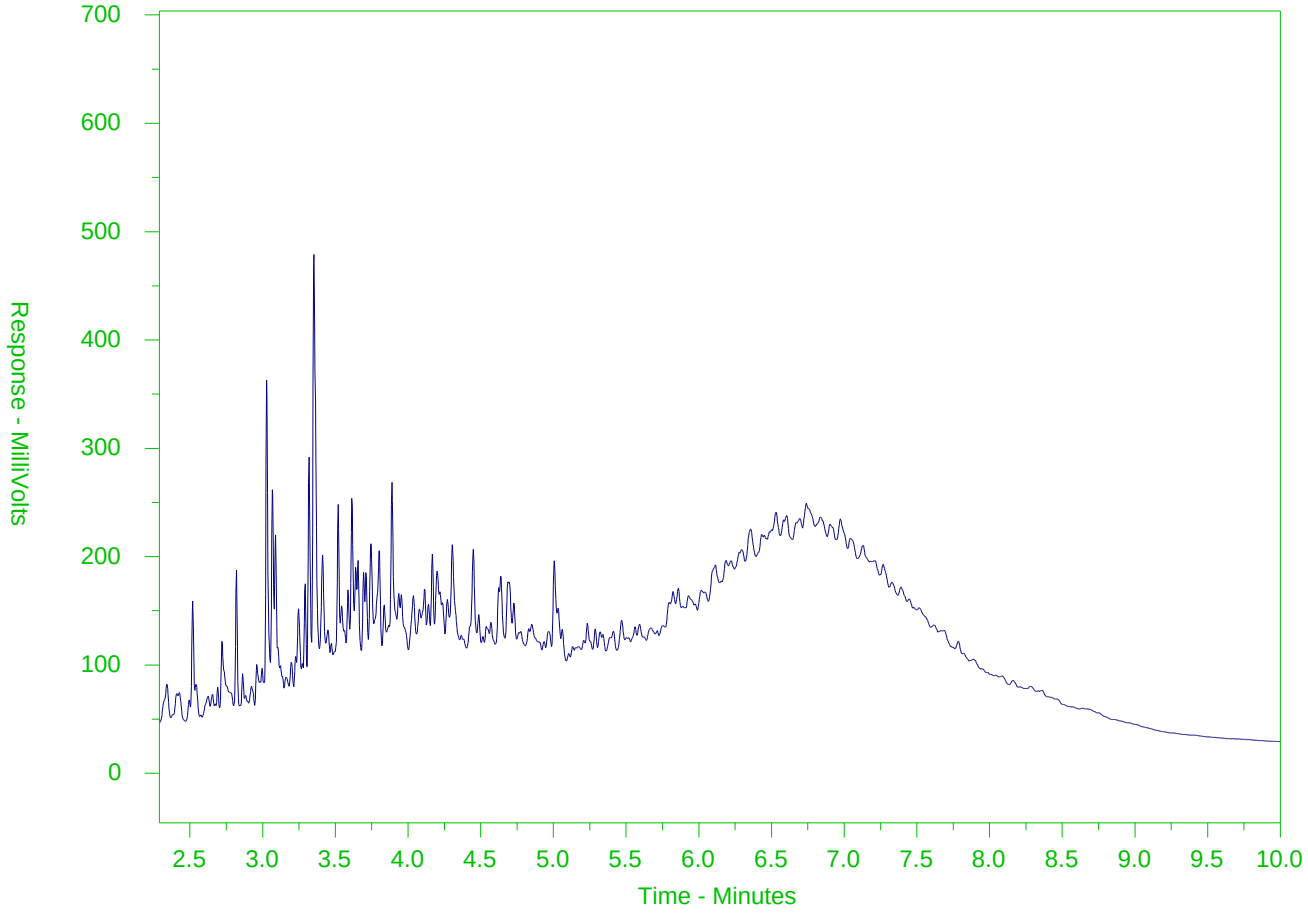
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-7
Client Sample ID: LC_SBPS_SO_Q3-2021_NP5



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

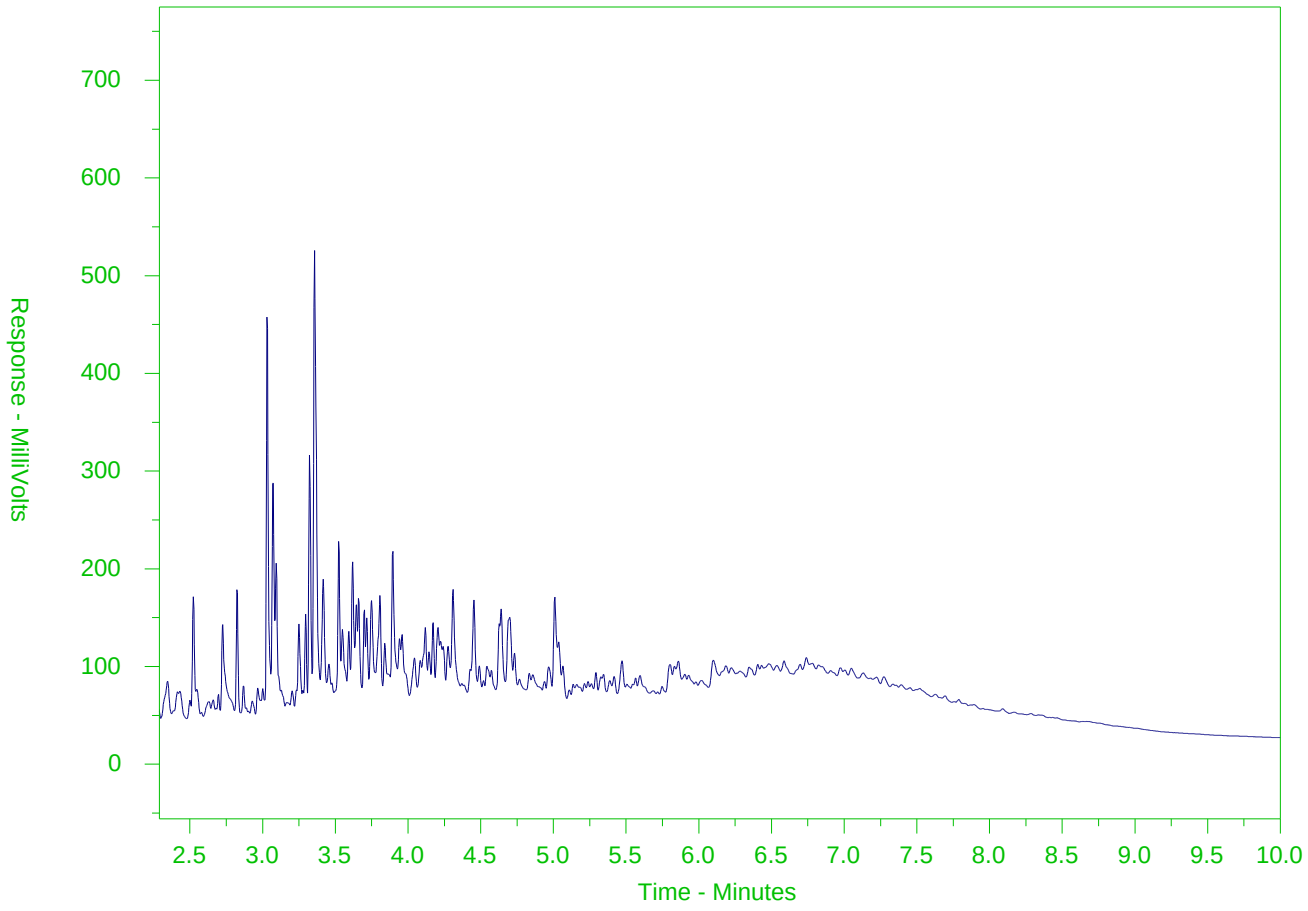
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2638180-8
Client Sample ID: LC_SBPS_SO_Q3-2021_NP6



← EPH10-19 →		← EPH19-32 →
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Teck

COC ID:	Q3 Sludge 20210909	TURNAROUND TIME:	3-4 DAYS	RUSH:	PRIORITY

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name / Job#	Line Creek Operation			Lab Name	ALS Calgary			Report Format / Distribution		Excel	PDF	EDD
Project Manager	Tom Jeffery			Lab Contact	Lyudmyla Shvets			Email 1:	chris.bluman@teck.com	x	x	
Email	tom.jeffery@teck.com			Email	Lyudmyla.Shvets@ALSGlobal.com			Email 2:	teckcoal@equisonline.com			x
Address	Box 2003			Address	2559 29 Street NE			Email 3:	drake.tymstra@teck.com	x	x	
	15km North Hwy 43							Email 4:	shanise.fossen@teck.com	x	x	
City	Sparwood	Province	BC	City	Calgary	Province	AB	Email 4:	tanya.dick@teck.com	x	x	
Postal Code	V0B 2G0	Country	Canada	Postal Code	T1Y 7B5	Country	Canada	PO number	VPO00739930			
Phone Number	250-425-3196			Phone Number	403 407 1794							

L2638180-COFC

SAMPLE DETAILS — ANALYSIS REQUESTED — Filtered - F: Field, L: Lab, FL: Field & Lab, N: None

Sample ID	Sample Location (sys_loc_code)	Field Matrix	Hazardous Material (Yes/No)	Date	Time (24hr)	G=Grab C=Comp	# Of Cont.	FIL.				N	
								PRESERV.				Methanol	
								ANALYSIS	Metals	LEPH_HEPH	Total Oil	BTEX & VPH	
LC_NNCPS_SO_Q3-2021_NP1	LC_NNCPS	SO	No	9/9/2021	15:00	G	8		2	2	2	2	
LC_NNCPS_SO_Q3-2021_NP2	LC_NNCPS	SO	No	9/9/2021	15:00	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP1	LC_SBPS	SO	No	9/9/2021	13:50	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP2	LC_SBPS	SO	No	9/9/2021	13:50	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP3	LC_SBPS	SO	No	9/9/2021	13:50	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP4	LC_SBPS	SO	No	9/9/2021	13:50	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP5	LC_SBPS	SO	No	9/9/2021	14:30	G	8		2	2	2	2	
LC_SBPS_SO_Q3-2021_NP6	LC_SBPS	SO	No	9/9/2021	14:30	G	8		2	2	2	2	

ADDITIONAL COMMENTS/SPECIAL	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	T. Dick/D. Tyymstra	9-Sep		9/9 845

SERVICE REQUEST (rush - subject to availability)	
Regular (default)	
Priority (2-3 business days) - 50% surcharge	X
Emergency (1 Business Day) - 100% surcharge	
For Emergency <1 Day, ASAP or Weekend - Contact ALS	

Sampler's Name	D. Tymstra/T.Dick	Mobile #	
Sampler's Signature		Date/Time	September 9, 2021

90 C

Appendix K – 2021 ERX Data Compared Against B.C. Water Quality Guidelines for Wildlife

Sample Site	Sample Date	Chemical Name	Reporting Detection Limit	Result Units	BCWQG for Protection of Wildlife*	DISSOLVED Results	N/A Results	TOTAL Results
LC_ERX	6/30/2021	ACIDITY TO pH 8.3 (As CaCO3)	2.0	mg/l			8.6	
LC_ERX	6/30/2021	ALKALINITY, BICARBONATE (As CaCO3), lab measured.	1.0	mg/l			319	
LC_ERX	6/30/2021	ALKALINITY, CARBONATE (As CaCO3), lab measured.	1.0	mg/l			< 1.0	
LC_ERX	6/30/2021	ALKALINITY, HYDROXIDE (As CaCO3), lab measured.	1.0	mg/l			< 1.0	
LC_ERX	6/30/2021	ALKALINITY, TOTAL (As CaCO3), lab measured.	1.0	mg/l			319	
LC_ERX	6/30/2021	ALUMINUM	0.0010	mg/l		0.0013		
LC_ERX	6/30/2021	ALUMINUM	0.0030	mg/l	**5**			0.0140
LC_ERX	6/30/2021	ANTIMONY	0.00010	mg/l		0.00179		0.00191
LC_ERX	6/30/2021	ARSENIC	0.00010	mg/l	**0.025**	0.00054		0.00062
LC_ERX	6/30/2021	BARIUM	0.00010	mg/l		0.379		0.300
LC_ERX	6/30/2021	BERYLLIUM	0.020	ug/l		< 0.020		< 0.020
LC_ERX	6/30/2021	BICARBONATE	1.0	mg/l			389	
LC_ERX	6/30/2021	BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	2.0	mg/l			< 2.0	
LC_ERX	6/30/2021	BISMUTH	0.000050	mg/l		< 0.000050		< 0.000050
LC_ERX	6/30/2021	BORON	0.010	mg/l	**5**	0.059		0.060
LC_ERX	6/30/2021	BROMIDE	0.250	mg/l			2.82	
LC_ERX	6/30/2021	CADMIUM	0.0050	ug/l		0.779		0.758
LC_ERX	6/30/2021	CALCIUM	0.050	mg/l		221		194
LC_ERX	6/30/2021	CARBON, DISSOLVED ORGANIC	0.50	mg/l		3.08		
LC_ERX	6/30/2021	CARBONATE (AS CO3)	1.0	mg/l			< 1.0	
LC_ERX	6/30/2021	Cation - Anion Balance	0.010	%		3.22		
LC_ERX	6/30/2021	CHLORIDE	0.50	mg/l	**600**	270		
LC_ERX	6/30/2021	CHROMIUM	0.00010	mg/l		< 0.00010		< 0.00010
LC_ERX	6/30/2021	COBALT	0.10	ug/l		0.83		0.58
LC_ERX	6/30/2021	CONDUCTIVITY, LAB	2.0	us/cm			1510	
LC_ERX	6/30/2021	COPPER	0.00020	mg/l		0.00080		
LC_ERX	6/30/2021	COPPER	0.00050	mg/l	**300**			0.00086
LC_ERX	6/30/2021	Extractable Petroleum Hydrocarbons C10-C19	0.25	mg/l			< 0.25	
LC_ERX	6/30/2021	Extractable Petroleum Hydrocarbons C19-C32	0.25	mg/l			< 0.25	
LC_ERX	6/30/2021	FLUORIDE	0.100	mg/l	**1.0**		0.183	
LC_ERX	6/30/2021	Hardness, Total or Dissolved CaCO3	0.50	mg/l			820	
LC_ERX	6/30/2021	Hydroxide	1.0	mg/l			< 1.0	
LC_ERX	6/30/2021	ION BALANCE	0.010	%		107		
LC_ERX	6/30/2021	IRON	0.010	mg/l		< 0.010		0.014
LC_ERX	6/30/2021	LEAD	0.000050	mg/l	**0.00005**	< 0.000050		< 0.000050
LC_ERX	6/30/2021	LITHIUM	0.0010	mg/l		0.0895		0.0803
LC_ERX	6/30/2021	MAGNESIUM	0.0050	mg/l		65.2		54.6
LC_ERX	6/30/2021	MAJOR ANION SUM	0.10	meq/l		16.5		
LC_ERX	6/30/2021	MAJOR CATION SUM	0.10	meq/l		17.6		
LC_ERX	6/30/2021	MANGANESE	0.00010	mg/l		0.0574		0.0163
LC_ERX	6/30/2021	MERCURY	0.0000050	mg/l		< 0.0000050		
LC_ERX	6/30/2021	MERCURY	0.00050	ug/l				< 0.00050
LC_ERX	6/30/2021	MOLYBDENUM	0.000050	mg/l	**0.00005**	0.0120		0.0122
LC_ERX	6/30/2021	NICKEL	0.00050	mg/l		0.0471		0.0475
LC_ERX	6/30/2021	NITRATE NITROGEN (NO3), AS N	0.0250	mg/l	**100**		4.67	
LC_ERX	6/30/2021	NITRITE NITROGEN (NO2), AS N	0.0050	mg/l	**100**		0.0157	
LC_ERX	6/30/2021	NITROGEN, AMMONIA (AS N)	0.0050	mg/l	**10**			0.0129
LC_ERX	6/30/2021	ORTHO-PHOSPHATE	0.0010	mg/l		0.0055		
LC_ERX	6/30/2021	OXIDATION-REDUCTION POTENTIAL, LAB	0.10	mv			414	
LC_ERX	6/30/2021	pH, LAB	0.10	ph units			7.67	
LC_ERX	6/30/2021	PHOSPHORUS	0.0020	mg/l				0.0064
LC_ERX	6/30/2021	POTASSIUM	0.050	mg/l		6.12		5.79
LC_ERX	6/30/2021	SELENIUM	0.050	ug/l	**2**	6.38		**6.36**
LC_ERX	6/30/2021	SILICON	0.050	mg/l		6.23		
LC_ERX	6/30/2021	SILICON	0.10	mg/l				6.12
LC_ERX	6/30/2021	SILVER	0.000010	mg/l		< 0.000010		< 0.000010
LC_ERX	6/30/2021	SODIUM	0.050	mg/l		24.1		20.0
LC_ERX	6/30/2021	STRONTIUM	0.00020	mg/l		0.854		0.726
LC_ERX	6/30/2021	Sulphate (as SO4)	1.50	mg/l		106		
LC_ERX	6/30/2021	SULPHUR	0.50	mg/l		40.8		36.6
LC_ERX	6/30/2021	THALLIUM	0.000010	mg/l		0.000032		0.000039
LC_ERX	6/30/2021	The sum of extractable petroleum hydrocarbons C10-C19 and C19-C32.	0.4	mg/l			< 0.4	
LC_ERX	6/30/2021	TIN	0.00010	mg/l		< 0.00010		< 0.00010
LC_ERX	6/30/2021	TITANIUM	0.00030	mg/l		< 0.00030		0.00043
LC_ERX	6/30/2021	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	20	mg/l			1300	
LC_ERX	6/30/2021	TOTAL EXTRACTABLE HYDROCARBONS (TEH 10-30)	0.25	mg/l			< 0.25	
LC_ERX	6/30/2021	TOTAL KJELDAHL NITROGEN	0.050	mg/l			0.308	
LC_ERX	6/30/2021	TOTAL ORGANIC CARBON	0.50	mg/l				3.06
LC_ERX	6/30/2021	TOTAL SUSPENDED SOLIDS, LAB	1.0	mg/l			1.2	
LC_ERX	6/30/2021	TURBIDITY, LAB	0.10	ntu			0.76	

Sample Site	Sample Date	Chemical Name	Reporting Detection Limit	Result Units	BCWQG for Protection of Wildlife*	DISSOLVED Results	N/A Results	TOTAL Results
LC_ERX	6/30/2021	URANIUM	0.000010	mg/l		0.00546		0.00585
LC_ERX	6/30/2021	VANADIUM	0.00050	mg/l		0.00051		0.00080
LC_ERX	6/30/2021	ZINC	0.0010	mg/l		0.0211		
LC_ERX	6/30/2021	ZINC	0.0030	mg/l				0.0212
LC_ERX	10/21/2021	ACIDITY TO pH 8.3 (As CaCO3)	2.0	mg/l			13.0	
LC_ERX	10/21/2021	ALKALINITY, BICARBONATE (As CaCO3), lab measured.	1.0	mg/l			361	
LC_ERX	10/21/2021	ALKALINITY, CARBONATE (As CaCO3), lab measured.	1.0	mg/l			< 1.0	
LC_ERX	10/21/2021	ALKALINITY, HYDROXIDE (As CaCO3), lab measured.	1.0	mg/l			< 1.0	
LC_ERX	10/21/2021	ALKALINITY, TOTAL (As CaCO3), lab measured.	1.0	mg/l			361	
LC_ERX	10/21/2021	ALUMINUM	0.0010	mg/l		0.0021		
LC_ERX	10/21/2021	ALUMINUM	0.0030	mg/l	**5**			0.0114
LC_ERX	10/21/2021	ANTIMONY	0.00010	mg/l		0.00130		0.00144
LC_ERX	10/21/2021	ARSENIC	0.00010	mg/l	**0.025**	0.00051		0.00061
LC_ERX	10/21/2021	BARIUM	0.00010	mg/l		0.320		0.336
LC_ERX	10/21/2021	BERYLLIUM	0.020	ug/l		< 0.020		< 0.020
LC_ERX	10/21/2021	BICARBONATE	1.0	mg/l			440	
LC_ERX	10/21/2021	BISMUTH	0.000050	mg/l		< 0.000050		< 0.000050
LC_ERX	10/21/2021	BORON	0.010	mg/l	**5**	0.067		0.068
LC_ERX	10/21/2021	BROMIDE	0.250	mg/l			4.29	
LC_ERX	10/21/2021	CADMIUM	0.0050	ug/l		0.457		0.543
LC_ERX	10/21/2021	CALCIUM	0.050	mg/l		288		285
LC_ERX	10/21/2021	CARBON, DISSOLVED ORGANIC	0.50	mg/l		4.78		
LC_ERX	10/21/2021	CARBONATE (AS CO3)	1.0	mg/l			< 1.0	
LC_ERX	10/21/2021	Cation - Anion Balance	0.010	%		1.52		
LC_ERX	10/21/2021	CHLORIDE	0.50	mg/l	**600**	430		
LC_ERX	10/21/2021	CHROMIUM	0.00010	mg/l		< 0.00010		< 0.00010
LC_ERX	10/21/2021	COBALT	0.10	ug/l		0.71		0.84
LC_ERX	10/21/2021	CONDUCTIVITY, LAB	2.0	us/cm			2160	
LC_ERX	10/21/2021	COPPER	0.00020	mg/l		0.00081		
LC_ERX	10/21/2021	COPPER	0.00050	mg/l	**300**			0.00087
LC_ERX	10/21/2021	FLUORIDE	0.100	mg/l	**1.0**		0.119	
LC_ERX	10/21/2021	Hardness, Total or Dissolved CaCO3	0.50	mg/l			1060	
LC_ERX	10/21/2021	Hydroxide	1.0	mg/l			< 1.0	
LC_ERX	10/21/2021	ION BALANCE	0.010	%		97.0		
LC_ERX	10/21/2021	IRON	0.010	mg/l		< 0.010		0.011
LC_ERX	10/21/2021	LEAD	0.000050	mg/l	**0.1**	< 0.000050		< 0.000050
LC_ERX	10/21/2021	LITHIUM	0.0010	mg/l		0.102		0.0959
LC_ERX	10/21/2021	MAGNESIUM	0.0050	mg/l		84.0		88.2
LC_ERX	10/21/2021	MAJOR ANION SUM	0.10	meq/l		23.3		
LC_ERX	10/21/2021	MAJOR CATION SUM	0.10	meq/l		22.6		
LC_ERX	10/21/2021	MANGANESE	0.00010	mg/l		0.0864		0.0985
LC_ERX	10/21/2021	MERCURY	0.0000050	mg/l		< 0.0000050		< 0.0000050
LC_ERX	10/21/2021	MOLYBDENUM	0.000050	mg/l	**0.05**	0.00876		0.00892
LC_ERX	10/21/2021	NICKEL	0.00050	mg/l		0.0304		0.0339
LC_ERX	10/21/2021	NITRATE NITROGEN (NO3), AS N	0.0250	mg/l	**100**		2.74	
LC_ERX	10/21/2021	NITRITE NITROGEN (NO2), AS N	0.0050	mg/l	**100**		< 0.0050	
LC_ERX	10/21/2021	NITROGEN, AMMONIA (AS N)	0.0050	mg/l	**10**			0.0129
LC_ERX	10/21/2021	ORTHO-PHOSPHATE	0.0010	mg/l		0.0062		
LC_ERX	10/21/2021	OXIDATION-REDUCTION POTENTIAL, LAB	0.10	mv			466	
LC_ERX	10/21/2021	pH, LAB	0.10	ph units			7.98	
LC_ERX	10/21/2021	PHOSPHORUS	0.0020	mg/l				0.0077
LC_ERX	10/21/2021	POTASSIUM	0.050	mg/l		6.86		7.40
LC_ERX	10/21/2021	SELENIUM	0.050	ug/l	**2**	5.45		**4.98**
LC_ERX	10/21/2021	SILICON	0.050	mg/l		7.86		
LC_ERX	10/21/2021	SILICON	0.10	mg/l				7.91
LC_ERX	10/21/2021	SILVER	0.000010	mg/l		< 0.000010		< 0.000010
LC_ERX	10/21/2021	SODIUM	0.050	mg/l		27.5		29.1
LC_ERX	10/21/2021	STRONTIUM	0.00020	mg/l		0.816		0.809
LC_ERX	10/21/2021	Sulphate (as SO4)	1.50	mg/l		180		
LC_ERX	10/21/2021	Sulphide (as S)	0.0015	mg/l				< 0.0015
LC_ERX	10/21/2021	SULPHUR	0.50	mg/l		68.1		74.7
LC_ERX	10/21/2021	THALLIUM	0.000010	mg/l		0.000045		0.000044
LC_ERX	10/21/2021	TIN	0.00010	mg/l		< 0.00010		< 0.00010
LC_ERX	10/21/2021	TITANIUM	0.00030	mg/l		< 0.00030		0.00040
LC_ERX	10/21/2021	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	40	mg/l			1620	
LC_ERX	10/21/2021	TOTAL KJELDAHL NITROGEN	0.050	mg/l			0.263	
LC_ERX	10/21/2021	TOTAL ORGANIC CARBON	0.50	mg/l				4.60
LC_ERX	10/21/2021	TOTAL SUSPENDED SOLIDS, LAB	1.0	mg/l			1.2	
LC_ERX	10/21/2021	TURBIDITY, LAB	0.10	ntu			1.16	
LC_ERX	10/21/2021	URANIUM	0.000010	mg/l		0.00756		0.00758
LC_ERX	10/21/2021	VANADIUM	0.00050	mg/l		< 0.00050		0.00054
LC_ERX	10/21/2021	ZINC	0.0010	mg/l		0.0181		
LC_ERX	10/21/2021	ZINC	0.0030	mg/l				0.0180

Appendix L – Evaluation of Horseshoe Pit Dewatering Tool

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Memo

To:	Francisco Beltran, Teck Coal Ltd.	**Client:**	Line Creek Operations, Teck Coal Ltd.
From:	Christina James, Noah Levin	**Project No:**	CAPR001736
Subject:	Evaluation of HSP Pit Dewatering Tool	**Date:**	March 31, 2022

1 Introduction

SRK developed a deterministic Excel™ based mass balance tool for the Horseshoe Pit (HSP) at the Line Creek Operations (LCO) to determine dewatering rates for HSP that ensures down stream water quality does not exceed relevant permit limits or benchmarks (SRK 2021).

As per Section 4.3 (vii) of Environmental Management Act Permit PE 5353, water quality predicted by the tool to actual monitoring results at downstream monitoring locations (LC_LCDSSLCC, LC_LC3 and LC_LCUSWLC) were compared to help identify if changes are needed to improve water quality predictions for pit pumping in the upcoming year.

Recommended pump rates were calculated assuming conservatively high water quality inputs for HSP, and conservatively low flow conditions for Line Creek. Providing that these criteria are met, water quality in Line Creek is expected to remain below water quality thresholds with the recommended pump rate provided by SRK (2021).

This memo provides a summary of HSP water quality conditions, and Line Creek flow conditions, and pump rates applied in 2021 (Section 2), and a comparison of water quality predicted by the tool to actual monitoring results (Section 3).

2 2021 Monitoring Data

SRK recommended pump rates could be used anytime that actual conditions meet the following criteria:

1. Water quality in HSP is equal or lower than the input values used in the tool.

2. Flow conditions in Line Creek are equal or higher than the values used in the tool.

Observed 2021 monitoring data are compared to calculation inputs to determine if these two criteria were met.

Contaminants of Potential Concern (COPCs) were identified by SRK (2021). All COPC concentrations measured in 2021 were below the conservative but representative concentrations applied in the dewatering tool, except for total cobalt (Table 2-1). Prior to 2021, the maximum total cobalt concentration that had been measured was 0.0072 mg/L measured on November 27, 2018. On November 11th, 2021, a cobalt concentration of 0.0080 mg/L was measured.

Total cobalt was not a limiting parameter for calculating the recommended pump rate for dewatering HSP. Additionally, conservative water quality for HSP is not the only conservative assumption in the calculation. Total cobalt is discussed further in Section 3 which provides a comparison of Line Creek water quality predicted by the tool with 2021 HSP measured pump rates to 2021 Line Creek monitoring results.

The maximum concentration of selenium and selenite observed in 2021 at HSP exceeded the conservatively high concentration used in the HSP dewatering tool. However, selenium species are not expected to act conservatively as they are pumped from HSP to Line Creek. Therefore, the selenium speciation loads measured at HSP are not reflective of the loads at Line Creek. To understand the impact of selenium species at Line Creek, the acute toxicity should be analyzed.

Flows in Line Creek were lower than the 1 in 10 year dry conditions projected by the RWQM, which were used to represent a conservatively low flow condition (Figure 2-1). Note, Line Creek flow monitoring station LC_LCDSSLCC was used as a representative station to assess flows in Line Creek. Generally, flow in Line Creek was higher than the low flow conditions used to calculate HSP dewatering rates. Exceptions included February, when no pumping occurred, and short periods at the beginning of May and then end of June and July.

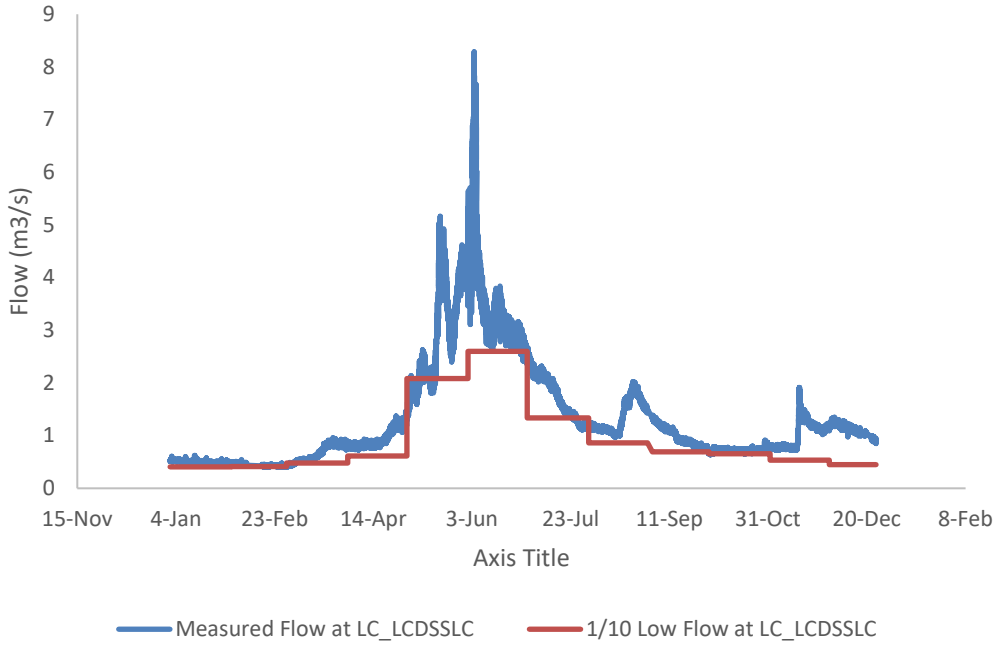

Figure 2-1:Flows in Line Creek at Monitoring Station LC_LCDSSLCC

Table 2-1:HSP Water Quality Inputs compared to Maximum Measured Concentrations (2021)

Contaminant of Potential Concern	Conservatively High Concentrations Used to Calculate Recommended HSP Pump Rates (mg/L)	Maximum HSP Concentrations measured in 2021 (mg/L)	Is 2021 concentration higher than model input? (Y/N)
Ammonia	0.82	0.50	N
Cobalt - Total	0.0072	0.0080	Y
Copper - Dissolved	0.001	0.001	N
Dissolved Oxygen	3.1 (min)	7.58 (min)	N*
Mercury - Total	0.0000031	0.0000030	N
Nickel - Total	0.031	0.022	N
Nitrite	0.165	0.069	N
Phosphorous	0.044	0.039	N
Selenium - Total	0.015	0.0019	Y
Sulphate	283	240	N
Nitrate	2.32	2.24	N
Cadmium - Dissolved	0.00017	0.00015	N
Selenium Species			
Dimethylseleneoxide	0.000032	0.000025	N
MeSe(IV) – methylseleninic acid	0.000044	0.00001	N
Se(IV) – selenite $SeO_3(-2)$	0.00122	0.00158	Y
Se(VI) – selenate $SeO_4(-2)$	0.0116	0.0116	N
SeCN – selenocyanate $SeCN^{(-1)}$	0.00004	0.00001	N
Selenosulfate, $SeSO_3$	0.00006	0.00001	N
SeMe – selenomethionine	0.000010	Not reported	n/a
Unknown selenium species	0.00006	0.00001	N

Notes:

A: HSP water quality in 2021 had higher dissolved oxygen concentration than the minimum threshold, indicating it is not a concern for discharge.

Both measured concentrations of COPCs were at lower than concentrations used to calculate recommended HSP Pump Rates, and measured flows in Line Creek were higher than flows used for the calculations. Therefore, the conditions of using the recommended pump rates were met.

Applied HSP pump rates generally followed the recommended pump rates for HSP in 2021, although at times (i.e., June, August and November) recommended rates were exceeded (Figure 2-2). The HSP dewatering tool is editable and allows for use of site specific data to modify pump rates based on real time monitoring data. Based on instruction how to use the tool, LCO updated the tool with real time Line Creek flows to calculate the optimal pump rates every week, which at times led to higher (or lower) pump rates than originally recommended by SRK (2021).

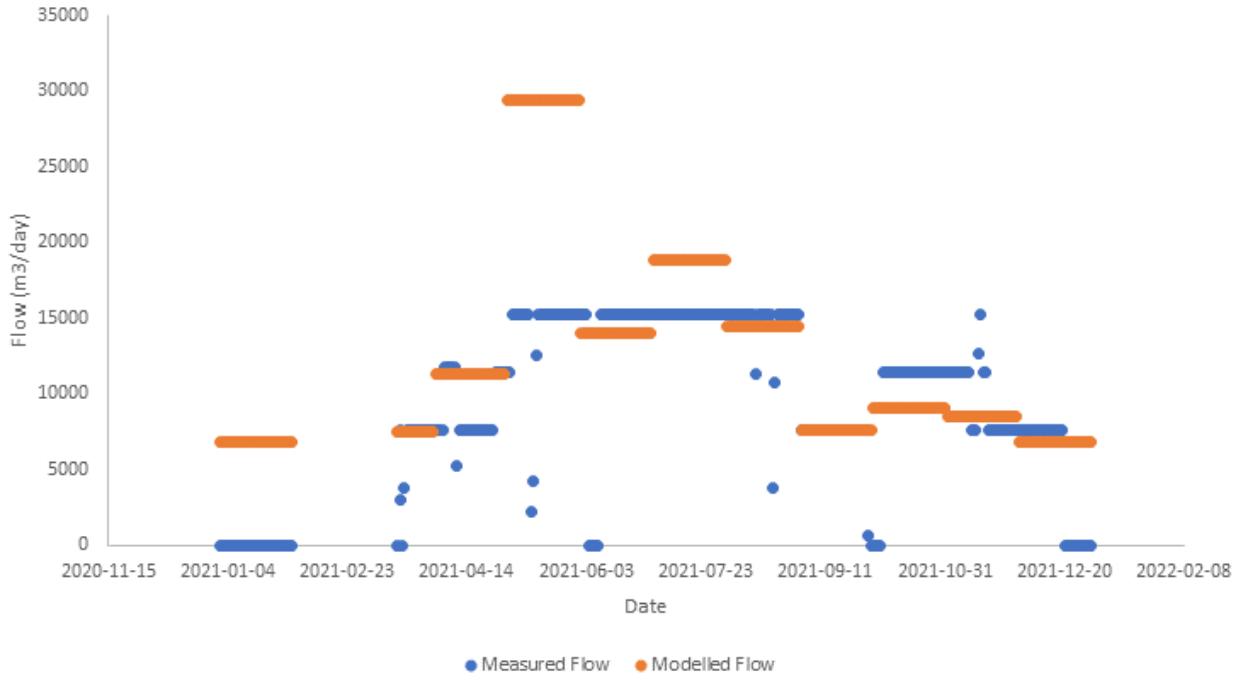

Figure 2-2: Recommended and Measured HSP Pump Rates (2021)

3 Water Quality Comparison

Graphs showing the COPC concentrations predicted by the HSP dewatering tool using measured pump rates, compared with measured concentrations are provided in Attachment 1.

In general, measured water quality were below the concentrations predicted, and below their respective permit limits or benchmarks at LC_LCUSWLC (the node where assimilative capacity limited the potential for pumping from HSP) for each month. The one exception is an exceedance of mercury in February 2021. This occurred in a month during which no pumping was occurring, and therefore this exceedance is not caused by HSP dewatering.

In November, the concentration of several parameters predicted based on 2021 pump rates is higher than water quality targets (i.e., permit limits or benchmarks) because the measured pump rate is higher than the tool recommended pump rate. This occurred for mercury and nickel at LC_LC3 and for phosphorus at LC_LCUSWLC. However, measured concentrations were below the water quality targets.

For some parameters, Line Creek is already higher than the permitted values without dewatering from HSP. These parameters are selenium in LC_LCUSWLC and LC_3, sulphate in LC_LC3, and nitrate for LC_LCDSSLCC, LC_LC3 and LC_LCUSWLC.

Total cobalt which was higher in HSP in 2021 than the conservative input assumed in the dewatering tool was modelled with 2021 dewatering rates to be less than the BC WQG 0f 0.004 mg/L, and measured at concentration less than 0.0005 mg/L in Line Creek.

4 Conclusion

The HSP dewatering tool was generally successful in calculating pump rates, and a method to revise pump rates based on real time data collection, that did not exceed water quality guidelines at Line Creek in 2021.

With respect to potential improvements to the dewatering tool, the following opportunities for improvement were identified:

- New water quality monitoring data collected in 2021 should be incorporated into the updated HSP dewatering tool.
- Pump rates should be calculated on a 2-week basis during freshet (instead of monthly) to capture the quick rise and fall of low flows during this period.
- With respect to selenium speciation, dewatering from HSP should be conditional on meeting benchmarks within the pit to avoid causing chronic toxicity in Line Creek, as opposed to the previously described method of using mass balance to calculate pump rates based on assimilative capacity in Line Creek.

SRK Consulting (Canada) Inc.

Christina James, MASc
Principal Consultant

Noah Levin, PEng
Consultant

5 References

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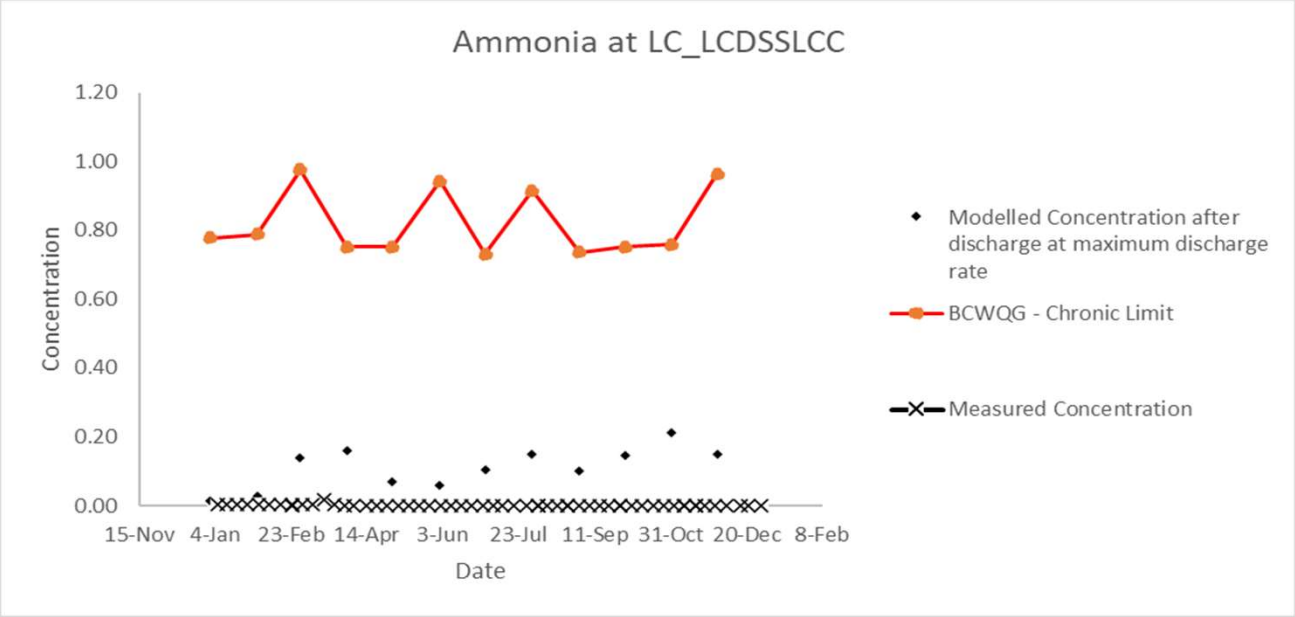

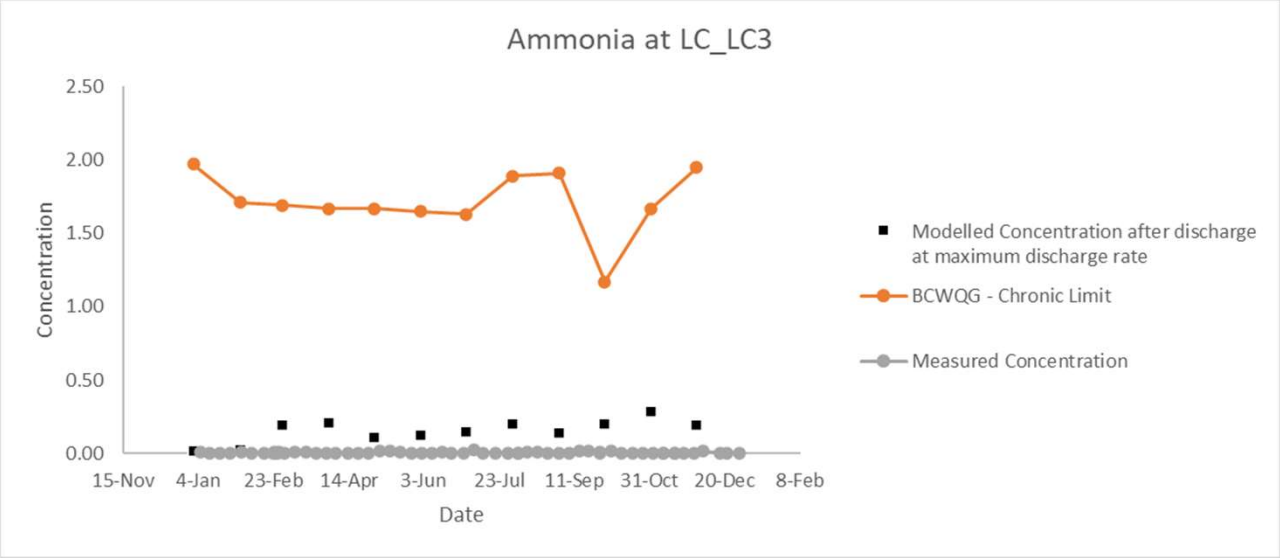

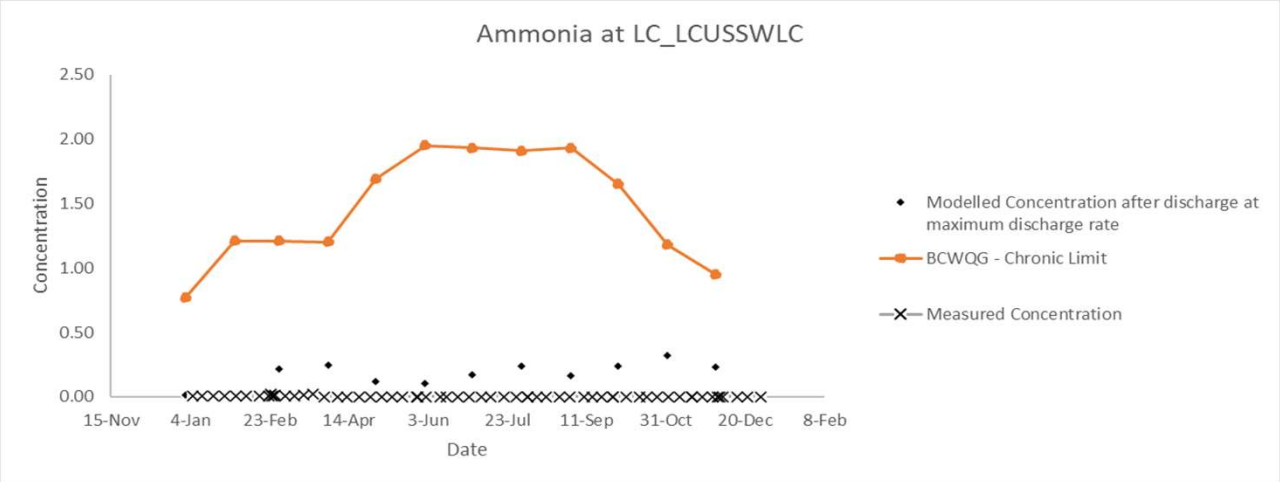

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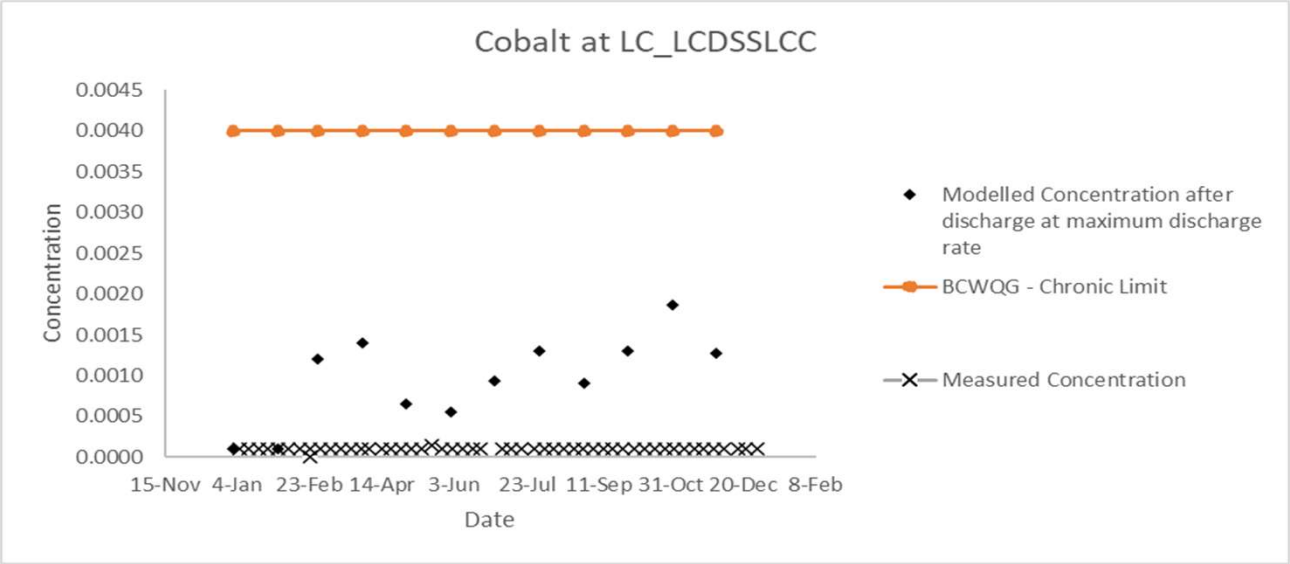
srk consulting

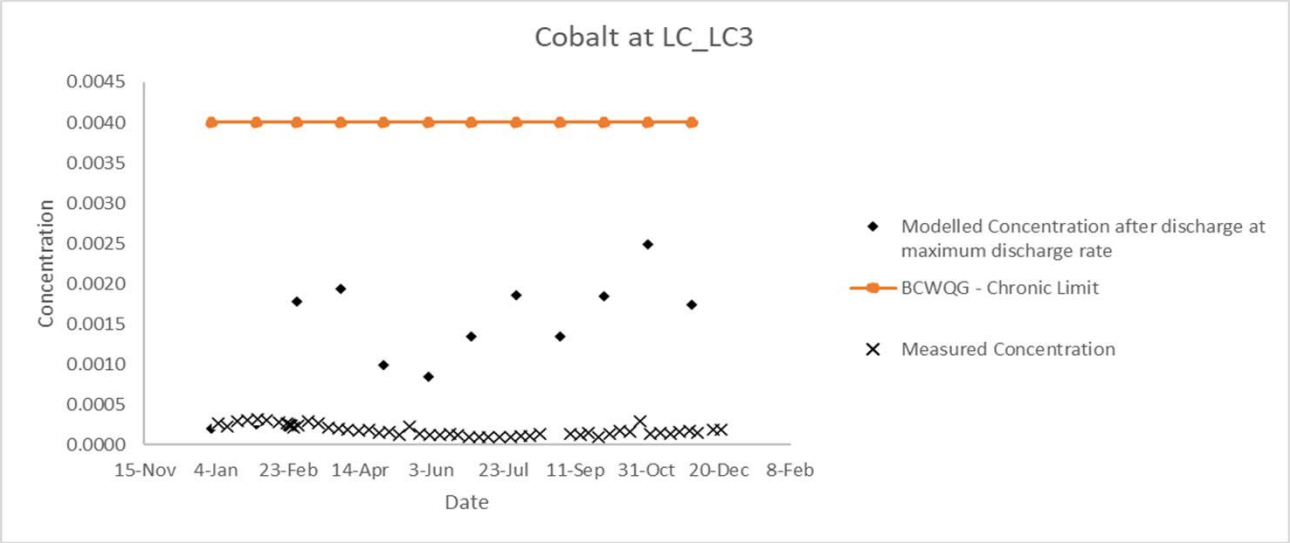
Teck

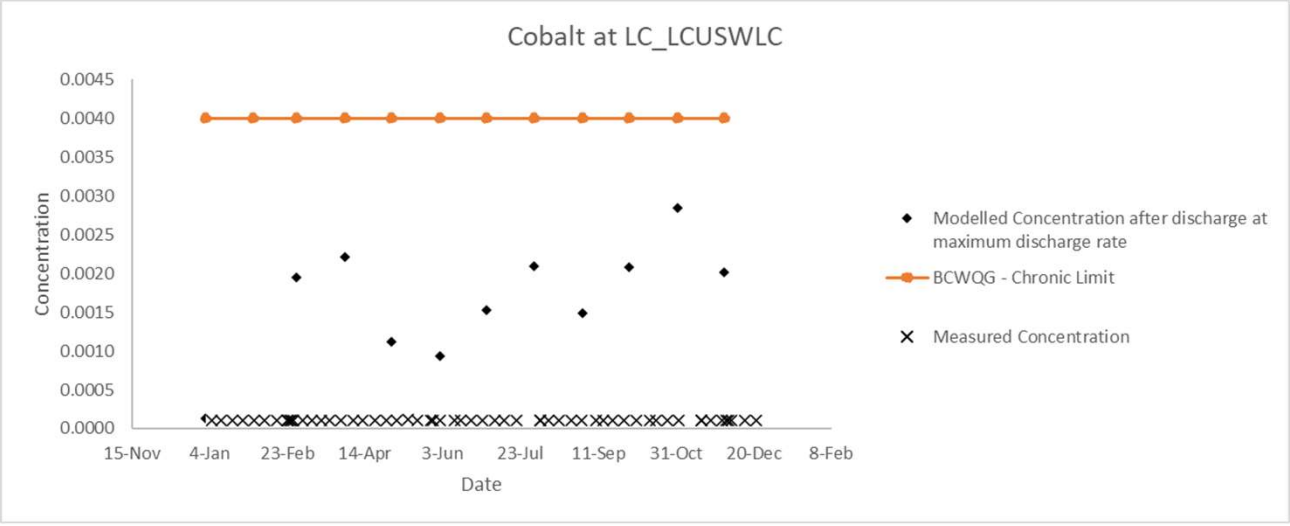
Predicted vs. Actual HSP dewatering on Ammonia concentration at Line Creek (all concentrations in units of mg/L)

Line Creek Operations

Date:	Approved:	Figure:
March 2022	C. James	1







srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Cobalt concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **2**

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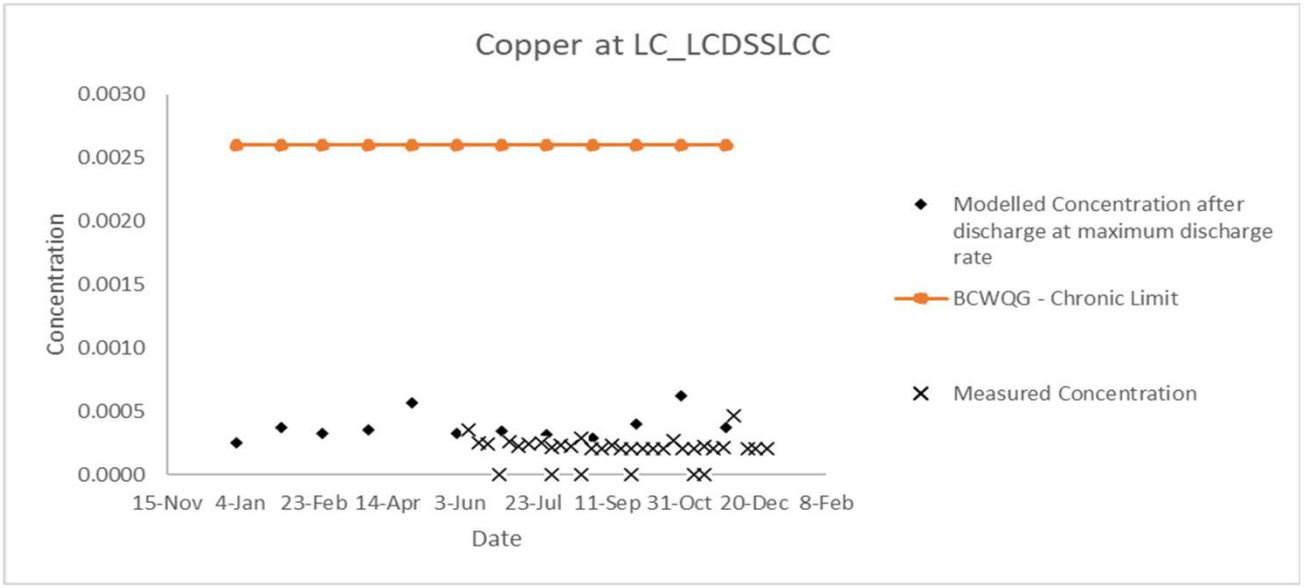

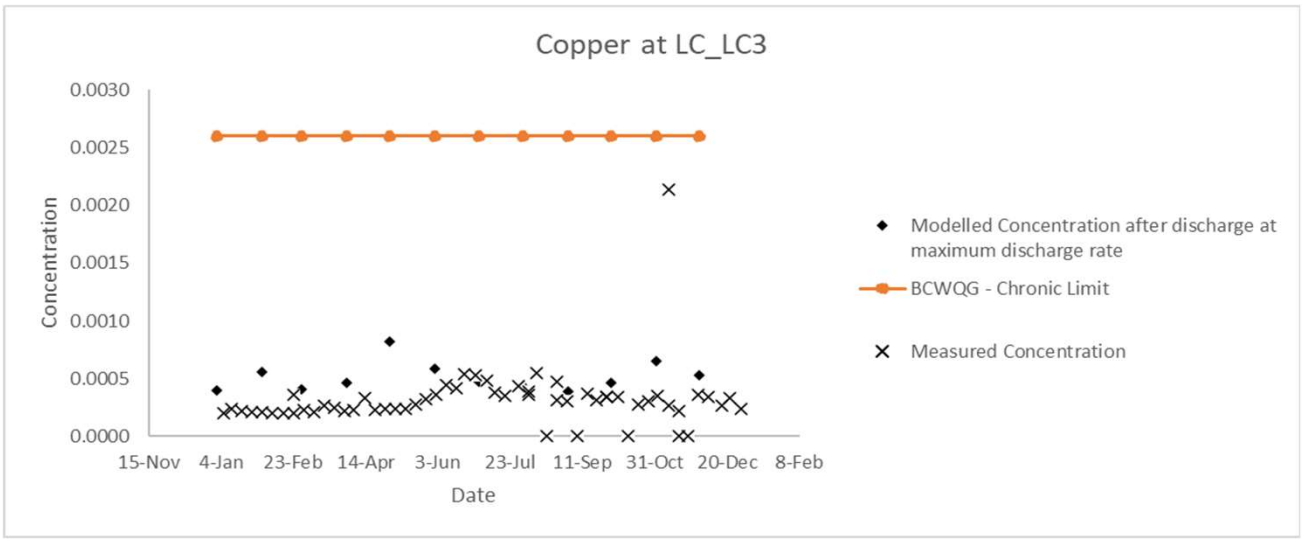

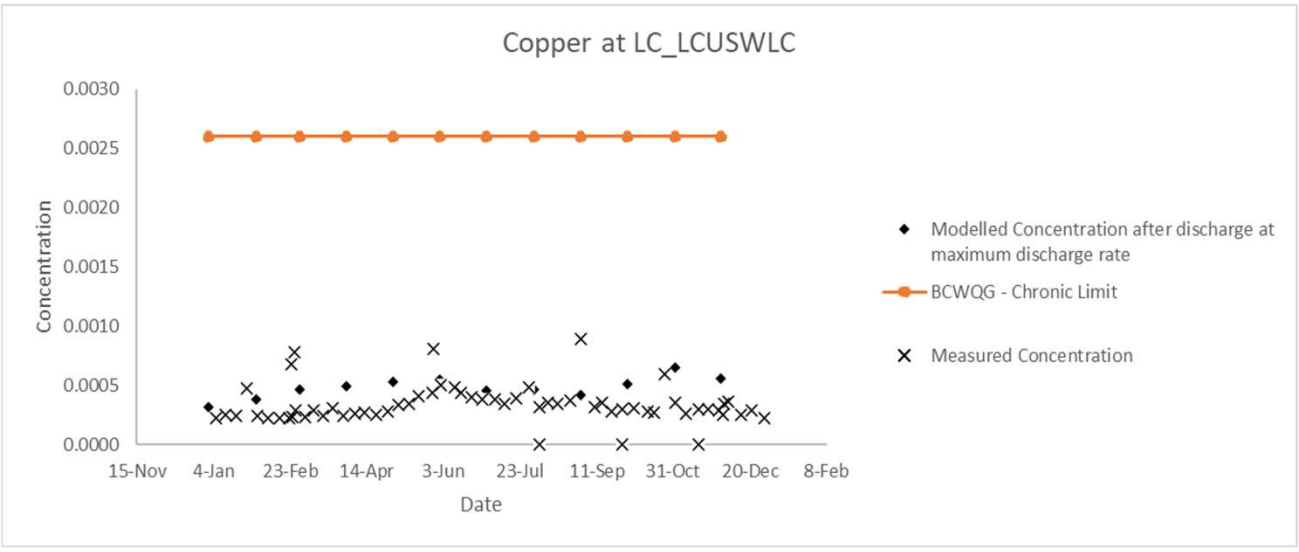

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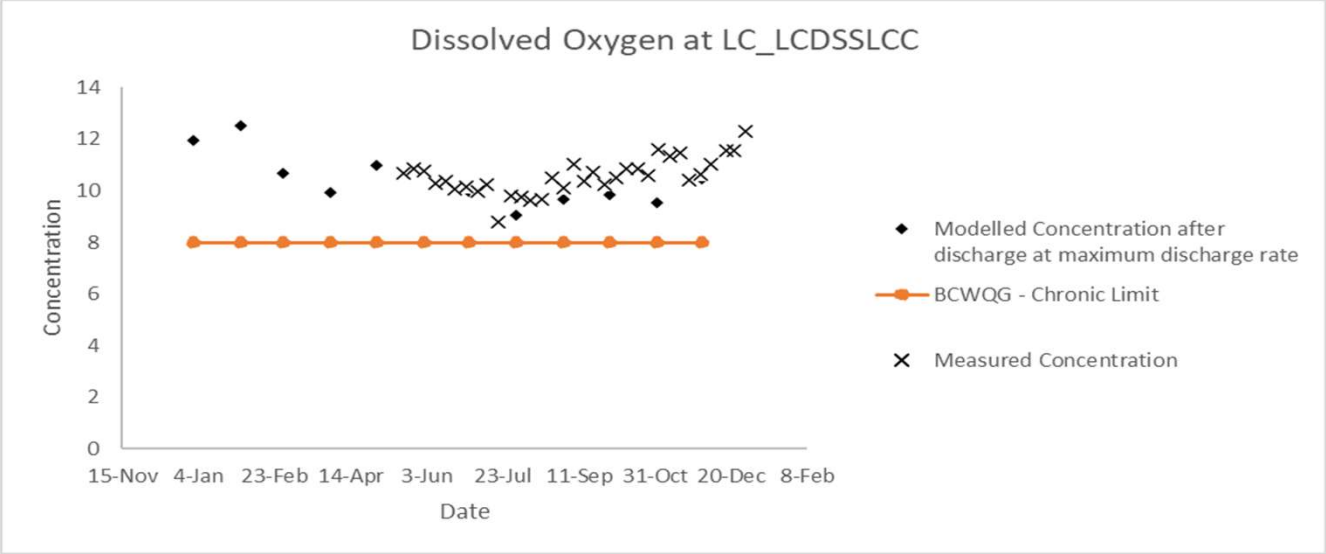
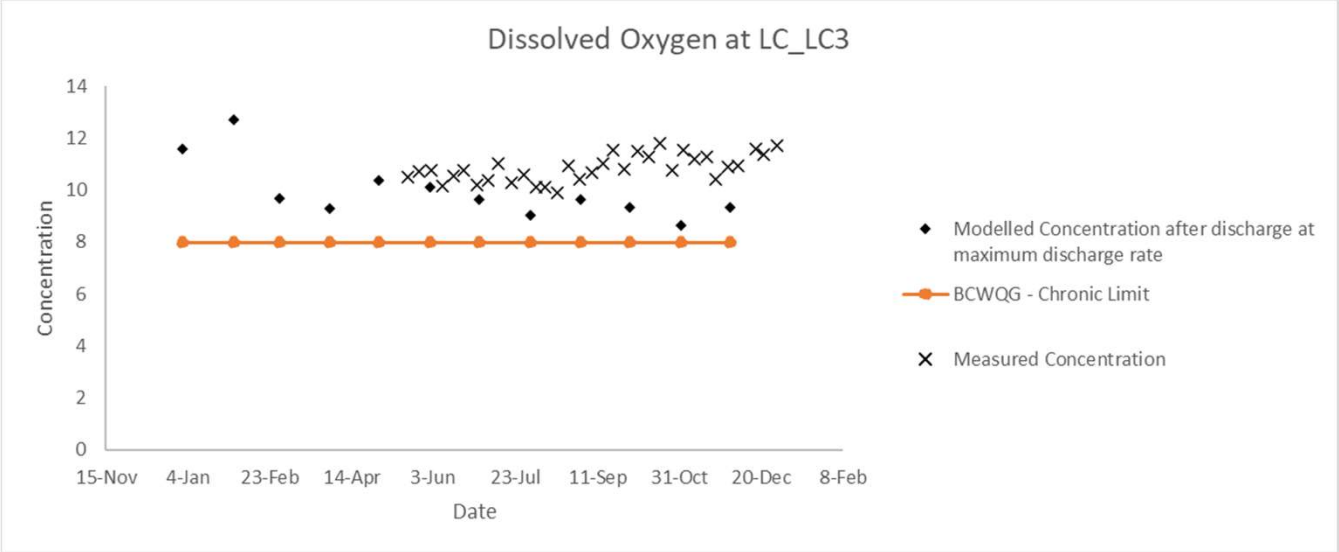
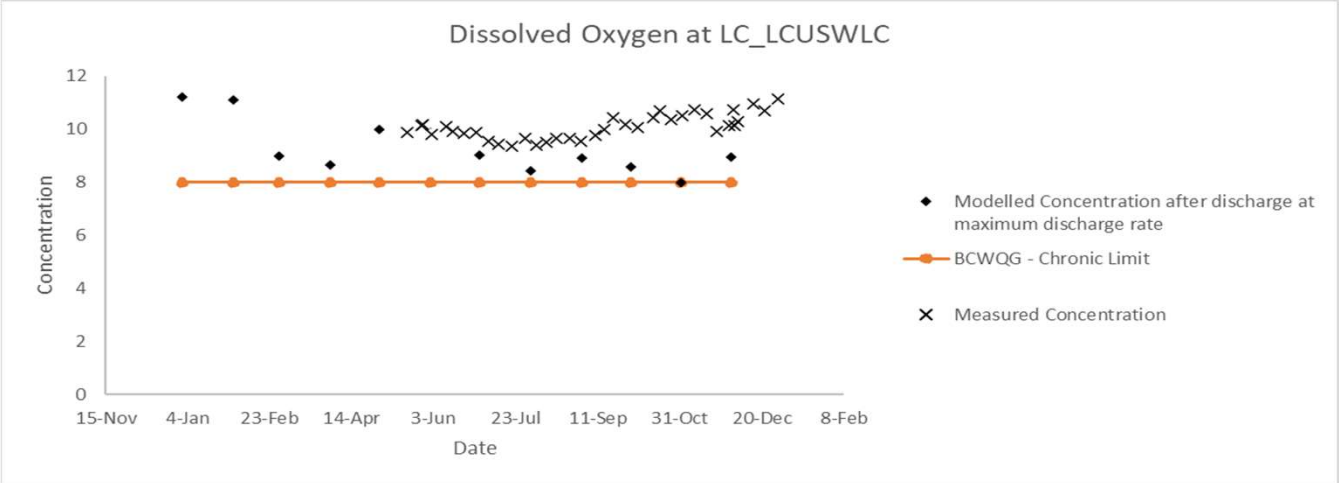
srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Copper concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: 3







srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Dissolved Oxygen concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **4**

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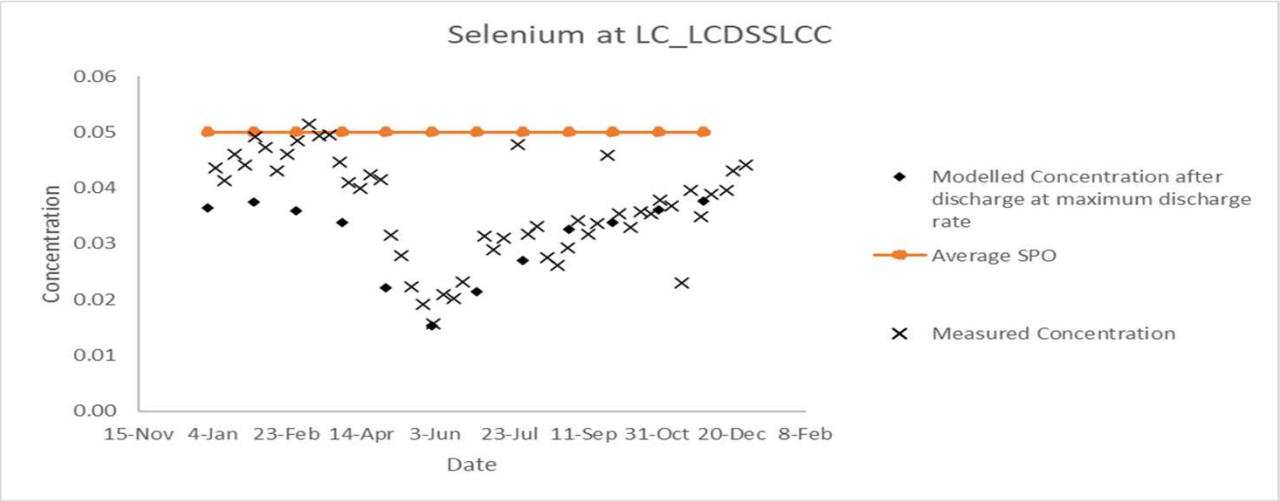

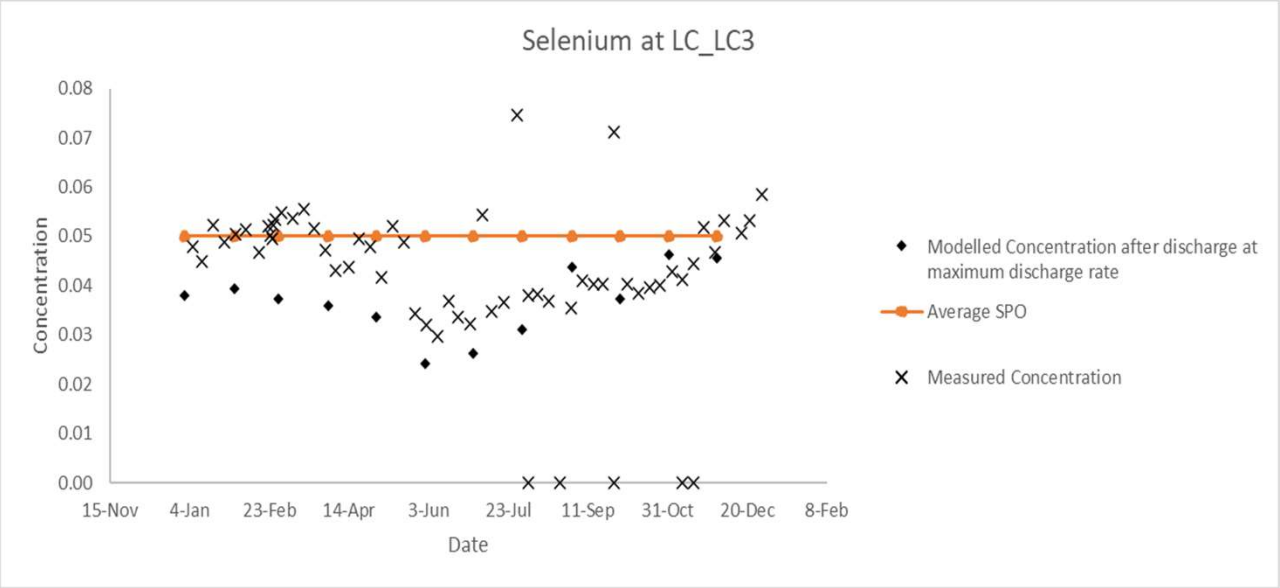

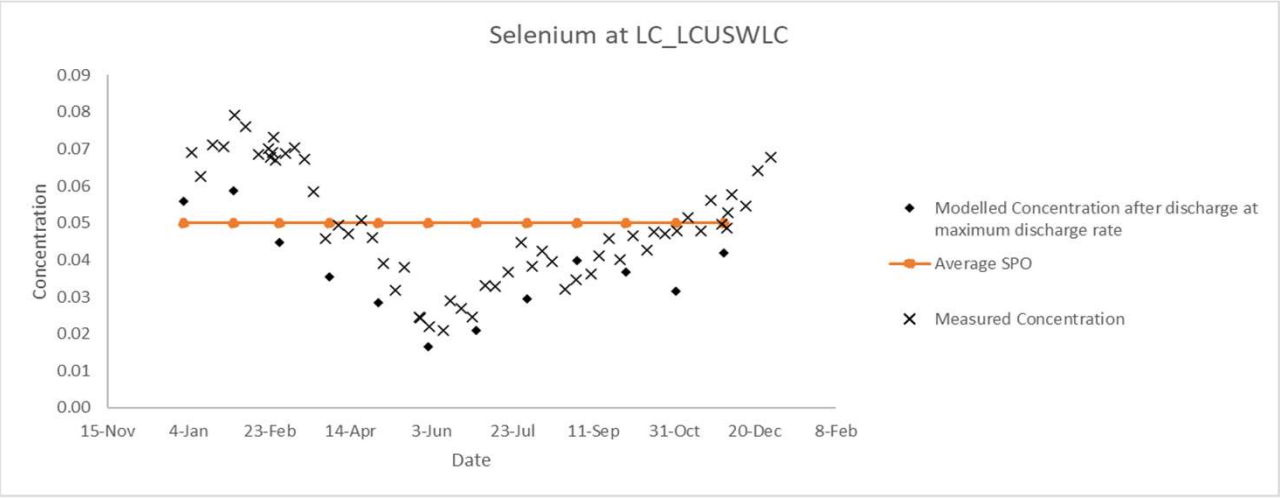

srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Selenium concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **5**

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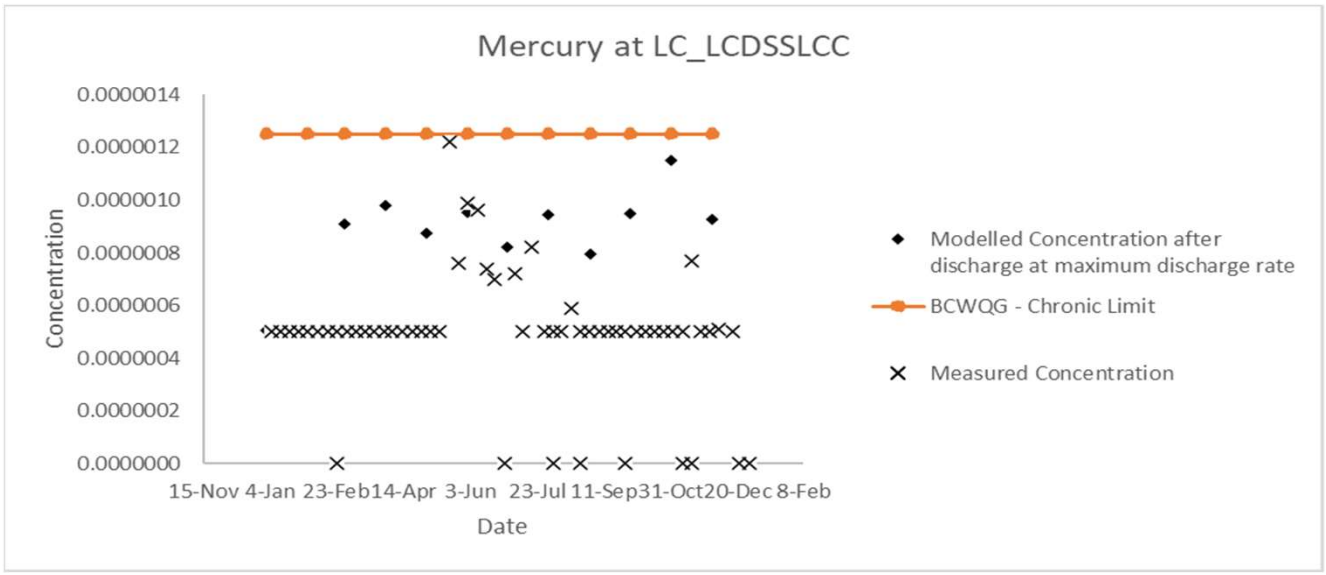

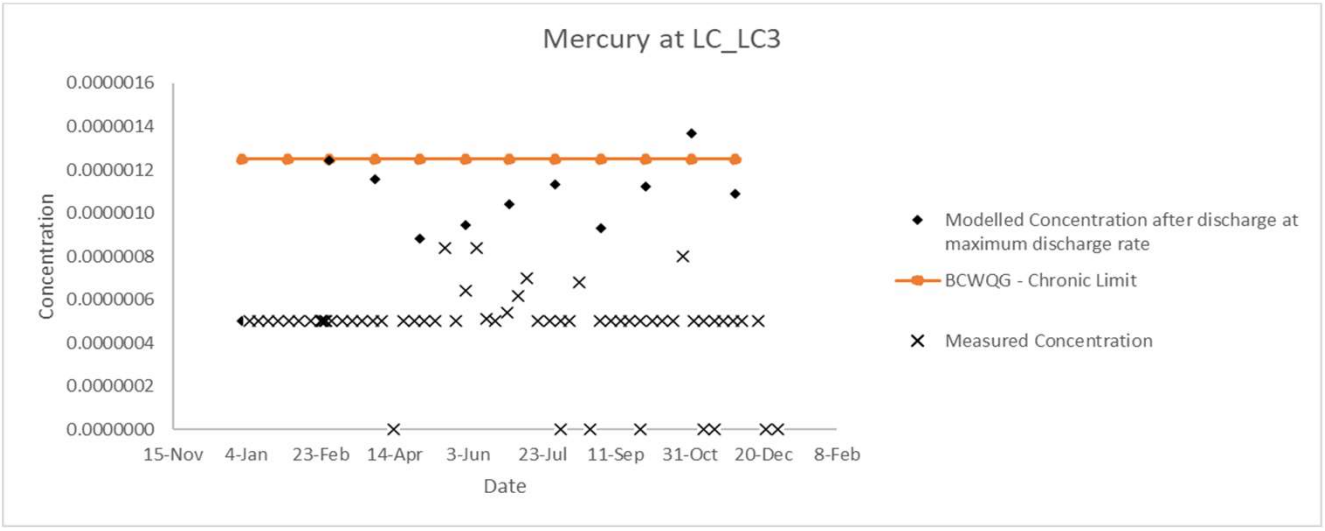

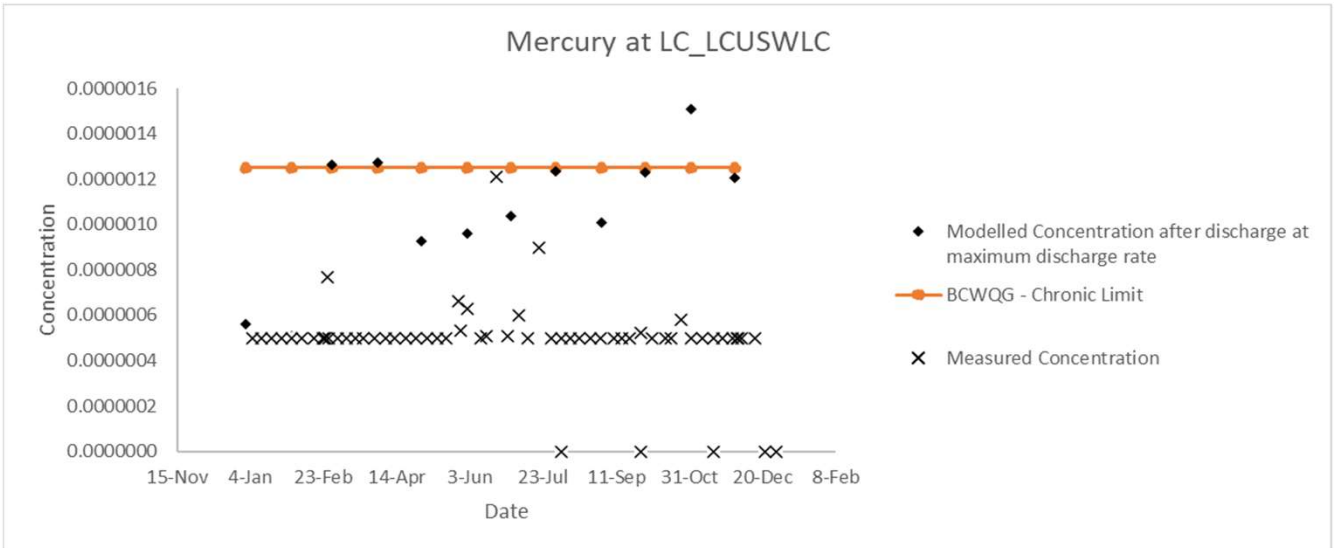

srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Mercury concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **6**

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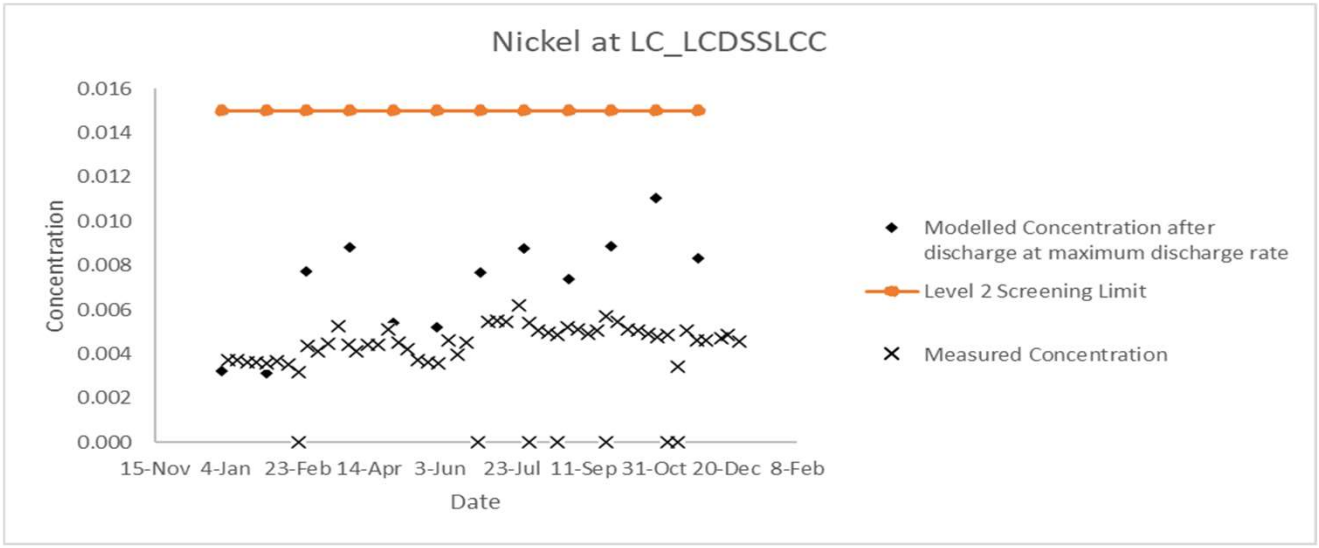

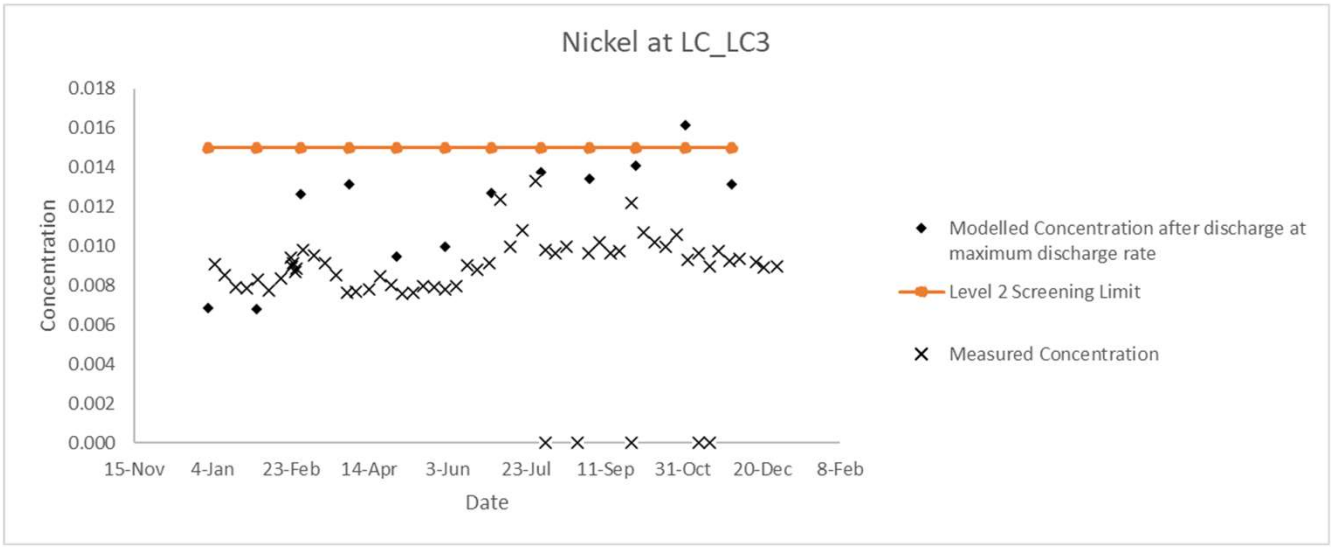

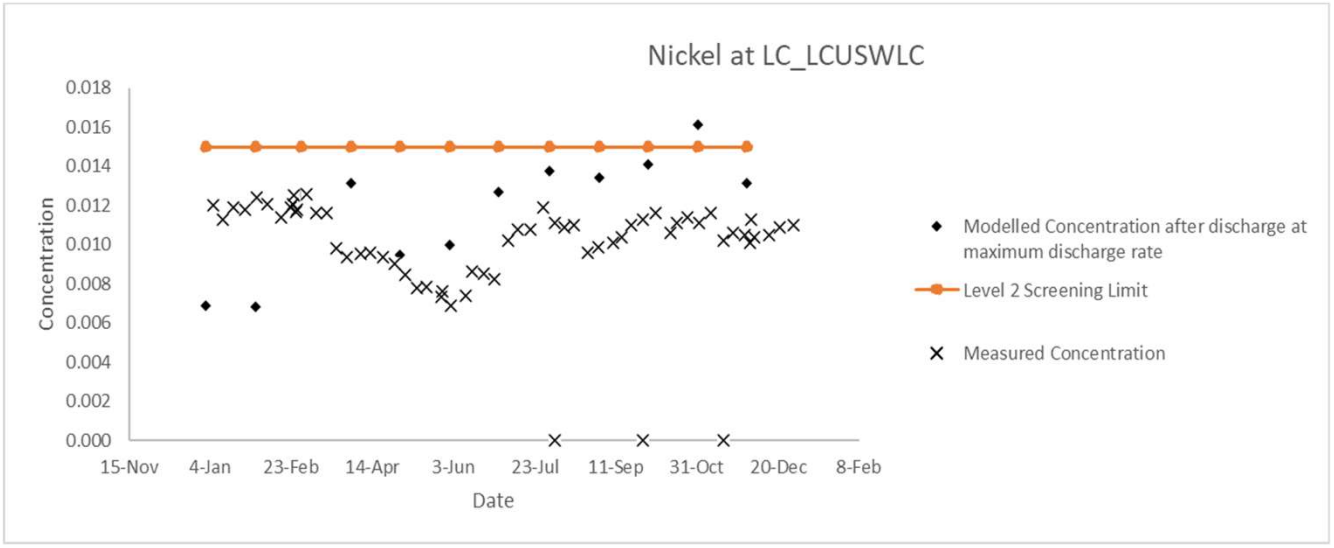

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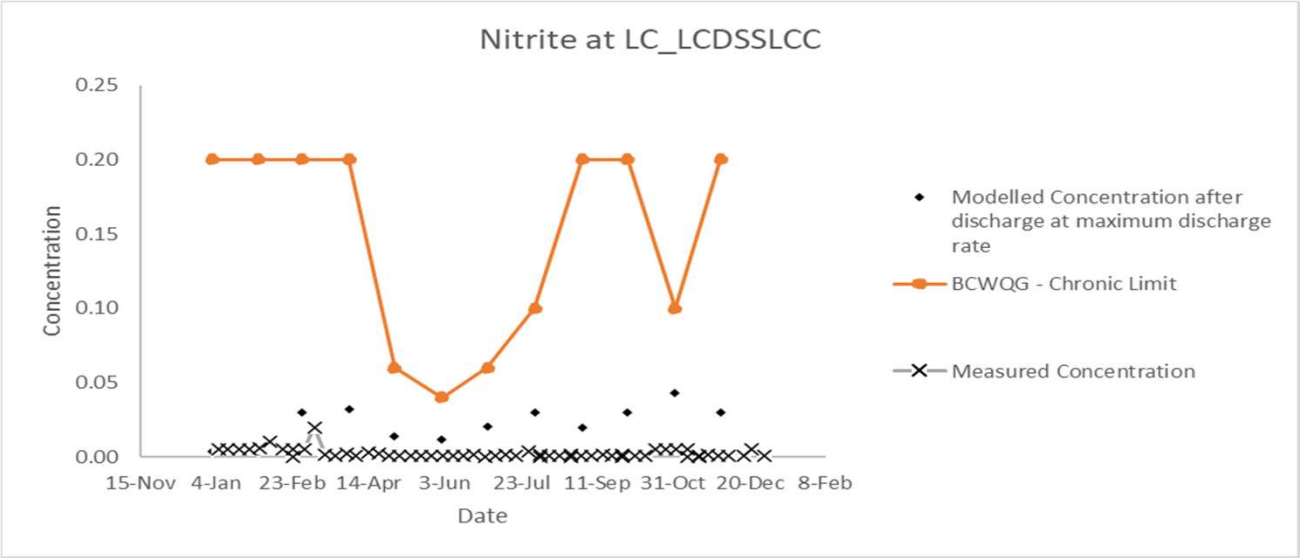
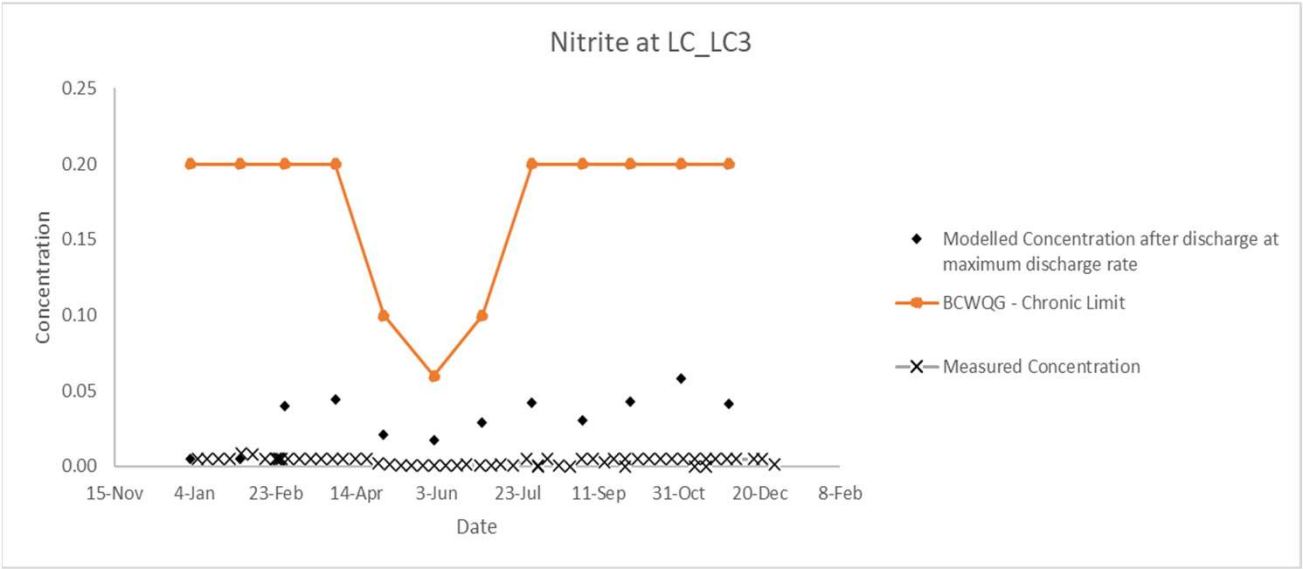
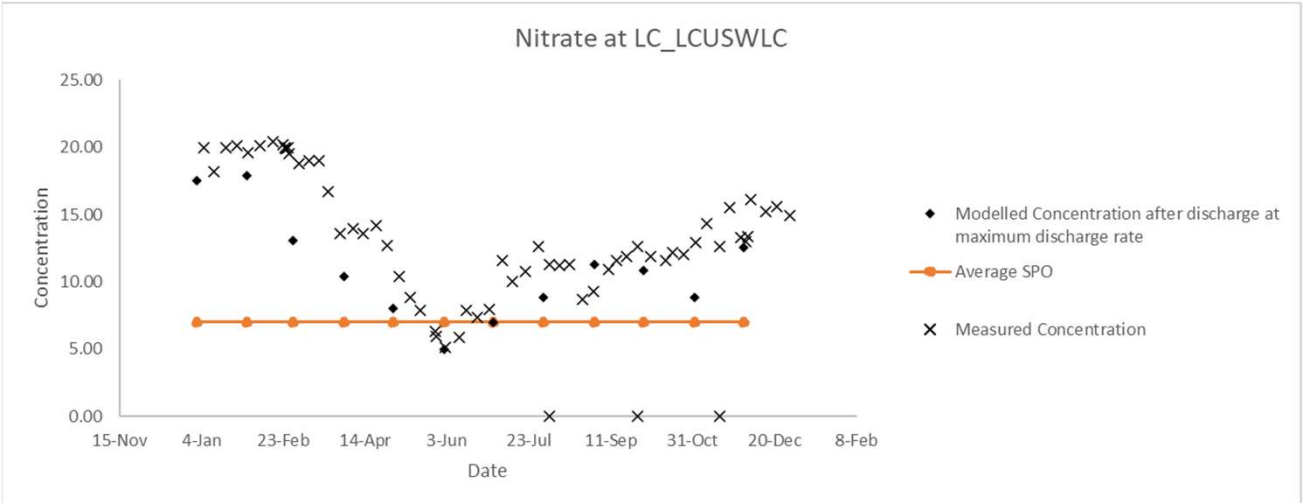
srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Nickel concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **7**







srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Nitrate concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **8**

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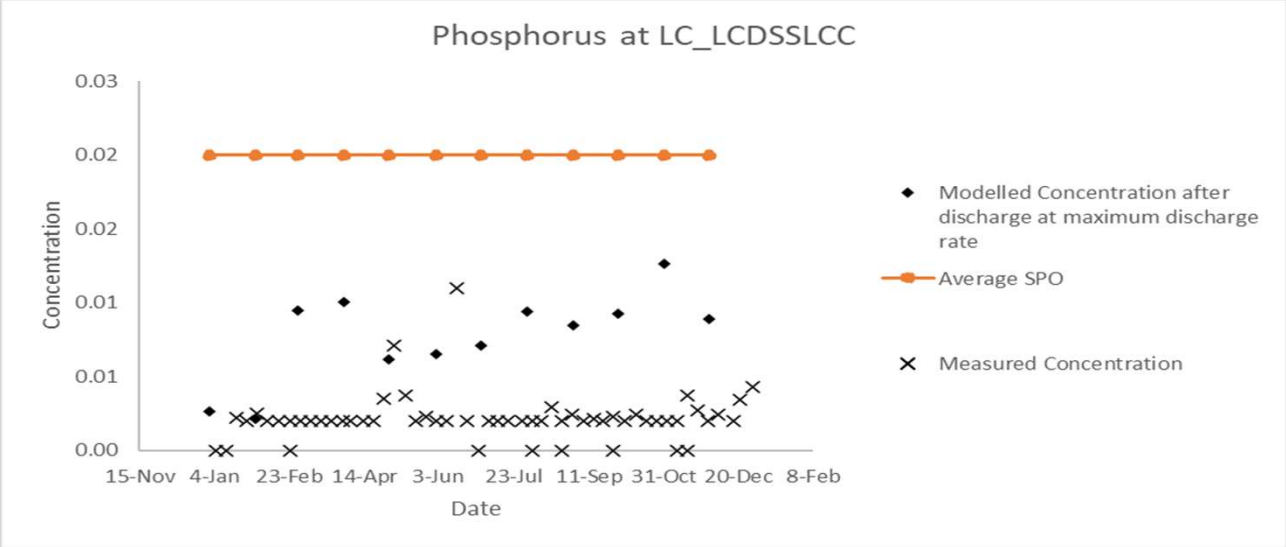
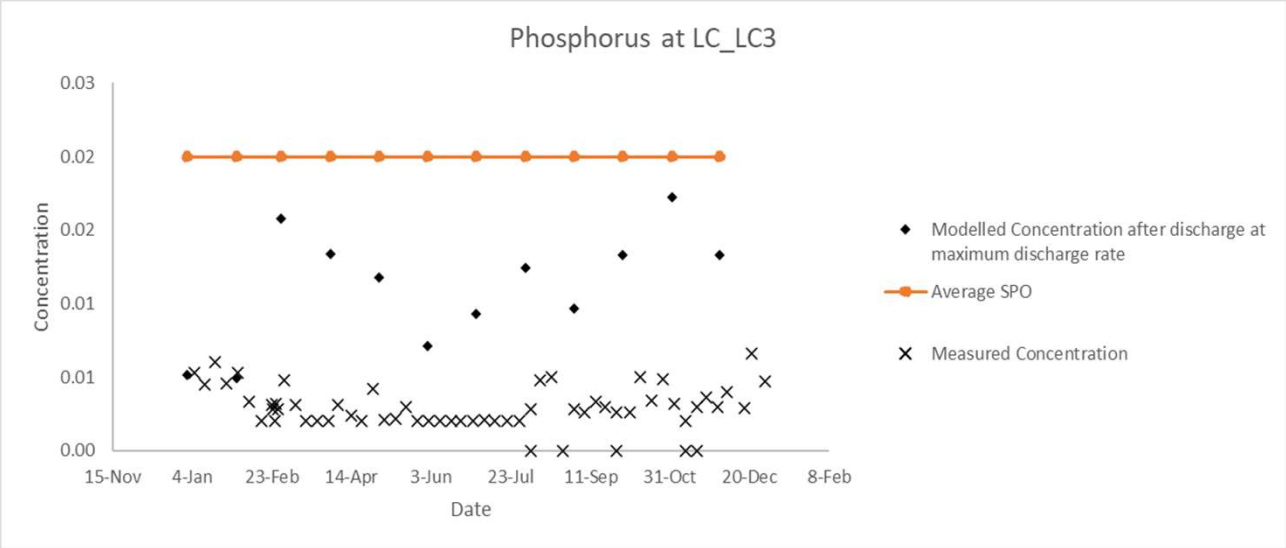
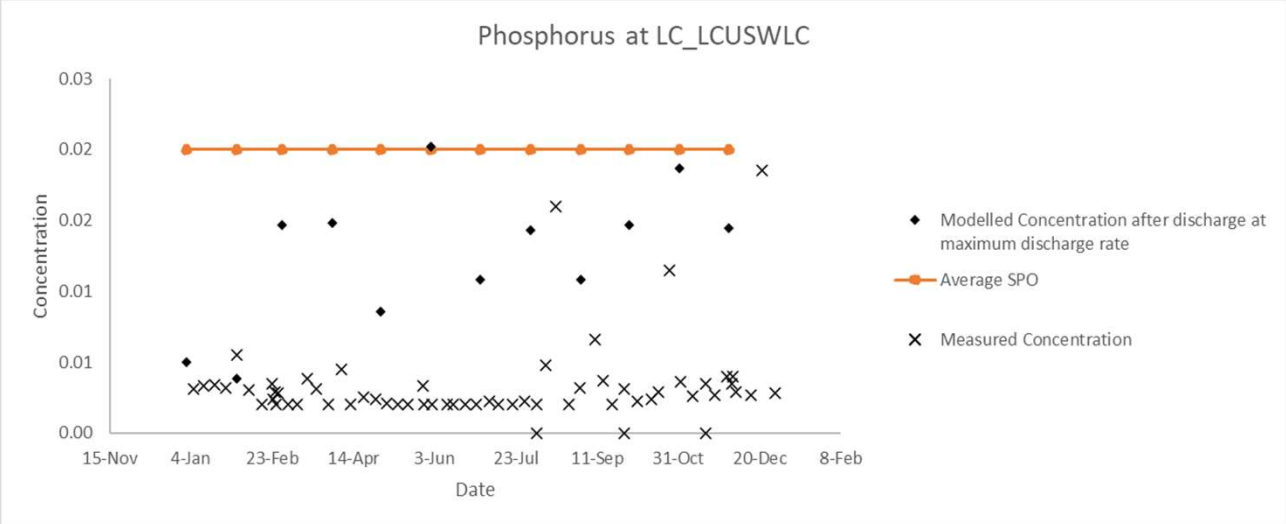
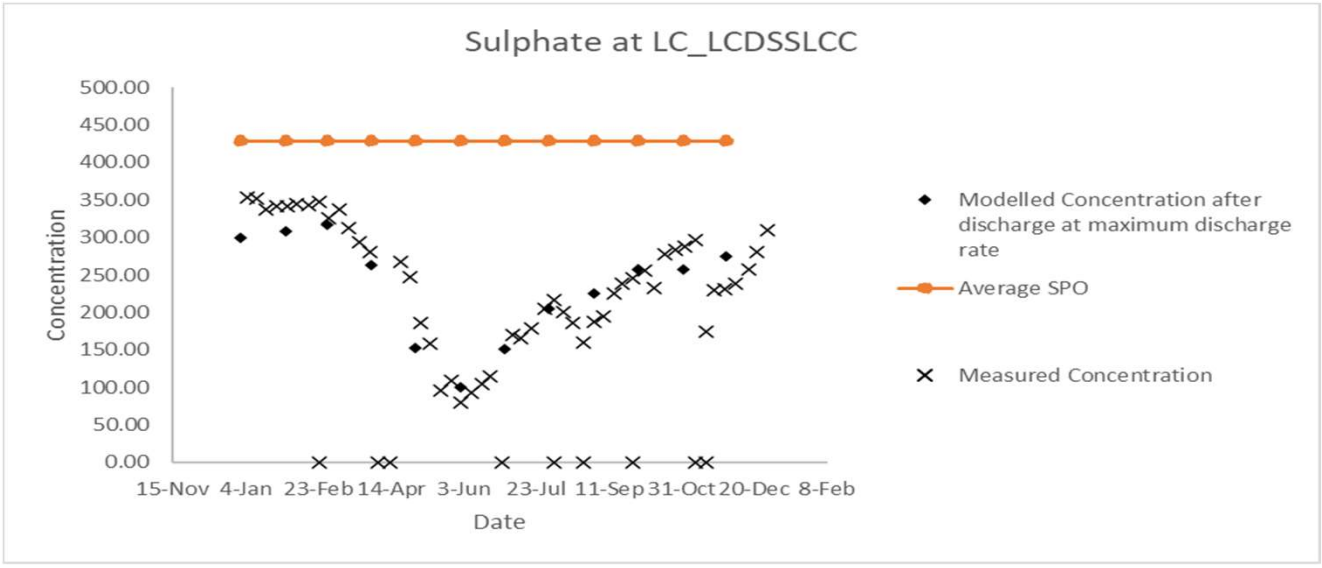


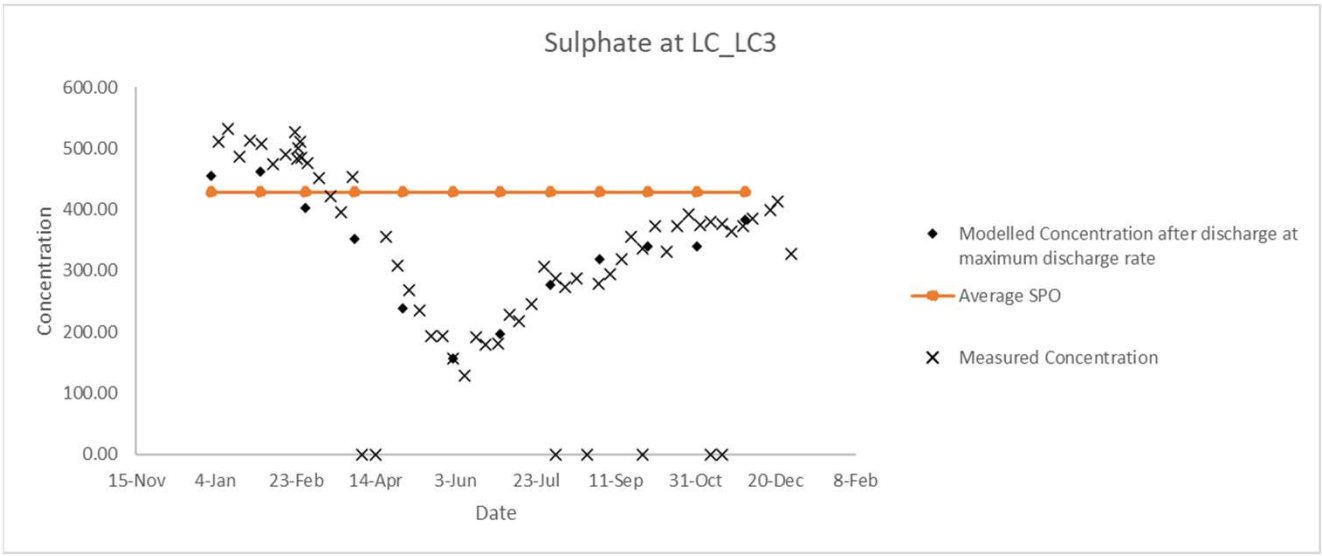


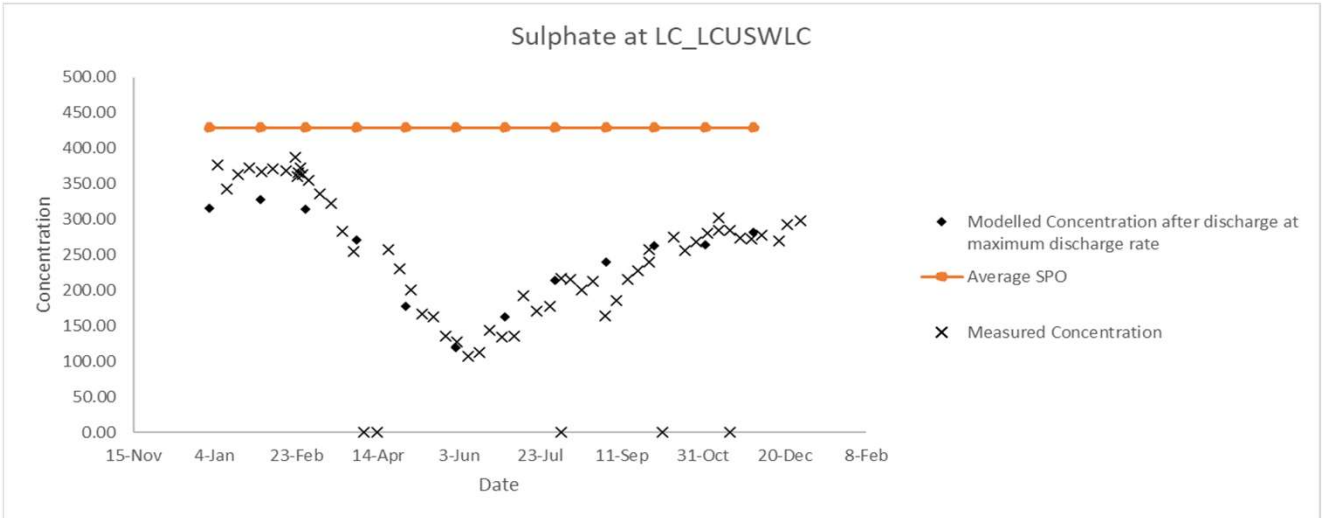


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Phosphorus concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **9**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

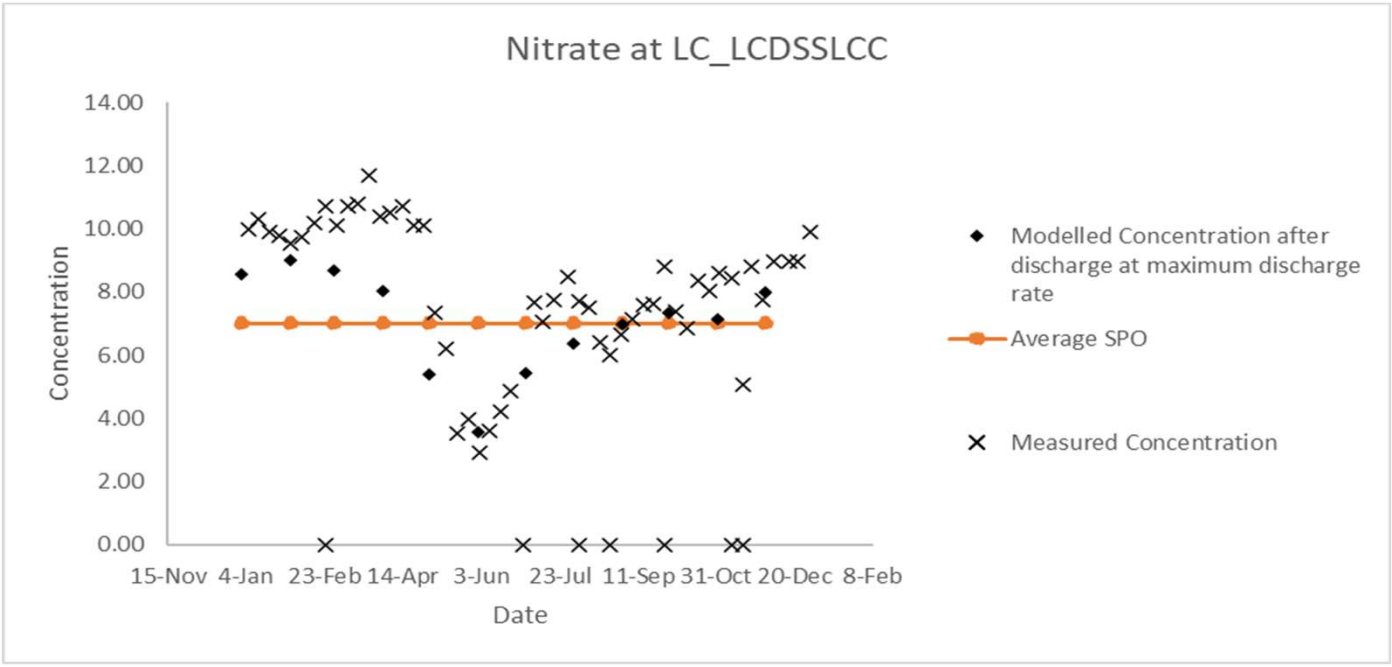


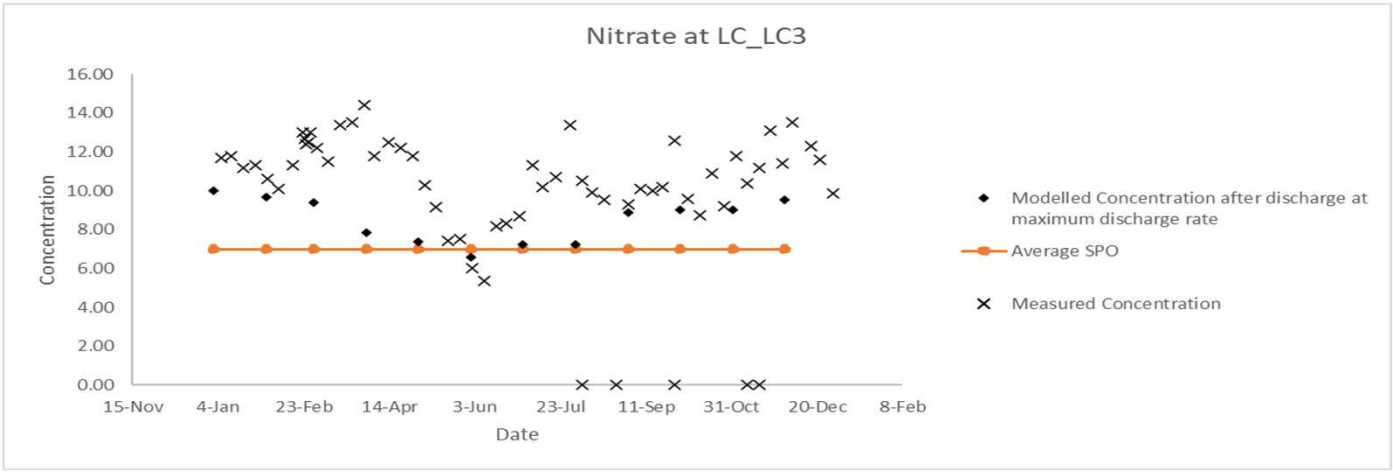


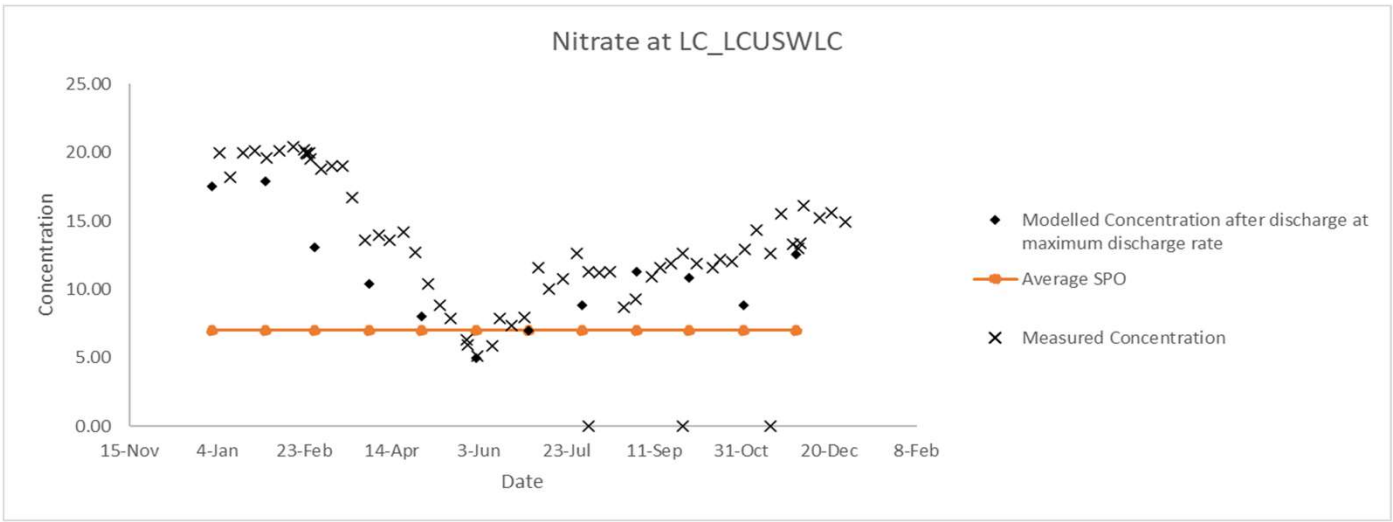


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Sulphate concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **10**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

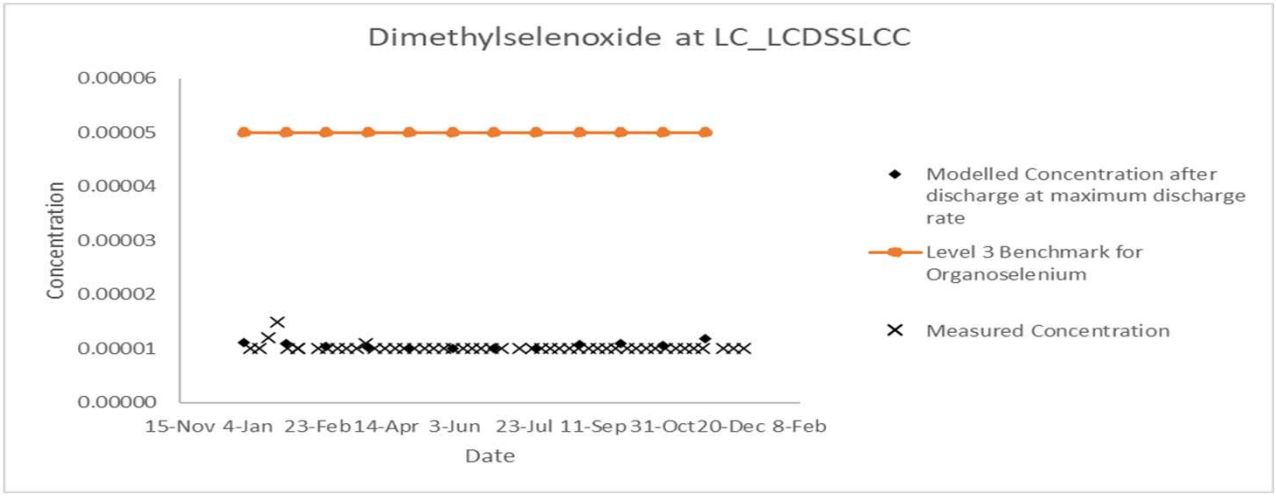


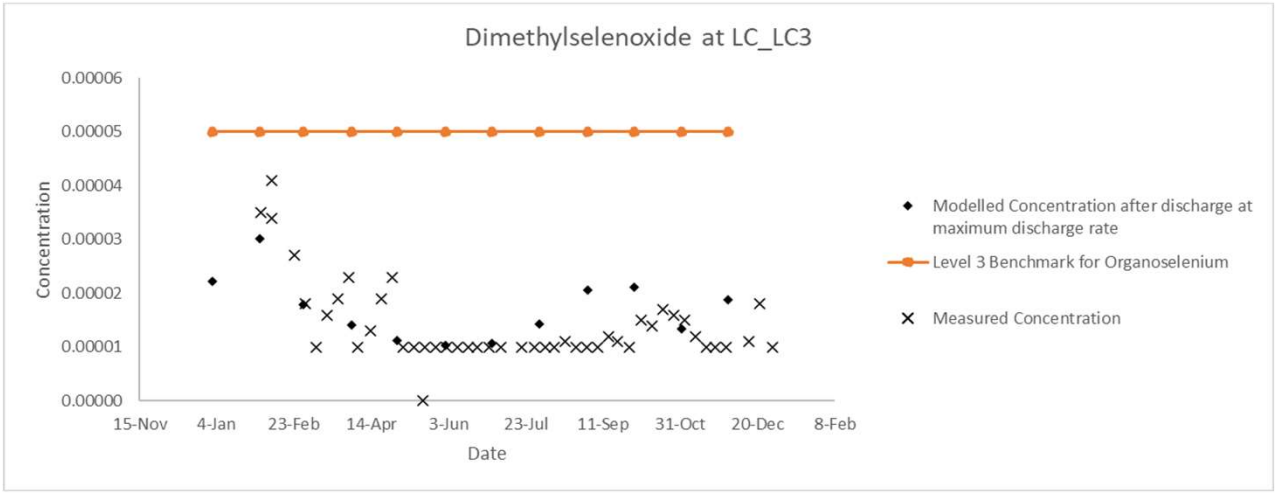


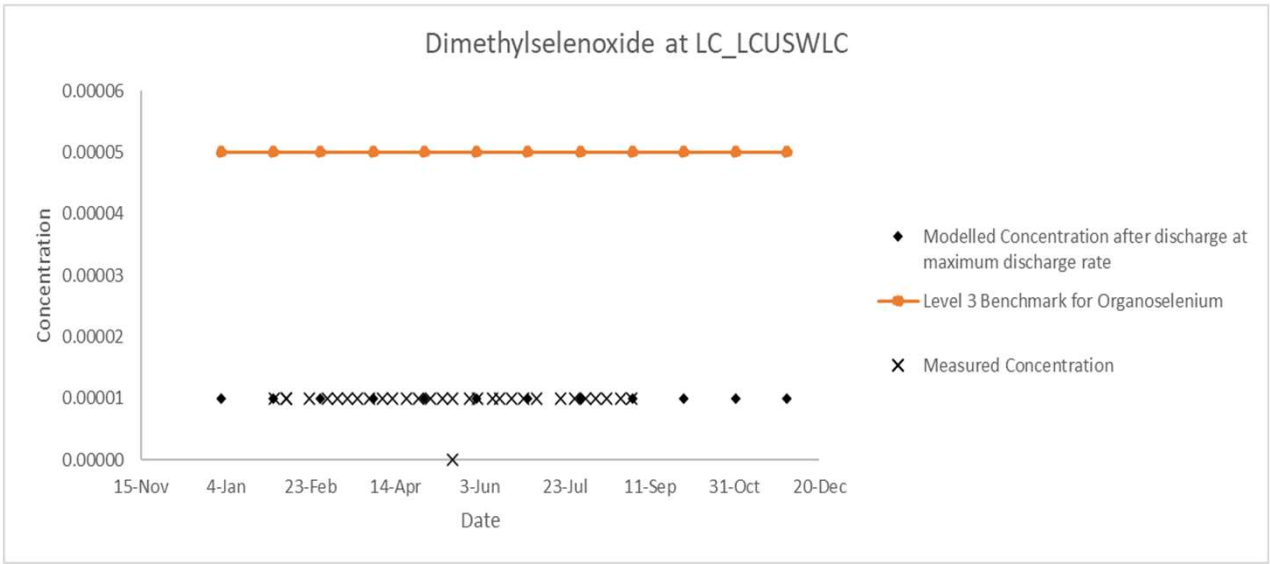


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Nitrate concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **11**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

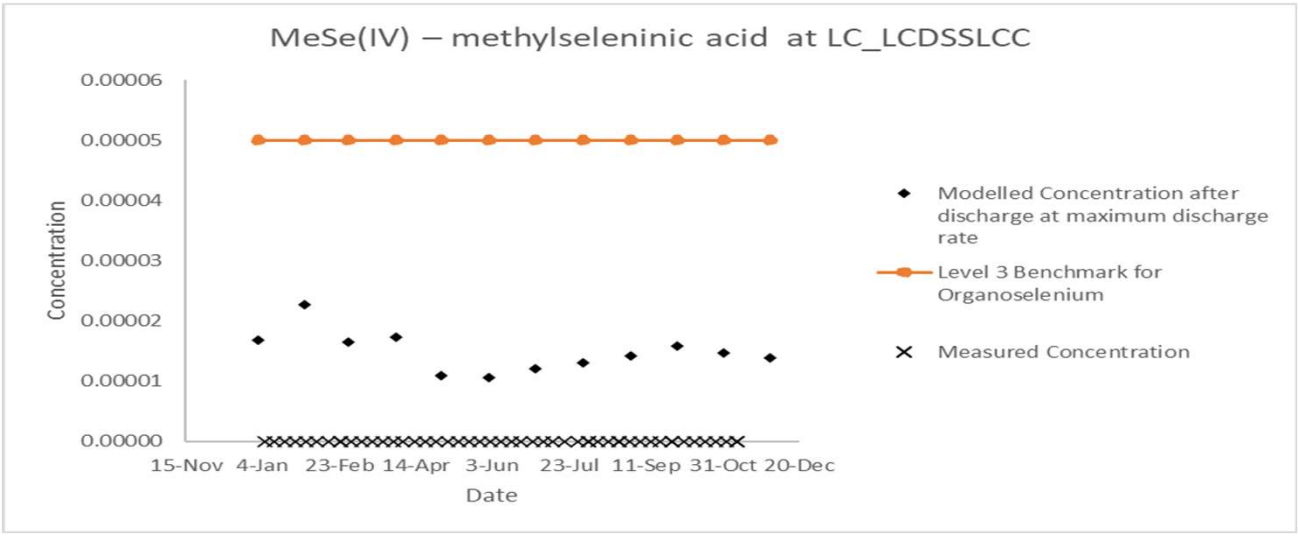


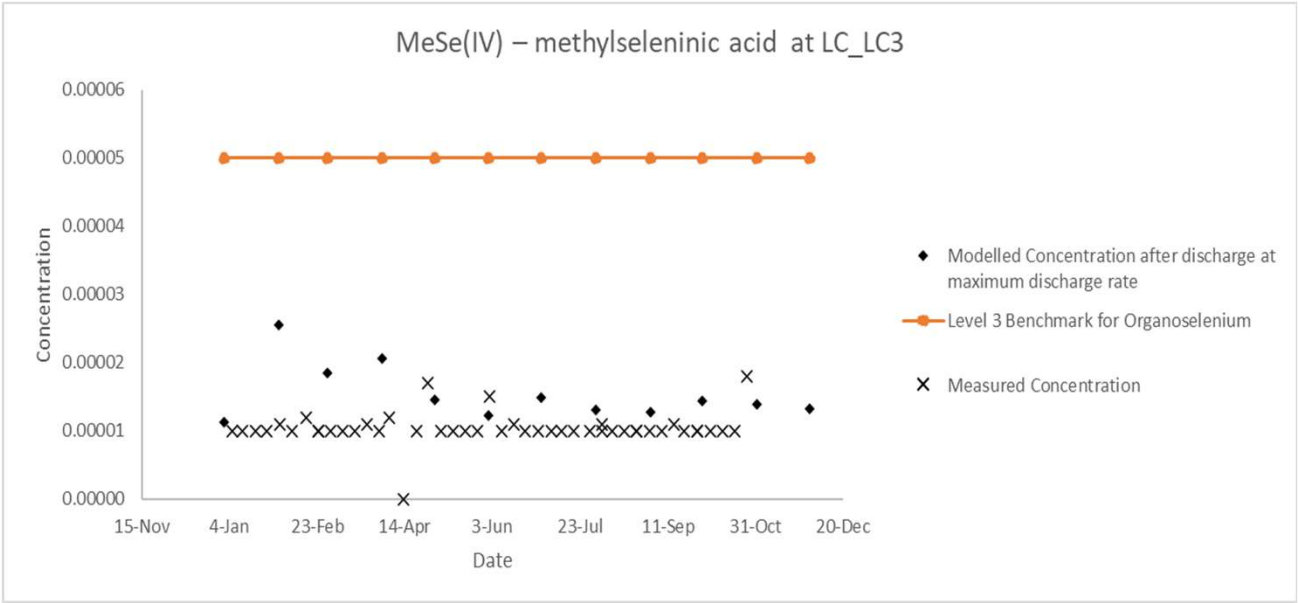


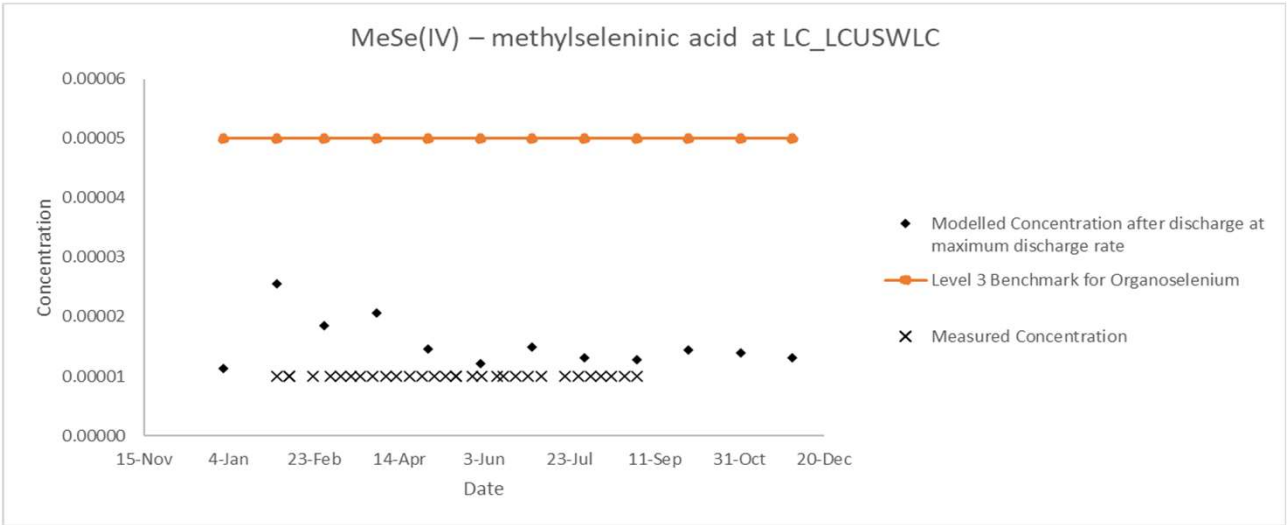


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Dimethylseleneoxide concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 / Approved: C. James / Figure: **12**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

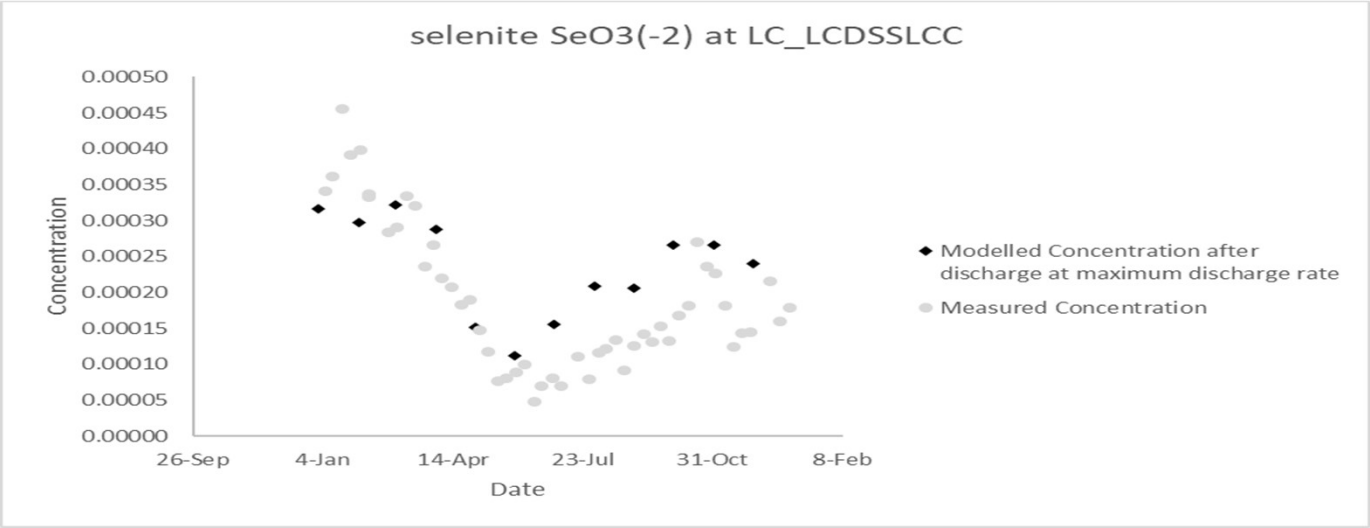


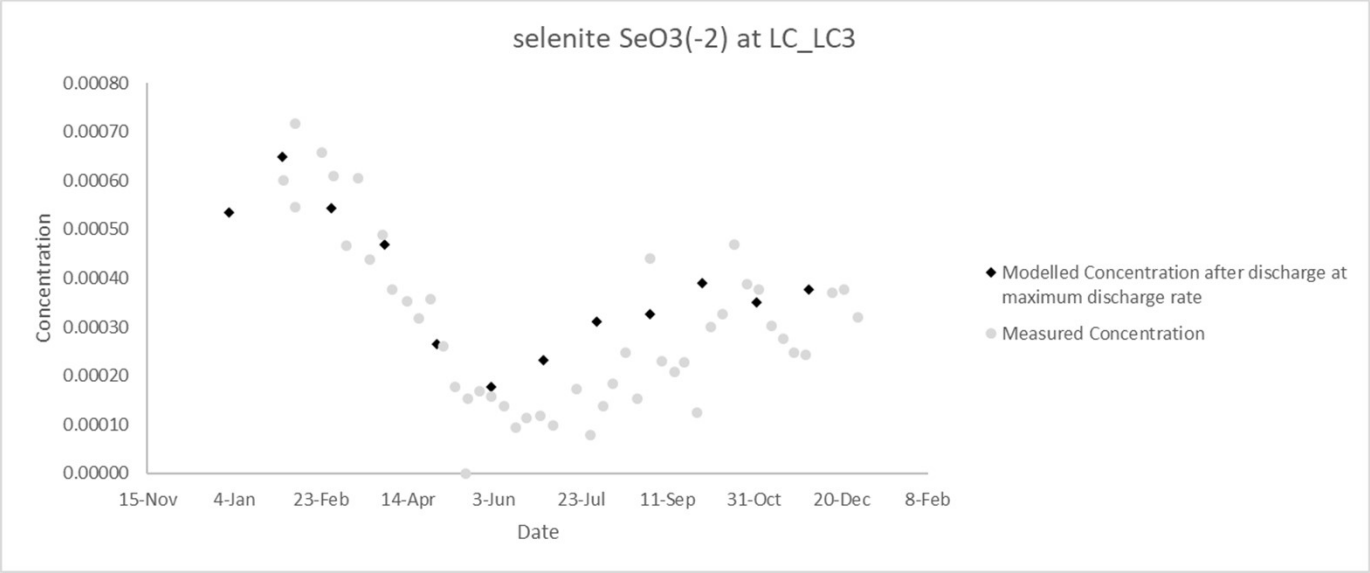


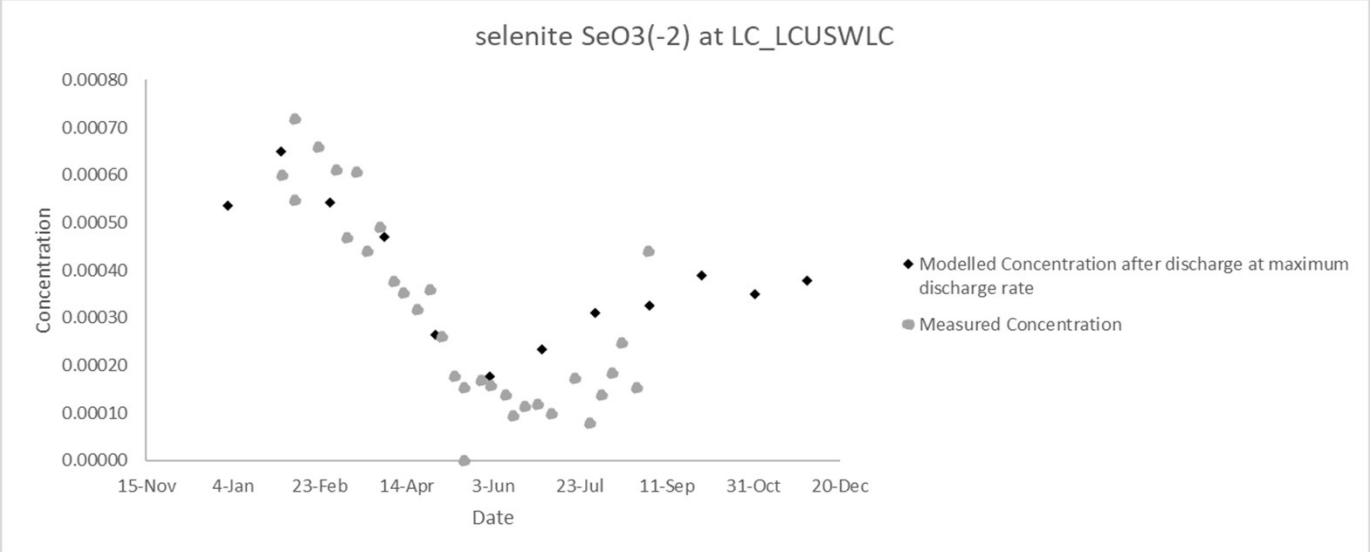


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on MeSe(IV) – methylseleninic acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **13**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures







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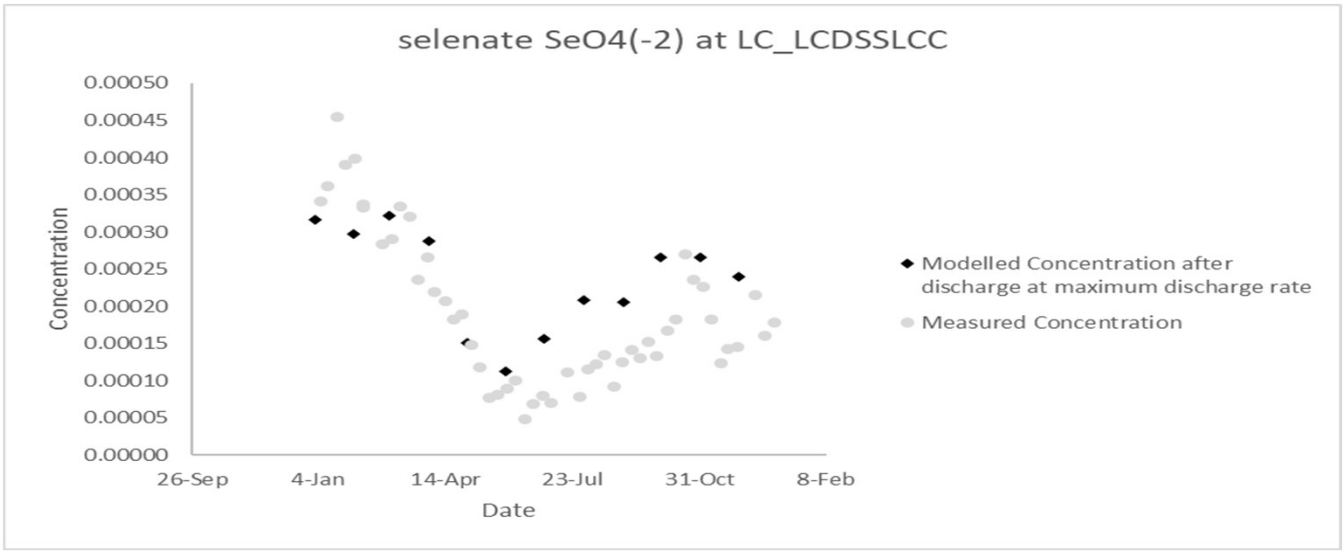
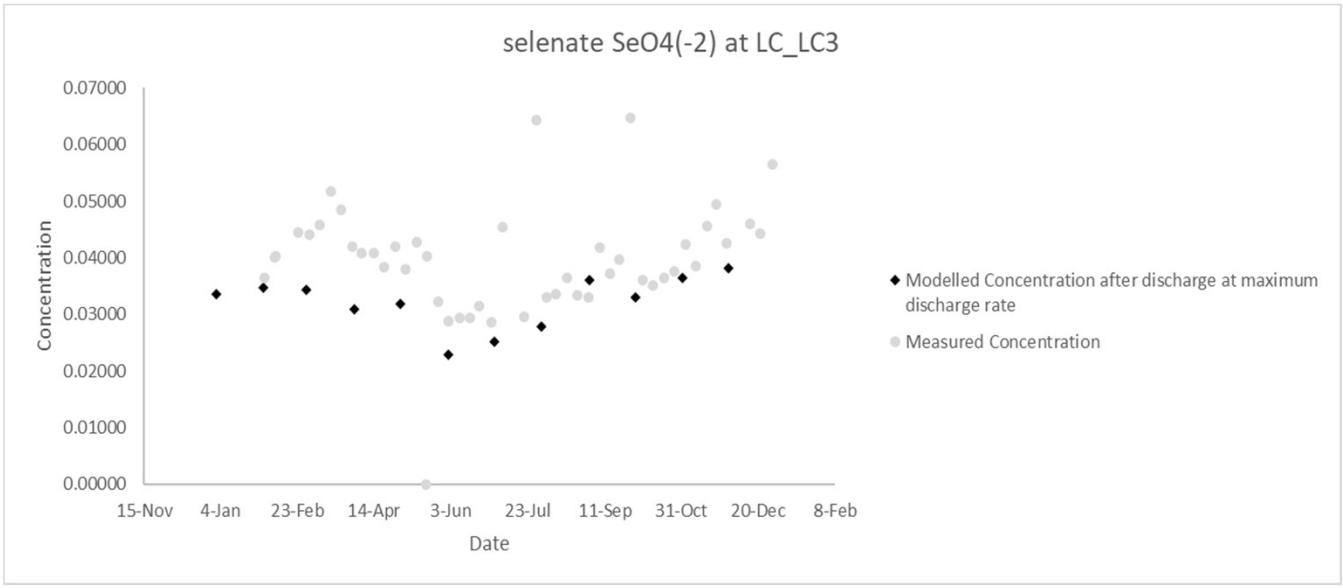
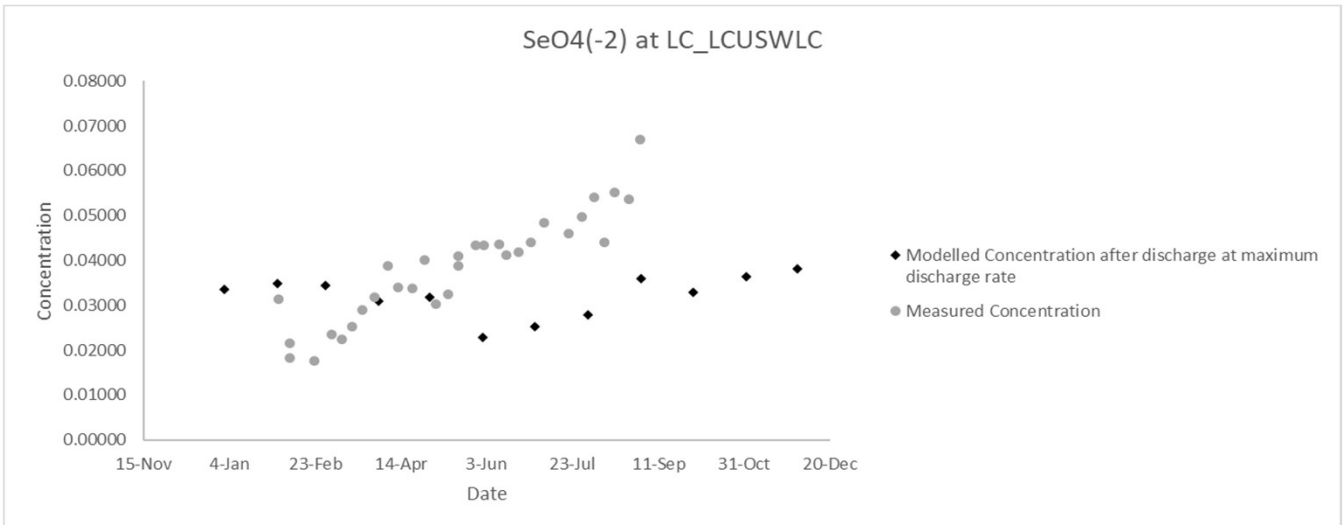
srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on selenite SeO3(-2) acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **14**

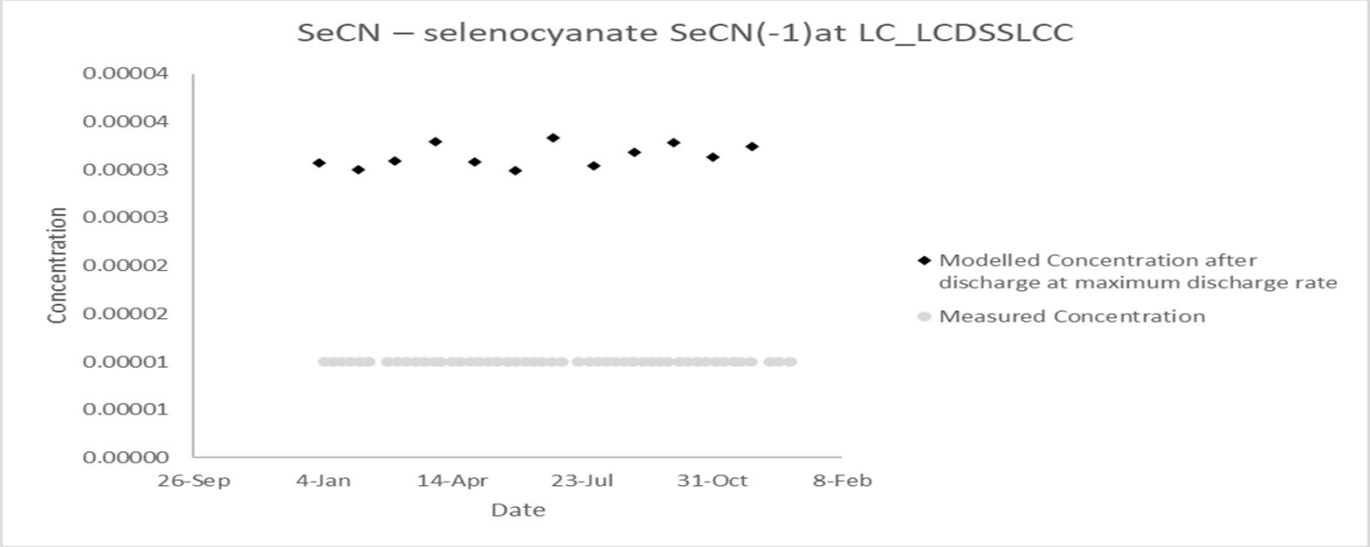


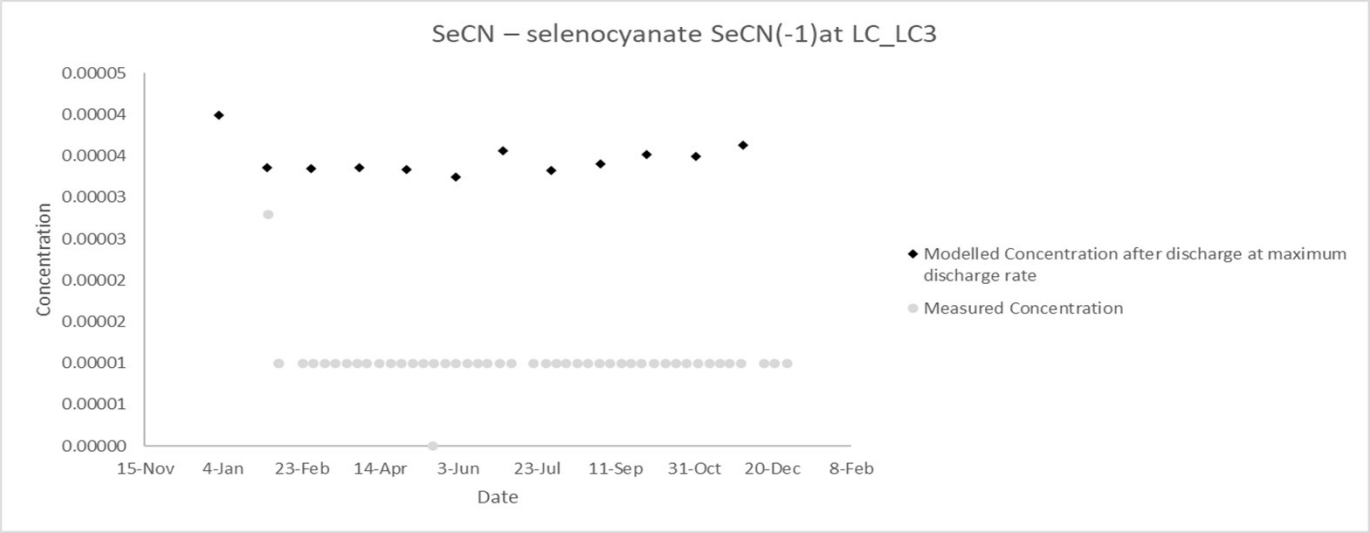


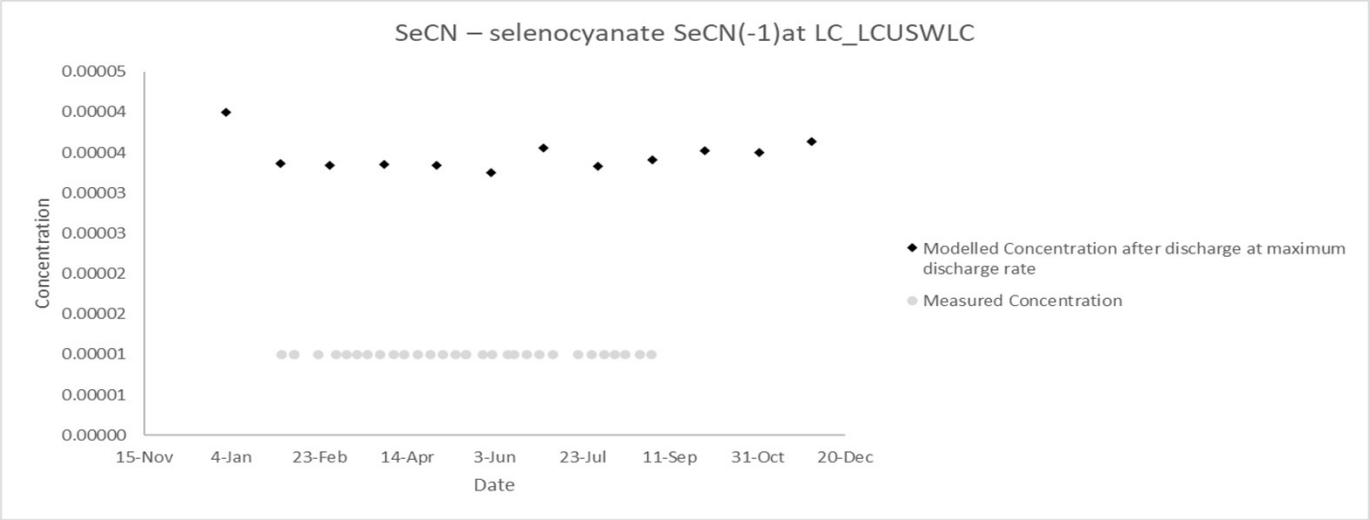


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on selenate SeO4(-2) acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **15**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

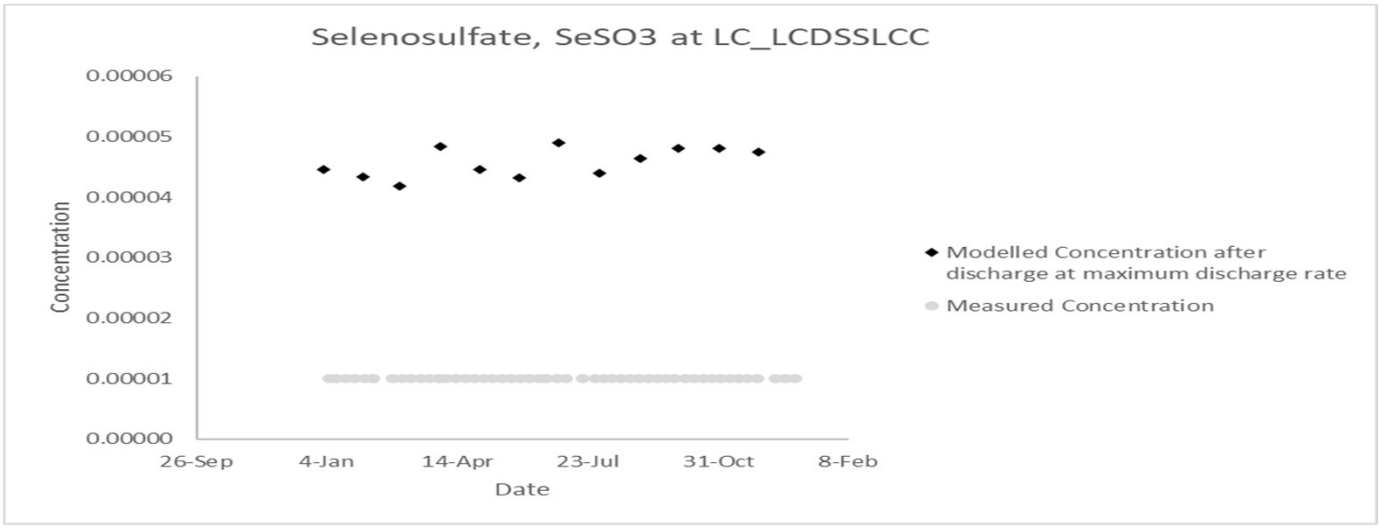


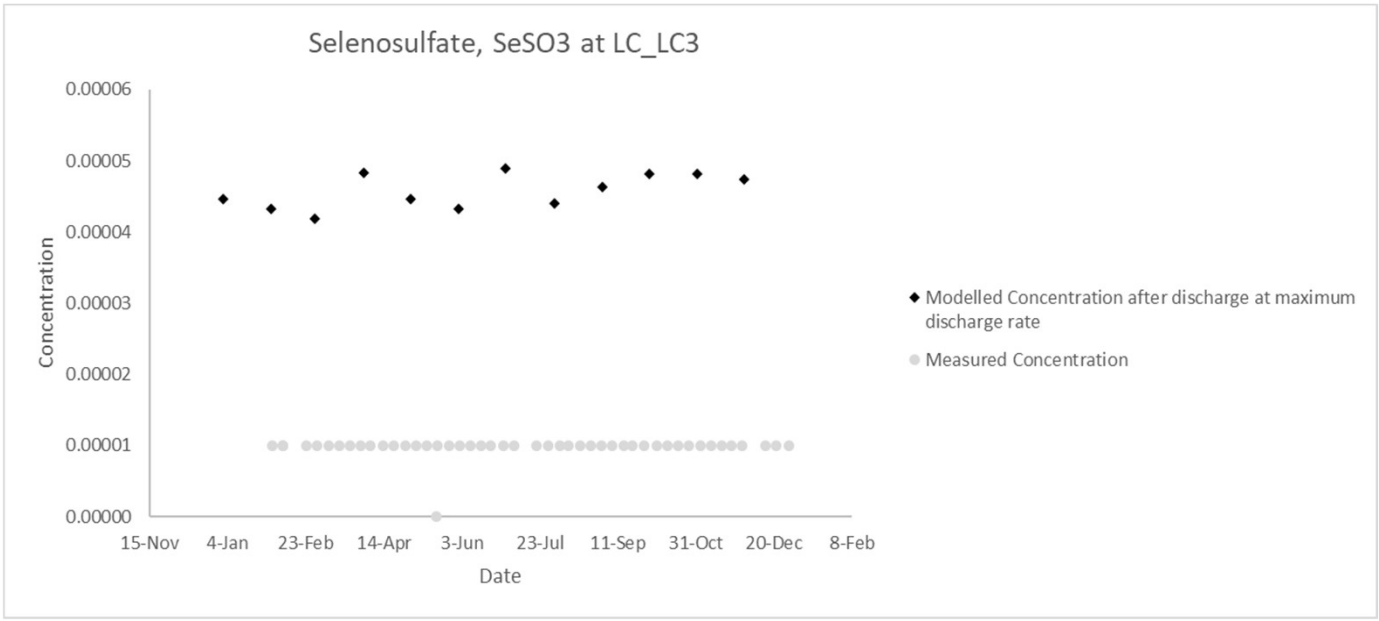


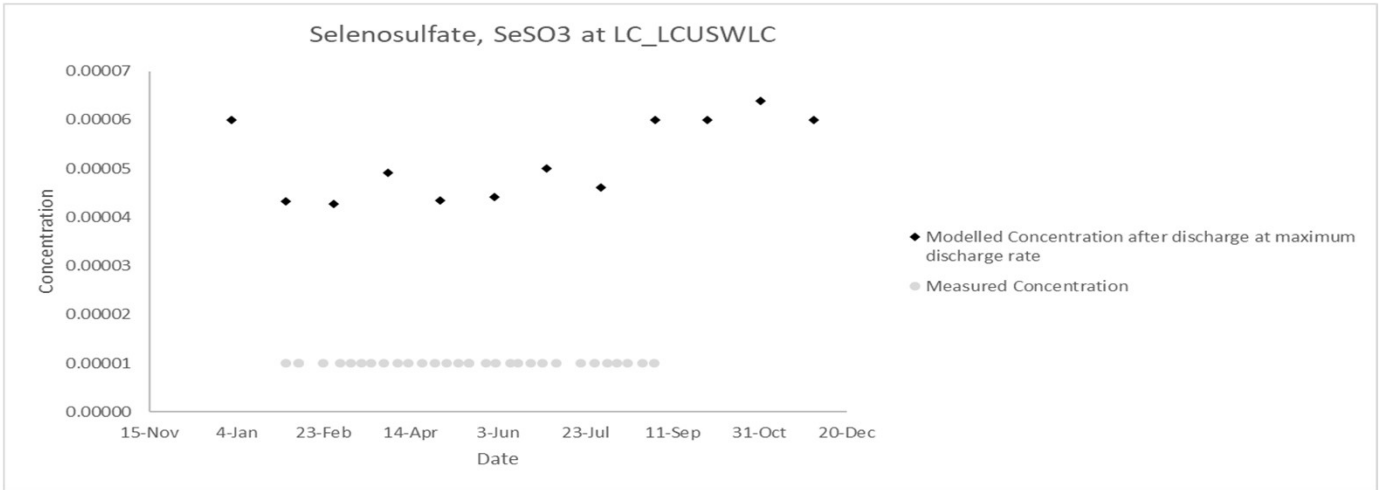


srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on SeCN – selenocyanate SeCN(-1) acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 / Approved: C. James / Figure: **16**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

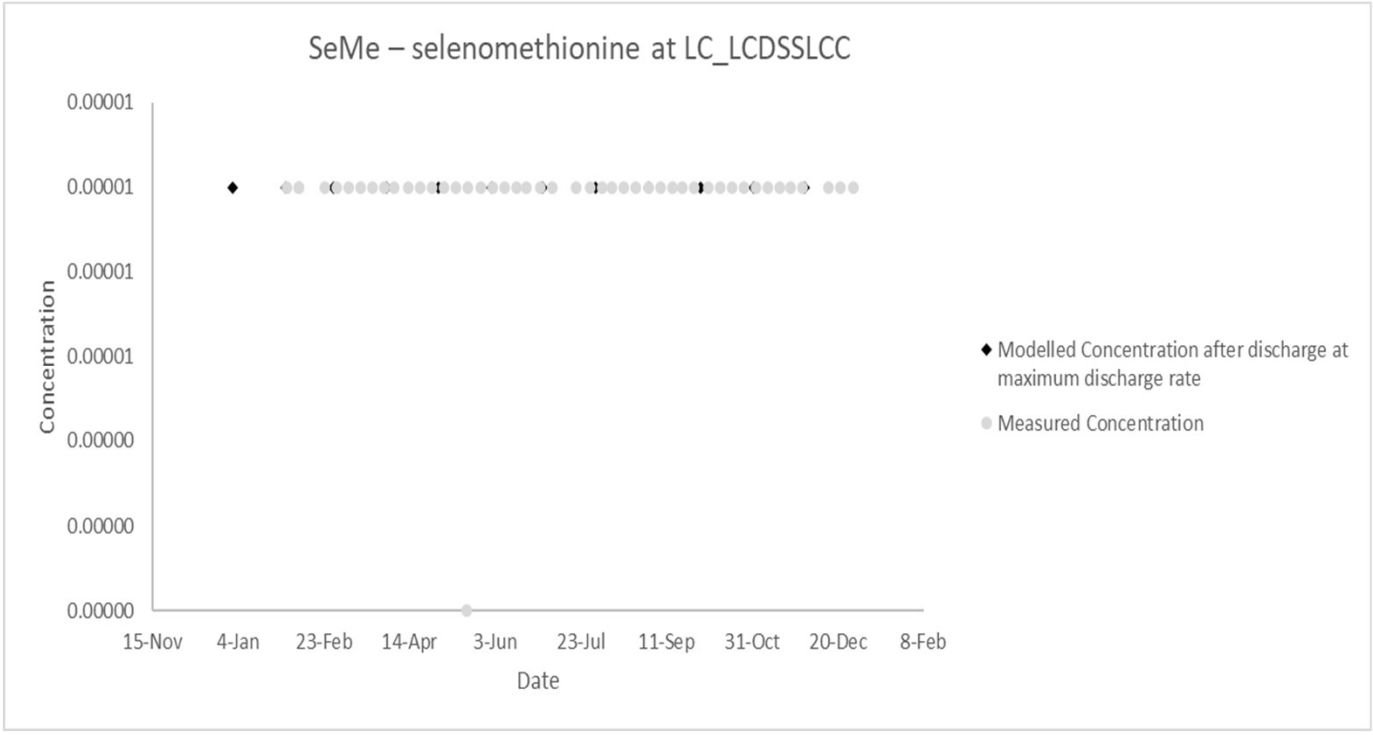


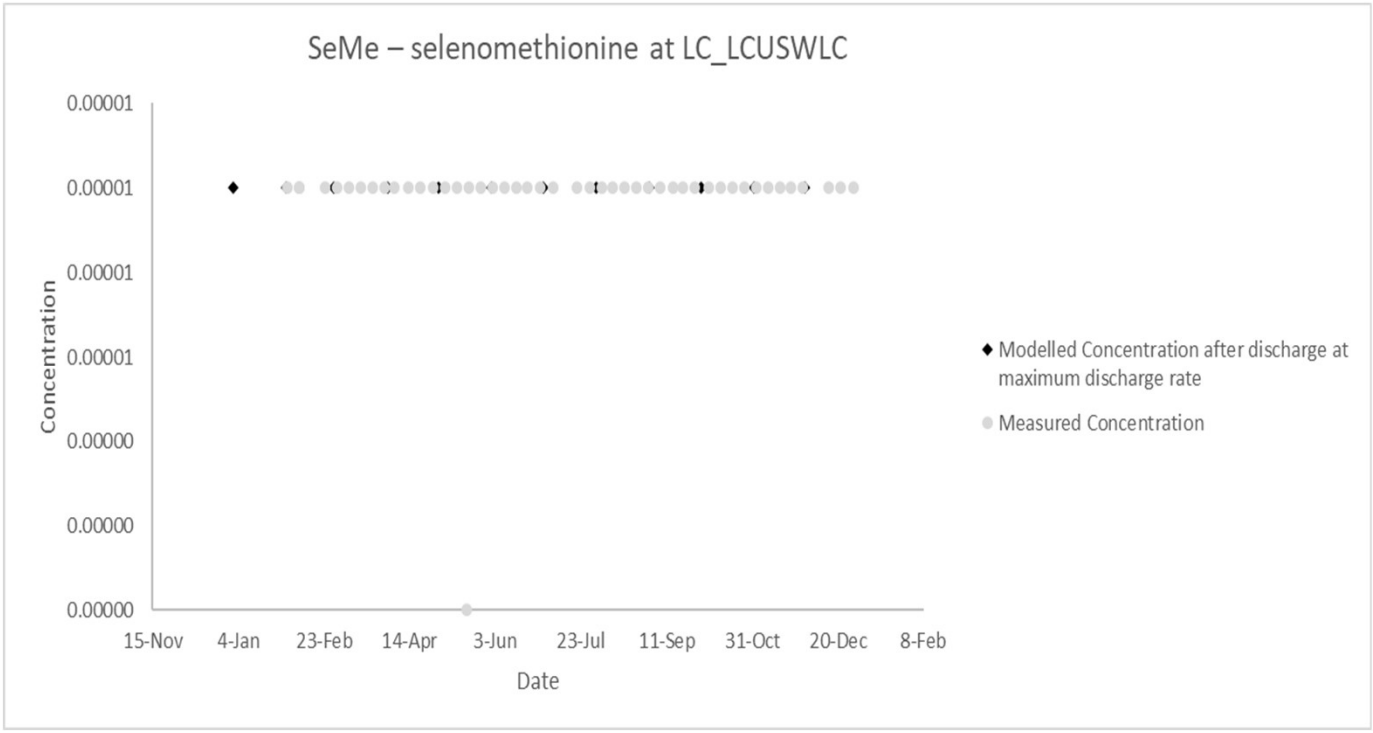




srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Selenosulfate, SeSO3 acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 / Approved: C. James / Figure: **17**

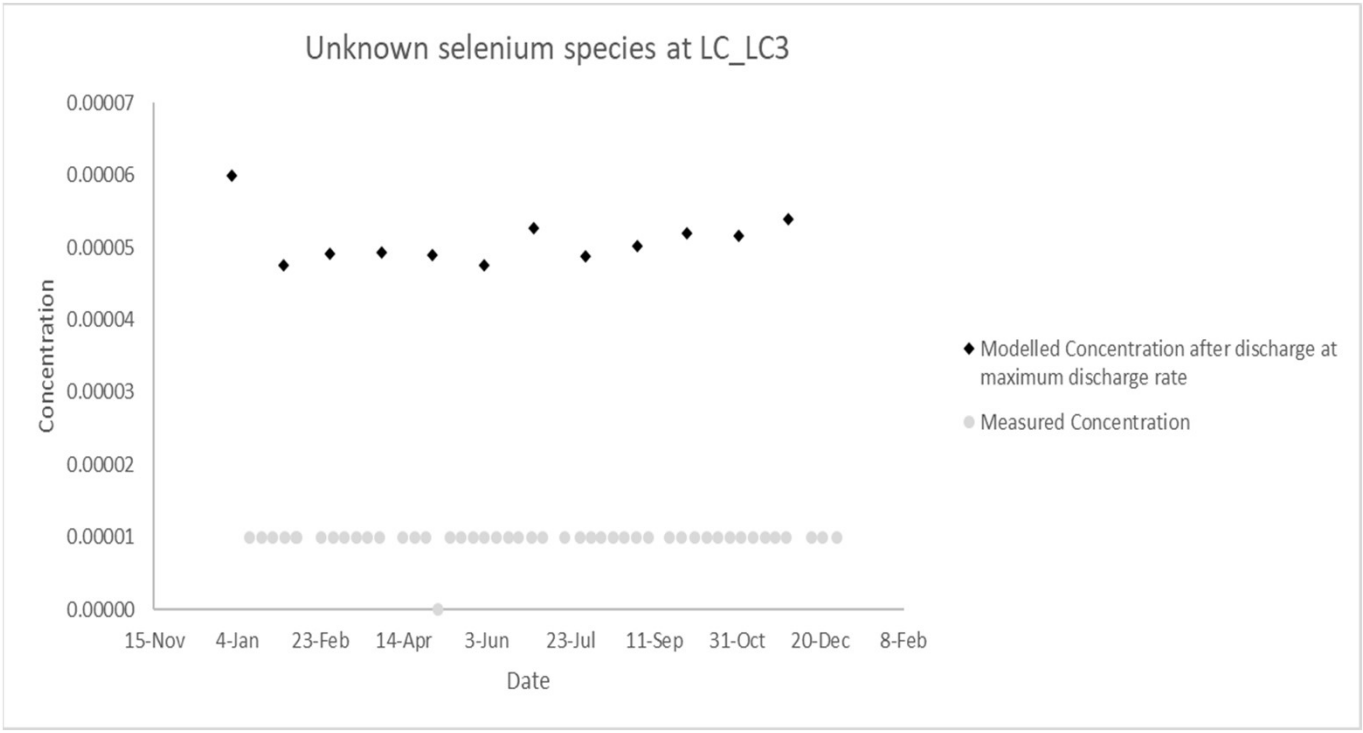
Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

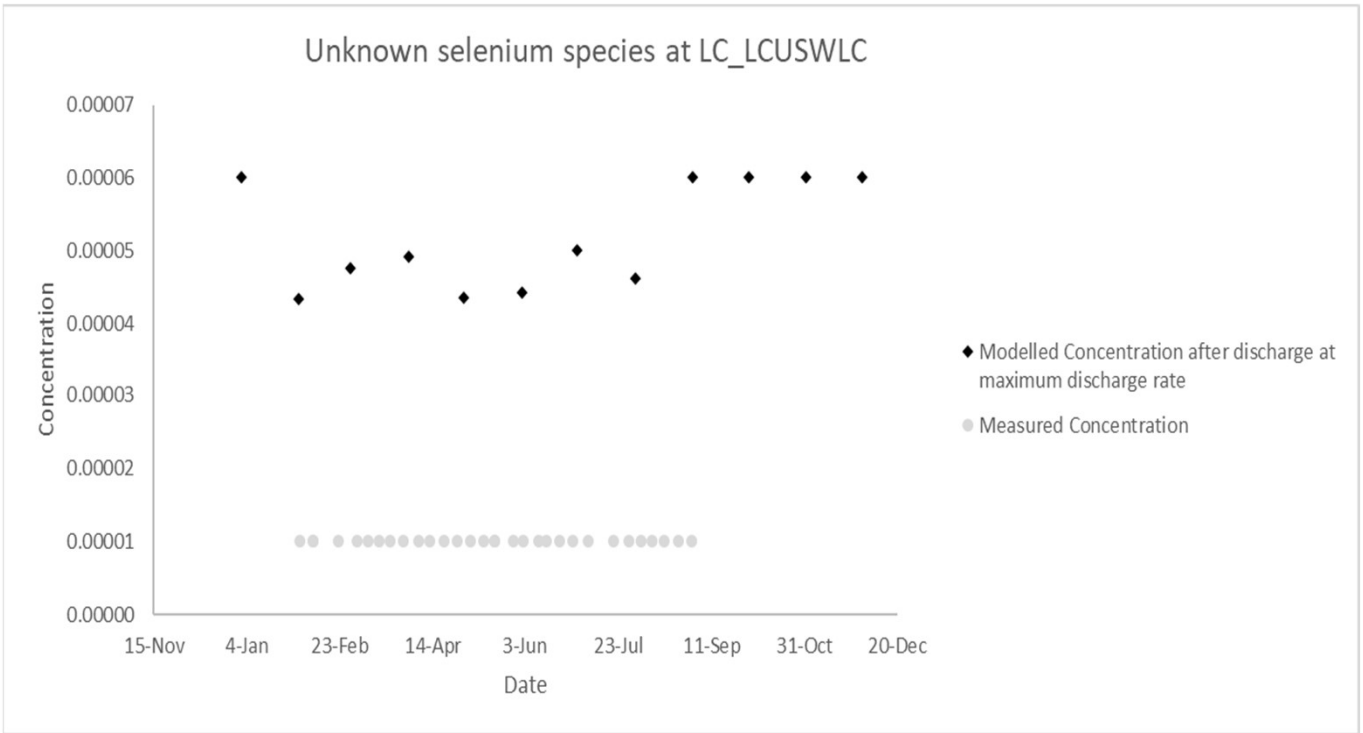




srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on SeMe – selenomethionine concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **18**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures





srk consulting	**Teck**	Predicted vs. Actual HSP dewatering on Unknown selenium species, SeSO3 acid concentration at Line Creek (all concentrations in units of mg/L)
	Line Creek Operations	Date: March 2022 | Approved: C. James | Figure: **19**

Source: \\srk.ad\dfs\na\van\Projects\01_SITES\P\01_SITES\Line_Creek\1CT017.334_MSX_2021_Pit_Pumping_Plan_Support\Model Review\R\Figures

Appendix M – MSX Pit Dewatering Tool Performance Evaluation

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Line Creek Operations
P.O. Box 2003 15 km North, Hwy 43
Sparwood, B.C. Canada V0B 2G0

+1 250 425 2555 Tel
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MSX Pit Dewatering Tool Performance Evaluation

To: EnvironmentalCompliance@gov.bc.ca
ENVSECoal@gov.bc.ca

Date: March 31, 2022

From: Line Creek Operations

Cc: ENVSECoal@gov.bc.ca
PERMRECL@gov.bc.ca
landscompliance@ktunaxa.org

Subject: LCO Evaluation of MSX pit dewatering tool performance

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1. Introduction

SRK developed a deterministic Excel™ based mass balance tool for the Main Services Expansion Pit (MSX) at the Line Creek Operations (LCO) to determine dewatering rates for MSX that ensures downstream water quality does not exceed relevant permit limits or benchmarks (SRK 2021).

As per Section 4.3 (vii) of Environmental Management Act Permit PE 5353, water quality predicted by the tool to actual monitoring results at downstream receiving environment monitoring locations (LC_LCDSSLCC, LC_LC3 and LC_LCUSWLC) were compared to help identify if changes are needed to improve water quality predictions for pit pumping in the upcoming year.

Recommended pump rates were calculated assuming conservatively high concentrations for MSX, and conservatively low flow conditions for Line Creek. Providing that these criteria are met, water quality in Line Creek is expected to remain below water quality thresholds with the recommended pump rate provided by SRK (2021).

This memo provides a summary of water quality and flow conditions in Line Creek, and a comparison of water quality predicted by the tool to actual monitoring results.

2. Comparison of Predicted and Monitored Water Quality and Quantity

SRK recommended pump rates could be used anytime that actual conditions meet the following criteria:

1. Water quality in downstream receiving environment monitoring locations is equal to or lower than the input values used in the tool.

2. Flow conditions in Line Creek are equal or higher than the values used in the tool.

Observed 2021 monitoring data from the downstream receiving environment monitoring locations noted above were compared to predicted results to determine if these two criteria were met.

Contaminants of Potential Concern (COPCs) were identified by SRK (2021). All COPC concentrations measured in 2021 at the downstream monitoring locations were below the conservative but representative concentrations applied in the

dewatering tool, except for Sulphate and TDS, Total Dissolved Solids (Table 1). Sulphate and TDS measured concentrations were below the triggers for reducing the discharge indicated in the MSX Pit Pumping Plan (July 15, 2021).

Results reviewed were for the month of December 2021 to correlate to when MSX Pit had to be dewatered under emergency conditions following overwhelming precipitation events registered in November. The pit was dewatered between December 2 and 7, 2021.

Table 1. Water quality predicted and measured at downstream receiving environment monitoring locations

Parameter	Unit	LC_LCUSWLC		LC_LC3		LC_LCDSSLCC	
		2021 December maximum					
		Predicted	Measured	Predicted	Measured	Predicted	Measured
T. Antimony	mg/L	0.0009	0.00041	0.00083	0.00032	0.00048	0.00022
T. Arsenic	mg/L	0.00024	0.00015	0.00025	0.0001	0.00019	0.00012
T. Barium	mg/L	0.14502	0.0664	0.13489	0.0612	0.10952	0.0663
T. Beryllium	mg/L	0.00007	0.0002	0.00007	0.0002	0.00005	< 0.0002
T. Chromium	mg/L	0.00021	0.00018	0.00029	0.00019	0.00019	0.00015
T. Cobalt	mg/L	0.00104	0.0001	0.001	0.0015	0.00056	< 0.001
T. Iron	mg/L	0.02124	0.01	0.03817	0.057	0.01825	0.018
T. Nickel	mg/L	0.01399	0.0113	0.01315	9.39	0.00634	0.00486
Nitrate	mg/L	16.96	16.1	16.09	13.5	11.12	9.90
Nitrite	mg/L	0.02	<0.0005	0.02	0.005	0.01	0.0011
Ammonia	mg/L	0.21	0.0055	0.20	0.0135	0.10	0.0108
Phosphorus	mg/L	0.0067	0.004	0.0077	0.004	0.004	0.0043
T. Selenium	mg/L	0.05	0.00547	0.05	0.0053	0.06	0.00442
Sulphate	mg/L	283.31	294	374.62	385	279.33	310
TDS	mg/L	567.22	743	843.19	882	678.56	662
T. Uranium	mg/L	0.01	0.00441	0.01	0.00506	0.0043	0.00362
Organoselenium	ug/L	0.025	<0.02	0.05	0.028	0.034	<0.02

Flows in Line Creek were higher than the 1 in 10-year dry conditions projected by the RWQM, which were used to represent a conservatively low flow condition (Figure 1). Note, Line Creek flow monitoring station LC_LCDSSLCC was used as a representative station to assess flows in Line Creek.

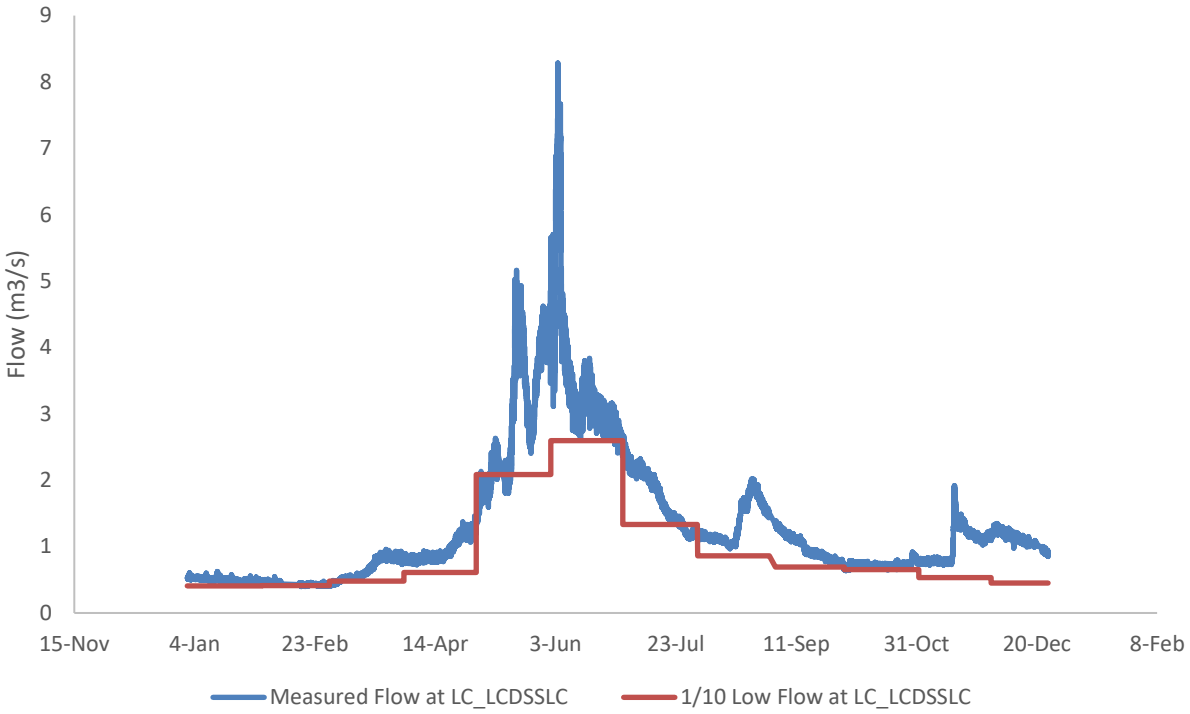

Figure 1. Predicted and measured flows at LCO's Compliance Point (LC_LCDSSLCC)

3. Conclusion

In general, the MSX excel mass balance tool conservatively predicted higher than measured concentrations at the downstream receiving environment monitoring locations, indicating the tool can be used for informing pit pumping rates in for MSXs for MSX while maintaining COPC concentrations below target thresholds at downstream monitoring locations in Line Creek.

With respect to potential improvements to the dewatering tool, the following opportunities for improvement were identified

- Include data collected in 2021 to validate and expand the utility of the model
- Pump rates should be calculated on a 2-week basis during freshet (instead of monthly) to capture the quick rise and fall of low flows during this period.