December 19, 2025

Tracking Number: 426126
Authorization Number: 107517

REGISTERED MAIL

EVR Operations Limited
Suite 2700 - 595 Burrard Street
Three Bentall Centre
Vancouver BC V7X 1L2

Dear Permittee:

Enclosed is Amended Permit 107517 issued under the provisions of the Environmental Management Act. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit and Approval Fees and Charges Regulation.

The following authorization amendment letters have been incorporated.

Date of decision	Subject	Section
2025-10-17	Fording River Operations North Saturated Rock Fill Phase 3a and LAEMP monitoring cycle	Appendix 4E and 8.3.1
2025-10-30	Line Creek Operations Dry Creek Water Treatment date change	Appendix 4F condition 4F1
2025-12-16	Fording River Operations treatment source change	7.2.1
2025-12-18	Line Creek Operations Line Creek Water Treatment operational date change	2.4.1, 3.3.1, 7.2.1, 7.2.2, Appendix 4A condition 4A1, Appendix 4B conditions 4B1.2, 4B1.4, 4B3.1.1, 4B3.2

Please note that the following is a standalone authorization amendment letter that remains an addendum to this amended permit:

- May 15, 2024 letter regarding changes to the monitoring stations during execution of the Erickson Creek Calcite Remediation Reach 1 Project.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the Environmental Management Act to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

When a spill or the risk of a spill occurs, the responsible person (spiller) must report it immediately by calling 1-800-663-3456 in accordance with the Spill Reporting Regulation. More information is available at:
https://www2.gov.bc.ca/gov/content?id=1EAB9109A9E9407EA646050A9D431C41

Pursuant to Section 16 of the Environmental Management Act, the director has amended authorization 107517. The new decisions being made with issuance of this permit are summarized below.

Subject	Section
Definition: Reverse osmosis high density sludge.	1
Remove LCO Dry Creek water quality limits.	2.8.2
Add LCO Dry Creek site performance objectives.	3.3.2
Relocate LCO Dry Creek treatment facility Phase 1 and Phase 2 design capacity and operational dates to the treatment tables.	7.2 and Appendix 4F conditions 4F1, and 4F2
Clarify that the LCO Dry Creek LAEMP will also evaluate the influence of and effects from the water treatment plant.	8.3.2.1
Chronic toxicity testing program monitoring corrections.	8.8
Limit inclusion of acute toxicity lab reports to only failures in the discharge and receiving environment monitoring data annual report.	9.2.5
Clarify toxicity reporting under Section 9.3 is reporting associated with Section 8.8 Chronic Toxicity Testing Program. Acute toxicity testing is reported in the quarterly and annual discharge and receiving environment monitoring data reports, per Section 9.2.4 and 9.2.5.	9.3
Add start date for LCO Line Creek LAEMP annual report.	9.5.1
Clarify that the final LCO Phase I data package is to be submitted by April 30, 2026, for the monitored data in accordance with the most recently approved study design, as per the director's approval letter.	9.5.3
Updated in its entirety authorizing discharge of effluent from Phase 1 of the LCO Dry Creek reverse osmosis high density sludge water treatment facility.	Appendix 4F
Add requirement that the Operations Plan include procedures for safely restarting treatment facilities.	Appendix 4A condition 4A3
Add downtime reporting requirements for LCO DC WTP.	Appendix 4A condition 4A9 and 4A10

Subject	Section
Editorial, to ensure consistent clauses between treatment facilities.	Conditions 4B1, 4B3.3, 4C1, 4C3.5, 4D1, 4D2.3, 4E2.3
Remove internal lab reporting requirements.	Conditions 4B4 and 4D3

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

Administration of this authorization will be carried out by staff from the Environmental Protection Division's Authorizations and Remediation Branch. Plans, data and reports pertinent to the permit are to be submitted by email or electronic transfer to the Director, designated Officer, or as further instructed.

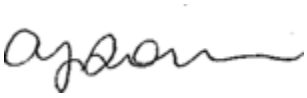
Please be reminded that the director may, for the protection of the environment in accordance with Section 16 of the Environmental Management Act, require the permittee to do one or more of the following at any time:

- repair, alter, remove, improve or add to existing works, or construct new works, and submit plans and specifications for works specified in this authorization.
- conduct monitoring, and may specify procedures for monitoring and analysis, and procedures or requirements respecting the handling, treatment, transportation, discharge or storage of waste.
- provide security in the amount and form, and subject to the conditions, specified by the director.
- conduct studies and report information in accordance with the specifications of the director.
- recycle certain wastes and recover certain reusable resources, including energy potential from wastes, in accordance with the specifications of the director.
- submit copies of reports and notifications to specified Indigenous Groups, within specified timelines, in accordance with the specifications of the director.

For more information about how the Ministry will assess compliance with your permit please refer to gov.bc.ca/environmentalcompliance.

For more information about how to make changes to your permit and to access waste discharge amendment forms and guidance, please refer to gov.bc.ca/wastedischarge-authorizations.

Yours truly,



A.J. Downie, M.Sc., P.Ag.
for Director, Environmental Management Act
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MINISTRY OF ENVIRONMENT AND PARKS

PERMIT

107517

Under the Provisions of the Environmental Management Act

EVR Operations Limited

Suite 2700 - 595 Burrard Street
Three Bentall Centre
Vancouver BC V7X 1L2

is authorized to discharge effluent to the land and water from five coal mine sites located within the Elk Valley near Elkford and Sparwood, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the Environmental Management Act and may lead to prosecution.

The terms and conditions included in this permit are intended to ensure implementation of commitments and processes contained in the Elk Valley Area Based Management Plan first approved November 18, 2014, and amended July 30, 2025. Should any conflict exist between this permit and the Elk Valley Area Based Management Plan, the permit requirements take precedence.

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1. DEFINITIONS AND GLOSSARY

Unless otherwise defined, all terms used in this permit are defined as in the Area Based Management Plan titled "Elk Valley Water Quality Plan", approved July 30, 2025.

ABMP: Area Based Management Plan titled "Elk Valley Water Quality Plan".

AEMP: Aquatic Effects Monitoring Program

AMP: Adaptive Management Plan

AWTF: Active Water Treatment Facility

BCWQG FWAL: British Columbia Water Quality Guideline for Fresh Water Aquatic Life

Best Achievable Technology (BAT): The technology that has been evaluated for its feasibility, reliability, control-effectiveness, and cost-effectiveness and is demonstrated to be best-suited to meet waste discharge standards for the protection of the environment and human health.

CMO: Coal Mountain Operations as described in the latest approved Mines Act Permit C-84.

Compliance Point: an effluent monitoring location specified in the permit at which discharge limits apply.

Designated Area: a portion of southeastern British Columbia that contains the Elk Valley Watershed and the portion of Koocanusa Reservoir within Canada, and is geographically defined by Ministerial Order M113 (references to the Elk Valley are references to the Designated Area).

Effective treatment capacity: The required water treatment facility capacity for each phase of water treatment (i.e., new treatment facility or in addition to previous phases), equal to the design hydraulic capacity multiplied by the design for expected percent availability.

EVWQP: The Area Based Management Plan titled "Elk Valley Water Quality Plan"

EMC: Environmental Monitoring Committee

EVO: Elkview Operations as described in the latest approved Mines Act Permit C-2

FRO: Fording River Operations as described in the latest approved Mines Act Permit C-3.

GHO: Greenhills Operations as described in the latest approved Mines Act Permit C-137.

KFNGs: Ktunaxa First Nation Governments in Canada. Yaq̓it ʔa·knuqƛiˀit First Nation (YQT), and ʔakisq̓nuk First Nation, Yaqan nuʔkiy (Lower Kootenay Band) and ʔaq̓am (St. Mary's Band), represented by the Ktunaxa Nation Council (KNC)

LAEMP: Local Aquatic Effects Monitoring Program

LCO: Line Creek Operations as described in the latest approved Mines Act Permit C-129, including Phase I and Phase II.

LCO Phase I: permitted mining area in upper portion of Line Creek.

LCO Phase II: permitted mining area in LCO Dry Creek watershed.

Operational date: The date when facility commissioning activities are completed.

Order (the): Ministerial Order number M113, which was the directive issued by the B.C. Minister of Environment in April 2013 requiring Teck Coal Limited (now EVR Operations Limited; EVR) to develop an Area Based Management Plan for the Designated Area in the Elk Valley.

Order parameters: Identified in Ministerial Order M113: selenium, cadmium, nitrate, sulphate, and calcite.

Order station: a monitoring location specified by the Order to monitor water quality in the Designated Area, at which site performance objectives apply.

Parameter of Concern (POC): any physical, chemical, or biological substance in air, soil or water at a concentration, or predicted to be at a concentration that exceeds regulatory thresholds, or may have an adverse effect on environmental or human health receptors.

Permitted development planning period: The period of time in which the permittee's permitted development activities in the Elk Valley are proposed to be carried out, plus the time required for the full effects (constituent loadings) of that development to report to the environment.

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RAEMP: Regional Aquatic Effects Monitoring Program

Regulatory document: means any document that the permittee is required to provide to the director or the Province pursuant to:

i. This authorization;

ii. Any regulation made under the Environmental Management Act that regulates the facilities described in this authorization or the discharge of waste from those facilities; or

iii. Any order issued under the Environmental Management Act directed against the permittee that is related to the facilities described in this authorization or the discharge of waste from those facilities.

RO-HDS: Reverse osmosis high density sludge water treatment.

SPO: Site Performance Objective

SRF: Saturated Rock Fill Water Treatment Facility

Standing water: For Section 8.1.2.4, Table 8A, standing water is defined as pooled effluent in the Floodplain Widening Sediment Pond of at least 0.5 metre depth, with no decant occurring from the pond.

Suitably tabulated: Data is to be clearly presented in a table, or a series of tables. The table(s) must include any applicable regulatory limits/guidelines e.g., permit limits, BCWQGs, CSR guidelines etc. Any exceedances of respective regulatory limits/guidelines must be clearly highlighted. Any missed sampling events/missing data must be identified with an explanation provided.

Treatment sources: Includes but is not limited to surface water, groundwater and pit water within the noted catchment, to the extent that these waters are identified in the Water Quality Mitigation Plan as requiring treatment.

WLC: West Line Creek

2. AUTHORIZED DISCHARGES

Sections 2.1 to 2.7 refer to compliance points that correspond to locations where all or most of the point and non-point discharges from a mine site or specified portions of a mine site are expected to accumulate. These accumulated discharges are subject to the concentration limits (the "limits") at the compliance points.

For Sections 2.1 to 2.7, the limits are expressed as monthly average concentrations and/or specified daily maximums. The monthly average concentration is defined as the average value of measured concentrations for all samples collected in a calendar month at the sample location, except for months when there is an authorized bypass of a treatment facility and enhanced monitoring occurs. With enhanced monitoring, as per Appendix 4, the monthly average concentration must be calculated as follows:

$$Cmo = [(\Sigma CE/NE)*(DE/Dmo)] + [(\Sigma CR/NR)*((Dmo-DE)/Dmo)]$$

Where:

- Cmo is the monthly average concentration;
- CE are the concentrations of the samples collected during enhanced monitoring in the month;
- NE are the number of enhanced monitoring samples collected in the month;
- DE is the total number of decimal days in recirculation in the month, when the duration of the downtime events triggered enhanced monitoring;
- Dmo is the number of days in the month;
- CR are the concentrations of the routine samples collected in the month; and
- NR are the number of routine samples collected in the month

For months where only one result is collected, that result must be compared to both the monthly average and daily maximum limits. Daily maximums are defined as any single grab sample. Effluent characteristics for the listed parameters must be determined by a third-party qualified laboratory.

2.1 FORDING RIVER OPERATIONS – FORDING RIVER COMPLIANCE POINT (FR_FRABCH)

This section applies to effluent from EVR mine operations (Fording River Operations and the Greenhills Operations into the Fording River watershed) upstream of FRO Compliance Point (E223753). The FRO Compliance Point (E223753) is located approximately 100 m upstream of Chauncey Creek as shown in Appendix 1.

2.1.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE	
PARAMETERS	Mar. 10, 2021	Dec. 31, 2023
Total selenium (µg/L)	85	58
Nitrate as N (mg/L)	18.0	12.0
Sulphate (mg/L)	577	605

2.1.2 The characteristic of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE	
PARAMETERS	Dec.31, 2021	Dec. 31, 2023
Total selenium (µg/L)	100	67
Nitrate as N (mg/L)	21.0	14.0

2.1.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, ditches, pipelines and pumping, active water treatment facility, antiscalant addition systems, sewage treatment plants, and related appurtenances.

2.2 GREENHILLS OPERATIONS – FORDING RIVER COMPLIANCE POINT (GH_FR1)

This section applies to effluent from EVR mine operations (Fording River Operations, Greenhill Operations and Line Creek Operations) upstream of GHO Fording River Compliance Point (0200378). The GHO Fording River Compliance Point (0200378) is located 205 m downstream of Greenhills Creek as shown in Appendix 1.

2.2.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	Dec. 31, 2019	Dec. 31, 2023
Total selenium (µg/L)	80	63	57
Nitrate as N (mg/L)	20	14.0	11.0

2.2.2 The characteristics of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	Dec. 31, 2019	Dec. 31, 2023
Total selenium (µg/L)	100	78	62
Nitrate as N (mg/L)	29	17.0	15.0

2.2.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, sewage treatment plants, antiscalant addition system, and related appurtenances.

2.3 GREENHILLS OPERATIONS – ELK RIVER COMPLIANCE POINT (GH_ERC)

This section applies to effluent from EVR mine operations (Greenhills Operations into the Elk River watershed) upstream of GHO Elk River Compliance Point (E300090). The GHO Elk River Compliance Point (E300090) is located 220 m downstream of Thompson Creek as shown in Appendix 1.

2.3.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE	
PARAMETERS	Immediately	Dec. 31, 2027
Total selenium (µg/L)	15	8
Nitrate as N (mg/L)	3.0	3.0

2.3.2 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, sewage treatment plants and related appurtenances.

2.4 LINE CREEK OPERATIONS – LINE CREEK COMPLIANCE POINT (LC_LCDSSLCC)

This section applies to effluent from EVR mine operations (Line Creek Operations into the Line Creek Watershed) above LCO Compliance Point (E297110). The LCO Compliance Point (E297110) is located approximately 1500 m downstream of the West Line Creek Active Water Treatment Facility (WLC AWTF) outfall as shown in Appendix 1.

2.4.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE				
PARAMETERS	Nov. 19, 2014	Dec. 31, 2015	Oct. 1, 2026	Oct. 1, 2029	Dec. 31, 2033
Total selenium (µg/L)	80	50	50	50	29
Nitrate as N (mg/L)	14	7.0	7.0	7.0	3.0
Sulphate (mg/L)	-	-	429	429	429
Dissolved Nickel (µg/L)	-	-	-	TBD [(a)]	TBD

(a) The limit for dissolved nickel is to be determined following the process outlined in Section 3.3.1.1. Establishment of the limit requires written approval by the director.

2.4.2 The characteristics of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	Dec. 31, 2015	Dec. 31, 2033
Total selenium (µg/L)	95	58	33
Nitrate as N (mg/L)	20	9.0	4.0

2.4.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, active water treatment facility, diversions, sewage treatment plants, and related appurtenances.

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2.5 ELKVIEW OPERATIONS – HARMER CREEK COMPLIANCE POINT (EV_HC1)

This section applies to effluent from EVR mine operations (Elkview Operations into the Harmer Creek watershed) above EVO Harmer Compliance Point (E102682). The EVO Harmer Compliance Point (E102682) is located at the Harmer Spillway as shown in Appendix 1.

2.5.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	Dec. 31, 2017	Dec. 31, 2021
Total selenium (µg/L)	45	57	57
Nitrate as N (mg/L)	4	16.0	8.0
Sulphate (mg/L)	300	380	450

2.5.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, diversions, and related appurtenances.

2.6 ELKVIEW OPERATIONS – MICHEL CREEK COMPLIANCE POINT (EV_MC2)

This section applies to effluent from EVR mine operations (Elkview Operations into the Michel Creek watershed) above EVO Michel Creek Compliance Point (E300091). The EVO Michel Creek Compliance Point (E300091) is located at the Highway 3 bridge over Michel Creek as shown in Appendix 1.

2.6.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov.19, 2014	Dec. 31, 2021	Dec. 31, 2025
Total selenium (µg/L)	28	20	19
Nitrate as N (mg/L)	6.0	6.0	6.0

2.6.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, tailings impoundments, saturated rock fill treatment facility, diversions, sewage treatment plants, and related appurtenances.

2.7 COAL MOUNTAIN OPERATIONS (CMO) – MICHEL CREEK COMPLIANCE POINT (CM_MC2)

This section applies to effluent from EVR mine operations (Coal Mountain Operations) above CMO Compliance Point (E258937). The CMO Compliance Point (E258937) is located 50 m upstream of Andy Goode Creek as shown in Appendix 1.

2.7.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE
PARAMETERS	Nov.19, 2014
Total selenium (µg/L)	19
Nitrate as N (mg/L)	5.0
Sulphate (mg/L)	500

2.7.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, diversions, sewage treatment plant, and related appurtenances.

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2.8 LINE CREEK OPERATIONS PHASE II (DRY CREEK)

This section applies to the discharge of effluent from EVR Line Creek Operations (LCO) Phase II mine operations to LCO Dry Creek.

2.8.1 Benthic Invertebrate Tissue Selenium Concentration

2.8.1.1 The characteristics of benthic invertebrate tissue immediately downstream of the LCO Dry Creek Sedimentation Ponds discharge pipe to Dry Creek at monitoring location E295210 must not exceed the following limit:

EFFECTIVE DATE	April 1, 2023	
PARAMETER	LIMIT	METHOD/NOTES
Benthic invertebrate tissue selenium concentration	11 µg/g (dry weight)	Average of 5 replicate composite samples representative of the benthic invertebrate community calculated from measurements collected during the same sampling event

Monitoring location E295210 spans the 500 m long reach of Dry Creek between the following UTM locations as shown in Appendix 1Ia. The permittee must ensure sampling locations are distributed throughout the following 500 m long reach of stream representing exposure of fish to dietary selenium in this part of Dry Creek:

Location	**Easting**	**Northing**	**coord_type_code**
LC_DCDS (upstream extent)	657766	5542073	UTM_11N
500 m d/s LC_DCDS (downstream extent)	657548	5542477	UTM_11N

2.8.1.2 Monitoring

The permittee must conduct quarterly monitoring of benthic invertebrates at E295210. Each monitoring event must include the collection of five replicate composite samples that represent the benthic invertebrate community collected on the same day. Samples must be analyzed for abundance and taxonomy, and selenium tissue concentration. A photograph must be taken of the benthic invertebrates collected for each sample sent for tissue analysis, and the location within each sampling reach must be recorded.

If environmental conditions prevent the permittee from collecting the samples during a quarter, the permittee must document the effort and reason that the samples could not be collected within the quarter.

2.8.1.3 Reporting

The permittee must evaluate quarterly results from monitoring defined in Section 2.8.1.2 at E295210 against the benthic invertebrate tissue selenium concentration limit and submit a report to the director as per Sections 9.2.4 and 9.2.5 of this permit. The written quarterly report submitted in accordance with Section 9.2.4 must now include a summary of any benthic invertebrate tissue selenium concentration limit exceedances at E295210 and actions taken in response to any exceedances. The annual report submitted in accordance with Section 9.2.5 must now include a summary of all benthic invertebrate tissue selenium data collected throughout Dry Creek, including appropriate graphs and comparison of results to the permit limit, a description of actions taken in response to any exceedances, any new mitigation measures that were implemented, the status of investigations into alternative mitigation measures, and a schedule for proposed improvements.

3. SITE PERFORMANCE OBJECTIVES

3.1 SITE PERFORMANCE OBJECTIVES FOR ORDER STATIONS

The following Site Performance Objectives (SPO) are established at the Order stations. It is expected that SPOs will be maintained during all timeframes shown in the tables or immediately maintained if no date is indicated. Site performance objectives are expressed as monthly average concentrations. The monthly average concentration is defined as the average of all samples collected in a calendar month.

ORDER STATION {EVR ID} (Site Identification Number)	ORDER DESCRIPTION (EVR location description)	PARAMETER	UNIT	Nov. 19, 2014[3]	Dec. 31, 2019[3]	Dec. 31, 2023[3]	Dec. 31, 2025[3]	Dec. 31, 2028[3]
FR4 {GH_FR1} (0200378)	Fording River Downstream of Greenhills Creek	Total Selenium	µg/L	-	63	57	57	57
		Nitrate as N[2]	mg/L	20	14.0	11.0	11.0	11.0
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.39	0.39	0.39	0.39	0.39
FR5 {LC_LC5} (0200028)	Fording River at the Mouth (Fording River downstream of Line Creek)	Total Selenium	µg/L	-	51	40	40	40
		Nitrate as N[2]	mg/L	18	10.0	10.0	10.0	10.0
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.39	0.39	0.39	0.39	0.39
ER1 {GH_ER1} (0206661)	Elk River downstream of Greenhills Operations (Upstream of Boivin Creek)	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	3	3.0	3.0	3.0	3.0
		Sulphate	mg/L	309	309	309	309	309
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
ER2 {EV_ER4} (0200027)	Elk River from Fording River to Michel Creek (upstream of Grave Creek)	Total Selenium	µg/L	23	23	19	19	19
		Nitrate as N	mg/L	-	4.0	4.0	3.5	3.0
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
ER3 {EV_ER1} (0200393)	Elk River downstream of Michel Creek	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3.0	3.0	3.0	3.0
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24

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ER4 {RG_ELKORES} (E294312)	Elk River at Elko Reservoir	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3.0	3.0	3.0	3.0
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
LK2 (4)	Koocanusa Reservoir south of the Elk River	Total Selenium	µg/L	2	2	2	2	2
		Nitrate as N	mg/L	3	3.0	3.0	3.0	3.0
		Sulphate	mg/L	308	308	308	308	308
		Dissolved Cadmium[1]	µg/L	0.19	0.19	0.19	0.19	0.19

[1] Cadmium SPOs are hardness dependent based on the following formula:
Cd (in µg/L) = $10^{0.83\log10(\text{hardness})-2.53}$ where hardness is in mg/L of $CaCO_3$

[2] Nitrate SPOs for FR4 {GH_FR1} as of 2023 and FR5 {LC_LC5} as of 2019 are hardness dependent based on the following formula:

Level 1 benchmark for the Fording River N as mg/L = $10^{1.0003\log 10(\text{hardness})-1.52}$ where hardness is in mg/L of $CaCO_3$

For the purposes of calculating the targets above, hardness is based on the following concentrations:

FR4{GH_FR1}, FR5{LC_LC5}, and ER1{GH_ER1} – 360 mg/L
ER2{EV_ER4}, ER3{EV_ER1}, and ER4{RG_ELKORES} – 200 mg/L
LK2{RG_DSELK} – 150 mg/L

[3] Effective Date

[4] These SPOs are compared to the average of all samples collected on the transect as described in Tables 2A and 26, and according to the following calculation:

$CKMo = [\Sigma(\Sigma CD/ND)]/Nmo$

Where:

- CKMo is the monthly average concentration at Koocanusa Reservoir Order station LK2;
- CD are the concentrations of samples collected at transect locations at all depths sampled on the same day;
- ND are the number of samples collected at transect locations at all depths sampled on the same day; and
- Nmo are the number of days sampled in the month.

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for Director, *Environmental Management Act*
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3.2 TRIGGERS FOR REASSESSMENT OF LIMITS

In the event that a site performance objective listed in Section 3.1 is exceeded without an exceedance of limits in Section 2, the permittee must:

i. Immediately notify the director and KFNGs of the exceedance;

ii. Re-sample within 7 days of receiving data to confirm results;

iii. If the results continue to exceed an SPO, the permittee must re-assess discharge sources and determine appropriate limits for the compliance points detailed in Section 2, or new compliance points based on the re-assessment of discharge sources; and

iv. Provide to the director and KFNGs an explanation of the temporary exceedance or an application for an amendment of this permit with new or revised Section 2 limits within 3 months.

The director may specify additional monitoring in the event of a continued exceedance.

3.3 SITE PERFORMANCE OBJECTIVES FOR COMPLIANCE POINTS

The following Site Performance Objectives (SPOs) are established at the Compliance Points for sites where permit limits have not been specified in Section 2. It is expected that the SPOs will be maintained during all time frames.

<table>
<tr><th>COMPLIANCE POINT</th><th colspan="2">SITE PERFORMANCE OBJECTIVE</th></tr>
<tr><td rowspan="8">GHO Fording River,
GHO Elk River, EVO
Michel Creek</td><td colspan="2">Sulphate:
BCWQG FWAL[1]
(hardness dependent)</td></tr>
<tr><td>WATER HARDNESS[2] (mg/L)</td><td>SULPHATE GUIDELINE (mg/L)</td></tr>
<tr><td>Very Soft (0-30)</td><td>128</td></tr>
<tr><td>Soft to moderately soft (31-75)</td><td>218</td></tr>
<tr><td>Moderately soft/hard to hard (76-180)</td><td>309</td></tr>
<tr><td>Very hard (181-250)</td><td>429</td></tr>
<tr><td colspan="2">In addition, the following water quality benchmark as developed for the ABMP will be applied:</td></tr>
<tr><td>Very hard (>250)</td><td>429</td></tr>
<tr><td>All Compliance Points</td><td colspan="2">Cadmium:
Cd (in µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.53\}}$
where hardness is in mg/L of CaCO3</td></tr>
</table>

[1]BC Water Quality Guideline for Freshwater Aquatic Life
[2]Hardness is in mg/L $CaCO_3$

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Site performance objectives are expressed as monthly average concentrations. The monthly average concentration is defined as the average of the samples collected in a month.

3.3.1 Line Creek Dissolved Nickel Site Performance Objective

The following Site Performance Objective (SPO) is established for Line Creek. The SPO is a management target to be applied at the LCO Compliance Point (LC_LCDSSLC, E297110). The permittee must manage dissolved nickel concentrations through treatment at the WLC AWTF in accordance with Appendix 4B, and through water management practices, including pit dewatering in accordance with Permit 5353, with a goal to achieve conditions below the monthly average SPO value. The SPO should not be interpreted as a compliance limit.

Effective Date	October 1, 2026
Parameter	**Objective**
Dissolved Nickel	< 4.0 µg/L

Notes:

(1) The SPO is expressed as a monthly average concentration. The monthly average concentration is defined as the average value of measured concentrations for all samples collected in a calendar month at LC_LCDSSLC, except for months when there is an authorized bypass and enhanced monitoring occurs. With enhanced monitoring, as per Section 4B3.3.4.2.1, the monthly average concentration must be calculated using the time weighted average equation in Section 2.0.

It is recognized that during periods of authorized downtime of the WLC AWTF, as per Appendix 4B Section 4B3.3.4.2, or when Horseshoe Ridge Pit water is used to augment flows in Line Creek, the SPO may be temporarily exceeded. If the SPO is exceeded, the permittee must provide an explanation of the most probable cause(s) including any influence from the two conditions noted above, and any measures taken to reduce or correct the exceedance and mitigate the risk of exceedance in the future. This information must be submitted with the next quarterly report required in Section 9.2.4 unless otherwise required by the director.

3.3.1.1 Line Creek Dissolved Nickel Limit Development Process

The permittee must develop a proposed achievable dissolved nickel limit for Section 2.4.1 and submit a permit limit proposal package to the director by March 31, 2029. The permittee must use the Line Creek Dissolved Nickel SPO, actions taken, and learnings generated through operations to inform selection of the proposed limit. The package must include water quality projections compared to Elk Valley nickel effects benchmarks.

3.3.2 LCO Phase II (Dry Creek) Site Performance Objectives

3.3.2.1 The following Site Performance Objectives (SPOs) are established at location LC_DCDS (E295210) downstream of the LCO Dry Creek Sedimentation Ponds and the LCO Dry Creek Water Treatment Plant (DC WTP).

Effective Date	January 1, 2027	
Parameter	**High Flow Objective** (2)	**Low Flow Objective** (3)
Total Selenium (µg/L)	< 48	< 10
Nitrate as N (mg/L)	< 11.0	< 3.8
Dissolved Nickel (µg/L)	< 21	< 7

Notes:

(1) The SPOs are expressed as monthly average concentrations. The monthly average concentration is defined as the average value of measured concentrations for all samples collected in a calendar month at LC_DCDS, except for months when there is an authorized bypass and enhanced monitoring occurs. With enhanced monitoring, as per Section 4F2.3.4.2.1, the monthly average concentration must be calculated using the time weighted average equation in Section 2.0.
(2) Applies when the total daily flow into the facility's diversion structure on any day in the calendar month exceeds the capacity of LCO DC WTP (10,530 m^3/d).
(3) Applies during months in which total daily flow into the facility's diversion structure remains at or below LCO DC WTP capacity for all days of the calendar month.

3.3.2.2 These SPOs serve as management targets in Dry Creek that integrate influence from the Head Pond diversion structure, Dry Creek Water Management System, DC WTP, and water management practices. The SPO values are based on water quality projections presented in the permittee's application to operate Phase 1 of the DC WTP and are to be used as evaluation values, to understand if authorization conditions are serving their intended purpose in terms of achieving

predicted receiving environment conditions and that downstream water quality is within the range of projections.

3.3.2.3 The permittee must manage these parameters through treatment at the DC WTP in accordance with Appendix 4F, and through water management practices, including in accordance with Permit 5353, with a goal to achieve conditions below the SPO values. The SPOs should not be interpreted as compliance limits.

3.3.2.4 The permittee must compare monitoring data to the SPOs and report on their attainment. If the SPOs are exceeded, the permittee must provide an explanation of the most probable cause(s) including any influence from authorized bypass, and any measures taken to reduce or correct the exceedance(s) and mitigate the risk of exceedance(s) in the future. This information must be submitted with the next quarterly report required in Section 9.2.4 unless otherwise required by the director.

3.3.2.5 The SPOs will be reviewed by the director should water treatment requirements specified in Appendix 4F be updated.

3.4 SITE PERFORMANCE OBJECTIVES – CALCITE

The permittee must manage calcite levels in streams in Management Units 1, 2, 3, and 4 for streams that are fish bearing, provide fish habitat or flow directly into fish bearing streams and are not scheduled by an Environmental Assessment Certificate or Mines Act Permit to be buried. These streams must meet the following Site Performance Objectives:

1) By December 31, 2024 $CIConc \leq 0.50$
2) By December 31, 2029 $CItotal \leq 0.50$

Where:

CItotal:	Calcite Index (total)	=	CIConc + CIPres
CIConc:	Calcite Concretion	=	$\frac{\text{Sum of pebble concretion scores}}{\text{Number of pebbles counted}}$
CIPres:	Calcite Presence	=	$\frac{\text{Number of pebbles with calcite}}{\text{Number of pebbles counted}}$

3.5 SITE PERFORMANCE OBJECTIVES – LCO PHASE II

The following Site Performance Objectives (SPOs) are established for Unnamed Creek and Grace Creek. The SPOs are management targets to be applied at the mouth of Unnamed Creek (E295213) and at Grace Creek upstream of the CP rail tracks (E288275). The permittee must set triggers below the SPOs, that inform early implementation of pre-determined response actions and contingency measures to maintain conditions below the SPO values. The SPOs should not be interpreted as compliance limits.

Parameter	**Objective**	
Location	**Unnamed Creek**	**Grace Creek**
Total Selenium (µg/L)	<2 µg/L	<10 µg/L
Dissolved Cadmium (µg/L)	$<10^{0.83\log10(\text{hardness})-2.53}$ to a maximum of 0.32 µg/L (hardness = site water dissolved hardness as $CaCO_3$)	

3.5.1 Grace and Unnamed Creek Castover Trigger Response Plan

The permittee must cause a Qualified Professional to develop a Trigger Response Plan (TRP) for Grace Creek and Unnamed Creek addressing the risk to the environment due to castover from the LCO Phase II Project. The permittee must submit the TRP to the director by June 30, 2025.

The purpose of the TRP is to facilitate timely responses to ensure that the SPOs for Grace Creek and Unnamed Creek are not exceeded.

The TRP must include, but not be limited to:

a) A flow chart detailing the decision-making process for each stage of the TRP; and,
b) A table detailing all actions to be implemented at each trigger level, including responsible parties, applicable time frames, and notifications to the director via the ENVSECoal@gov.bc.ca email address.

The permittee must implement the most recent version of the TRP.

The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

The permittee must maintain the most recent version of the TRP onsite for inspection by ENV at any time.

The permittee must cause a Qualified Professional to modify or amend the TRP as required by the director, and the permittee must within the timeframe specified by the director resubmit to the director the TRP with required modifications or amendments.

4. TRIBUTARY EVALUATION AND MANAGEMENT

The permittee must develop and implement a phased study design for a Tributary Evaluation Program and develop and implement a Tributary Management Plan. The Tributary Evaluation Program and the Tributary Management Plan must include all tributaries affected or potentially influenced by the permittee's current operations and future development plans in Management Units 1, 2, 3, and 4, as defined in the Elk Valley Water Quality Plan.

The Tributary Evaluation Program is intended to evaluate the ecological value of tributaries to the Elk and Fording Rivers to support identification of tributaries that play a significant role in supporting the health of the ecosystem as a whole. The Tributary Evaluation Program must include the following elements:

i. Inventory of tributaries to the Elk and Fording Rivers that are located in Management Units 1, 2, 3, and 4 that are affected or potentially influenced by the permittee's current and future development plans;

ii. Maps of Management Units 1, 2, 3, and 4 showing the locations of the tributaries of the Elk and Fording Rivers, and identifying the tributaries that are affected or potentially influenced by the permittee's current and future development plans;

iii. Collation of existing and readily available data and information on each tributary, including surface-water chemistry, surface-water toxicity, sediment chemistry, sediment-toxicity, calcification, flow, habitat value ranking, benthic invertebrate community structure, and habitat use by fish and/or sensitive aquatic dependent wildlife (i.e., water birds);

iv. Evaluation of historical (i.e. conditions relevant to the 1980 timeframe, where available) and current habitat value, based on surface-water quality, sediment quality, extent of calcification, flow, amount of habitat available, habitat types, physical features, connectivity to fish habitat, status of riparian habitat, and habitat use by fish and sensitive aquatic dependent wildlife species;

v. Evaluation of the potential for rehabilitation of aquatic and riparian habitat and potential for improvement of water quality conditions; and

vi. Prioritization of each tributary for ongoing protection and/or restoration based on the evaluation of current ecological value, potential for rehabilitation, and potential to contribute to the objectives of the EVWQP.

The purpose of this evaluation is to provide context for the development of specific management objectives for tributaries included in the Tributary Management Plan. As the Tributary Evaluation Program will also provide essential information for assessing the potential effects of planned mine expansions and new projects, the components of the program that relate to the upper Fording River and the Michel Creek watershed should be completed on a priority basis as part of the phased study design.

Following the evaluation of the tributaries, the permittee must develop and implement a Tributary Management Plan. The Tributary Management Plan is intended to incorporate protection and rehabilitation goals for tributaries that will support achieving the area-based objectives of the Elk Valley Water Quality Plan. In development of the Tributary Management Plan, those tributaries that are not impacted by mining activities, that provide relatively high habitat value, and/or support ongoing habitat use by fish and sensitive aquatic dependent wildlife (i.e. directly or indirectly through food production) shall be identified as the highest priority tributaries for permanent protection. Those tributaries that have been impacted by mining, provide or have the potential to provide relatively high habitat value, and/or support or could support habitat use by fish and sensitive aquatic dependent wildlife shall be identified as the highest priority tributaries for restoration/rehabilitation. The Tributary Management Plan will consider the permittee's future mine development plans. The scope of the Tributary Management Plan excludes tributaries that have been permanently removed or severely altered (e.g., covered by waste spoils or other mine infrastructure or dewatered) by mining activities within the permittee's current mine permit boundaries. Loss of habitat for such tributaries is governed by requirements under the Federal Fisheries Act and the provincial mitigation policy.

The Tributary Evaluation Program and Tributary Management Plan will complement the Elk Valley Water Quality Plan and clearly detail any proposed management of water quality conditions, flows and ecological values within the tributaries affected or influenced by the permittee's current operations and planned developments in Management Units 1, 2, 3, and 4, as defined in the Elk Valley Water Quality Plan.

The following development and implementation timelines apply:

1) A Phased Study Design for the Tributary Evaluation Program, including a listing of all tributaries to be evaluated, must be submitted to the EMC by May 1, 2015.
2) The Phased Study Design for the Tributary Evaluation Program must be submitted for acceptance to the director by May 31, 2015.
3) The Terms of Reference for the Tributary Management Plan must be submitted to the EMC by March 31, 2016.
4) Data collected during the Tributary Evaluation Program for current ecological value of tributaries within Management Units 1, 2, 3 and 4 must be compiled into a written report and submitted to the EMC by March 31, 2016.
5) Analysis and interpretation of Tributary Evaluation Program data, assessment of potential for rehabilitation and/or mitigation, and prioritization of tributaries for potential future habitat rehabilitation must be compiled into a written interim report and submitted to the EMC by August 31, 2016.
6) Interim Tributary Management Plan report must be submitted to the EMC by July 31, 2017. The Tributary Management Plan must be submitted for acceptance to the director by December 31, 2017. The Tributary Management Plan must be implemented by March 1, 2018.
7) An updated Tributary Management Plan must be submitted for acceptance to the director by July 31, 2020. Thereafter, the Plan must be updated and submitted for acceptance to the director by July 31st every three years. Updated Tributary Management Plans must be prepared in consultation with the EMC. The updates shall, at a minimum, incorporate any changes to the permittee's current and future development plans.
8) The accepted Tributary Management Plan must be implemented, and an annual implementation report must be submitted to the director and to the EMC by January 31st of each year. The annual report must describe implementation activities undertaken in tributaries in the Designated Area including those under the Tributary Management Plan itself, other legal requirements and other supporting programs, in the previous 12 months to rehabilitate impacted tributaries and protect high value, unimpacted tributaries.

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5. CONTAMINANT MANAGEMENT PLANS

5.1 CALCITE MANAGEMENT PLAN

The permittee must update and submit the Calcite Management Plan to the satisfaction of the director, as outlined in Chapter 7 of the Elk Valley Water Quality Plan, by July 31, 2016 and every three years thereafter. The Calcite Management Plan must include a list of streams that according to Section 3.4 must meet the Calcite Site Performance Objectives and provide a schedule for implementation of mitigation measures. Mitigation measures must be implemented according to the schedule.

Refer to Appendix 5 for calcite treatment facility operational requirements.

5.1.1 Antiscalant Effects Assessment

The permittee must develop and implement a study design for assessing the cumulative effects of regional antiscalant application in parallel to work being undertaken by the permittee in accordance with Sections 3.4 and 5.1. The study design must be reviewed by the EMC prior to submission to the director. The assessment must include the permittee's operating calcite treatment facilities and future planned calcite treatment facilities as outlined within the 2022 Calcite Management Plan.

The purpose of this assessment is to evaluate the potential effects of planned calcite treatment projects on a regional scale. The assessment must address the potential toxic effects of exposure of ecological and human receptors to antiscalant addition as well as to modelled concentrations of metal constituents typically attenuated during calcite formation. Should the assessment demonstrate that the planned calcite treatment projects represent an unacceptable level of risk to the environment or human health, the director may require submission of an interim Calcite Management Plan.

The following timelines apply:

i. A study design for the Antiscalant Effects Assessment must be submitted to the director, for approval, by April 20, 2022.

ii. Analysis and an integrated interpretation of Antiscalant Effects Assessment data in the Elk River Watershed and evaluation of

the potential for antiscalant cumulative effects must be compiled into a written report and submitted to the director and the EMC by June 2, 2023. The assessment must be accompanied by recommendations from a Qualified Professional regarding whether any changes or updates are needed to the most recent version of the Calcite Management Plan.

5.2 **NICKEL MANAGEMENT**

5.2.1 Regional Nickel Management Strategy

The permittee must develop a Nickel Management Strategy for the Designated Area and submit it to the director by May 31, 2024. The strategy should describe a strategic approach for addressing risks and impacts from nickel, including consideration of local scale effects. The permittee must submit an annotated Table of Contents for the Strategy to the director by July 27, 2023, and based on this, the director may require additions or modifications. The Nickel Management Strategy must address but is not limited to the following:

i. Assessing Impact
Assess the current and future state, including:

a) A characterization of current nickel sources and an evaluation of current water quality concentrations and predicted (and/or measured) environmental effects associated with nickel using the approved nickel benchmarks; and
b) Projections of how nickel sources and concentrations are expected to change in the future. The basis of the projections (including the model assumptions used) will be provided.

ii. Inventory of Potential Management Strategies
Summarize the current understanding of nickel management and mitigation techniques, including research and development technology projects, treatment technologies and other techniques or practices.

iii. Proposing Outcomes to be Achieved
Identify and evaluate possible future state outcomes through examination of scenarios, including:

a) Identify environmental outcome options that demonstrate reduction of risks in impacted areas, and protect values in unimpacted areas;
b) Identify and evaluate specific strategies to achieve the outcomes, including an assessment of feasibility and timelines; and

iv. Implementation Actions and Approach
Propose an implementation strategy including:

a) Identify priority actions;

b) Describe a strategic approach for advancing these actions in a timely manner; and

c) Propose how the nickel benchmarks may be used to inform site-specific permit requirements and/or concentration targets.

The director may require EVR to make changes or updates to the Regional Nickel Management Strategy once submitted, and/or may use the strategy to establish future regulatory requirements.

5.3 NITROGEN SOURCE CONTROL PLAN

The permittee must develop a Nitrogen Source Control Plan that applies to operations at each of the EVR Mine Sites in the Designated Area prepared by a Qualified Professional. The Nitrogen Source Control Plan must be submitted to the director by May 31, 2021. The plan must include, at a minimum, the following:

i. A discussion of the current state of understanding of the physical and biogeochemical processes occurring within and downgradient of waste rock spoils as a result of loss of nitrogen species to the environment from blasting practices.

ii. A discussion of nitrogen speciation, interaction effects with other Parameters of Concern, changes to concentrations over time, etc.

iii. A description of management strategies that have been and will be implemented to prevent the loss of nitrogen species to the environment. Each nitrogen management strategy must be coupled with measurable key performance indicators (KPIs) and/or management performance metrics, with timelines for achievement, that will allow the success of each management strategy to be measured.

The submitted Nitrogen Source Control Plan must be implemented and any updates to the plan must be submitted to the director within 30 days of adoption.

6. GENERAL REQUIREMENTS

6.1 ENVIRONMENTAL EMERGENCY RESPONSE PLAN

The permittee must maintain an Environmental Emergency Response Plan which includes effective procedures for responding to all probable environmental emergencies associated with the EVR operations and mine site areas, including the suspension of discharge of effluent(s) where appropriate, if required. The permittee must keep this plan up to date and provide the director with any updates to this plan within 30 days of adoption of the plan update.

The director may require periodic review of the response plan, and/or a report on any emergency event associated with the mine operation or occurring at the mine site.

6.1.1 The Emergency Response Plan must at a minimum include:

i. Identification of Environmental Aspects as defined by the ISO 14001 Environmental Management System Standards that pose a risk to the environment or public safety;

ii. An evaluation of the identified environmental aspects including a fate and effects assessment where applicable;

iii. Maps identifying areas of high environmental sensitivity around the mine sites including along the transportation corridors, and areas downstream of water-crossings where spilled materials can reasonably be anticipated to impact;

iv. Site specific spill response tactics, including the required training and resources to implement those tactics for each of the identified materials or risks during an emergency event;

v. Requirements and procedures for spill reporting and/or emergency notification to various levels of government, including the KFNGs; and

vi. Procedure for establishing formal interagency communication for the duration of the emergency and clean-up as necessary.

6.1.2 The permittee must maintain an Environmental Emergency Response Plan and ensure:

i. Adequate equipment caches are available at each operation, at a minimum, to enable timely and effective response to the identified highly sensitive areas and implementation of the plan;

ii. Identify, train and have available a sufficient number of emergency responders to effectively and efficiently respond and implement the identified emergency response tactics;

iii. Conduct regularly scheduled emergency response drills and exercises to test and refine the plan; and

iv. Participate in efforts to harmonize spill response kits and plans with other industrial operators and municipalities.

6.2 EFFLUENT NON-TOXICITY

6.2.1 Effluent is not acutely toxic if it does not cause greater than 50% mortality in 96 hr Rainbow Trout (*Oncorhynchus mykiss)* single concentration toxicity tests (EPS 1/RM/13 2nd edition, December 2000) or greater than 50% mortality in 48 hr *Daphnia magna* single concentration toxicity tests (EPS 1/RM/14 2nd edition, December 2000).

6.2.2 Where acute toxicity testing is required at discharge monitoring sites in Appendix 2 Tables 10 through 25, Appendix 4, and Appendix 5, effluent must not be acutely toxic, as per Section 6.2.1.

6.3 QUALIFIED PROFESSIONAL

A qualified professional is defined as follows:

"Qualified Professional" means an applied scientist or technologist specializing in an applied science or technology applicable to the duty or function, including, if applicable and without limiting this, agrology, biology, chemistry, engineering, geology or hydrogeology and who:

i. is registered with the appropriate professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and

ii. through suitable education, experience, accreditation and/or knowledge, may be reasonably relied on to provide advice within their area of expertise.

All documents submitted to the director by a Qualified Professional must be signed by the author(s). In addition, a completed Declaration of Competency and Conflict of Interest Disclosure Statement must accompany documents submitted to the director by a Qualified Professional.

6.4 PUBLIC NOTIFICATION REGARDING POTABLE WATER USE IN ELK VALLEY

The permittee must provide annual notification to all current water users (specifically surface and shallow groundwater users along the Fording and Elk Rivers) downstream of the EVR Operations Limited, where impacts from mining are causing exceedances of the British Columbia Drinking Water Quality Guidelines. The notification must:

i. Advise current water users in the Elk Valley of the risks for drinking water sources to exceed drinking water guidelines;

ii. Remind all water users to have their source water sources tested to identify if treatment is required prior to drinking;

iii. Have the same information accessible and maintained on the Internet; and

iv. Annually by March 31, submit a written report to the director describing compliance with the requirements of this section for the previous year.

A draft of the notification must be submitted to Interior Health (email: hbe@interiorhealth.ca) and to the director 30 days prior to distribution. This

notification requirement must continue until such time as water quality in the affected areas improves such that BC Drinking Water Quality Guidelines are achieved for mining-related Parameters of Concern determined through the Regional Groundwater Monitoring Program.

6.5 SPLIT SAMPLE AUDIT FAILURE

The permittee may be required to participate in a split sample audit, in accordance with the Environmental Data Quality Assurance Regulation. If the Ministry determines the results of the Split Sample Audit to be a failure, the permittee will be notified.

In the event of a split sample audit failure, the permittee must immediately, following receipt of the notification of the failure, conduct an investigation into the root cause of the failure. A report summarizing the current results of this investigation must be submitted to the director as part of the Annual Report for the year in which the notification of the split sample audit failure was issued to the permittee. This report must include, but not necessarily be limited to, the following information:

a) Cause of failure; and
b) Steps taken and/or planned to prevent reoccurrence.

6.6 DAILY MAXIMUM LIMITS ASSESSMENT

The permittee must cause a Qualified Professional to assess the value of the daily maximum limits at the following Permit 107517 Compliance Points:

- Fording River Operations – Fording River (FR_FRABCH)
- Greenhills Operations – Fording River (GH_FR1)
- Line Creek Operations – Line Creek (LC_LCDSSLC)

The assessment must be submitted to the director by December 15, 2026, and must:

i. Describe how the limits have driven past actions taken by the permittee;
ii. Summarize past noncompliance with the limits and describe the reason for the noncompliance;
iii. Explain how the values relate to relevant acute or short-term effects thresholds; and
iv. Provide recommendations related to the use of daily maximum limits.

7. WATER QUALITY MITIGATION

7.1 WATER QUALITY MITIGATION PLAN

7.1.1 The permittee must develop a Water Quality Mitigation Plan and submit it to the director, with a copy provided to the Ministry of Mining and Critical Minerals Chief Permitting Officer, by July 31, 2025.

The Water Quality Mitigation Plan, and any updates to it required under Section 7.1.6 must:

7.1.1.1 Demonstrate how the Compliance Point limits, and Site Performance Objectives for Compliance Points and Order stations, for the Order parameters (excluding calcite) will be met, using the most recent Regional Water Quality Model described in Section 9.9, the most recent permitted development for the permittee's five Elk Valley coal mine sites, and by implementing Best Achievable Technology, including water treatment technologies and source control measures that have been accepted for use in mitigation planning;

7.1.1.2 For each proposed water treatment facility clearly identify the proposed location, Treatment Source(s), Effective Treatment Capacity, and Operational Date;

7.1.1.3 Provide water quality projections for Order parameters (excluding calcite) at Compliance Points and Order stations for the Permitted Development Planning Period;

7.1.1.4 Be modified or amended as required by the director, and the permittee must, within the timeframe specified by the director, resubmit to the director the Water Quality Mitigation Plan with any required modifications or amendments;

7.1.1.5 Be developed in accordance with the approved Terms of Reference described in Section 7.1.3; and,

7.1.1.6 Include:

a) A description of any measures other than water treatment that the permittee expects to seek approval to implement (or can implement without requiring formal approval) in the next five years for the purpose of improving water quality or reducing reliance on water treatment; and
b) Information on timing and extent of measures referred to in paragraph 7.1.1.6 a), to the extent known.

7.1.2 The permittee must submit Regional Water Quality Model output data in digital spreadsheet format (i.e., Microsoft Excel) for the Water Quality Mitigation Plan scenario including projected monthly average concentrations under the range of projections used for mitigation planning.

7.1.3 The permittee must develop a Terms of Reference for the Water Quality Mitigation Plan updates required under section 7.1.6. The Terms of Reference must describe the treatment-related model assumptions used, the sensitivity scenarios, and other expectations for the update. The permittee must submit the Terms of Reference to the director, for approval, with a copy provided to the Ministry of Mining and Critical Minerals Chief Permitting Officer, by September 30, 2029, and updates to the Terms of Reference must be provided to the director by each fifth anniversary of that date.

7.1.4 The director may approve the Terms of Reference submitted under Section 7.1.3, amend them, or require the permittee to amend.

7.1.5 The director may consider the Water Quality Mitigation Plan and/or request additional information to update other requirements such as those in Section 7.2 of this permit.

7.1.6 No later September 30, 2030, and every five years thereafter, the permittee must submit updates to the Water Quality Mitigation Plan in accordance with Section 7.1.1 prepared in accordance with the most recent Terms of Reference approved under Section 7.1.4.

7.2 WATER QUALITY TREATMENT SCHEDULE

The permittee must design, construct, and achieve Operational Dates for water treatment as set out in this section, and commission and operate the treatment facilities as designed and in accordance with Appendix 4 requirements. The treatment requirements outlined in Section 7.2.1 and Section 7.2.2 may be adjusted by the director upon receipt of new information, including but not limited to, the Water Quality Mitigation Plan and updates to it.

7.2.1: SELENIUM AND NITRATE TREATMENT TABLE

OPERATIONAL DATE	TREATMENT SOURCES	EFFECTIVE TREATMENT CAPACITY (m^3/day)
December 31, 2025	FRO: Clode, Liverpool, Swift Pit, Post Ponds	10,000
October 1, 2026	LCO: NLC Pit, NLX Pit, MSAW Pit	10,000
December 31, 2026	FRO: Clode, Liverpool, Swift Pit, Post Ponds, Eagle Pond, Kilmarnock	20,000
December 31, 2026	LCO: LCO Dry Creek	10,000
December 31, 2027	GHO: Greenhills Creek	3,000
December 31, 2027	EVO: Erickson Creek, Natal Pit	15,000
December 31, 2030	LCO: North Line Creek, NLX, West Line Creek, Line Creek	10,000
December 31, 2031	LCO: LCO Dry Creek	12,000
June 30, 2033	FRO: Eagle 6 Pit North and South	6,500
December 31, 2033	LCO: North Line Creek, NLX, West Line Creek, Line Creek	10,000
December 31, 2036	EVO: Dry Creek	3,000
June 30, 2042	GHO: Cougar South Pit, Leask, Wolfram, Thompson, Porter	5,500
December 31, 2042	EVO: Baldy Ridge Pit, Erickson Creek, Natal Pit	5,000
December 31, 2092	FRO: Eagle 6 Pit North	2,500
December 31, 2118	FRO: Swift Pit	15,000

7.2.2 SULPHATE TREATMENT TABLE

OPERATIONAL DATE	TREATMENT SOURCES	EFFECTIVE TREATMENT CAPACITY (m^3/day)
October 1, 2026	LCO: West Line Creek, MSAW Pit, Line Creek	2,500
December 31, 2026	FRO: Swift/Cataract (including GHO sources), Kilmarnock	8,500
December 31, 2026	LCO: LCO Dry Creek	10,000
December 31, 2030	FRO: Clode, Liverpool Ponds, Swift Pit, Post Ponds, Eagle Pond	12,500
December 31, 2030	LCO: West Line Creek, MSAW, Line Creek	2,500
December 31, 2031	LCO: LCO Dry Creek	12,000
December 31, 2033	EVO: Dry Creek	2,500
December 31, 2034	FRO: Clode, Liverpool Ponds, Swift Pit, Post Ponds, Eagle Pond	10,000
December 31, 2038	EVO: Dry Creek	2,000

7.3 **RESEARCH AND TECHNOLOGY DEVELOPMENT**

7.3.1 RESEARCH ACTIVITIES

i. The permittee must conduct a research and technology development program aimed at:

   a) Identifying, evaluating, and verifying measures to minimize the release of selenium, nitrate, sulphate, cadmium, calcite, and any other Parameters of Concern designated by the director; and

   b) Developing mitigation strategies to improve the management of water quality and calcite within the Designated Area.

ii. Research and technology development activities must specifically include research to identify, evaluate, and validate measures to reduce the reliance on long term active water treatment.

iii. Research areas must include, but not be limited to, the following topics:

   a) geochemical release mechanisms, release rates and relationships between factors that influence contaminant release;

   b) saturated and unsaturated flow mechanisms in waste piles;

   c) mine waste rock management and dump design alternatives;

   d) cover systems including soil and vegetative covers, complex soil covers and geomembranes;

   e) water capture, diversion and conveyance systems;

   f) active and semi-passive water treatment, including partially saturated waste rock fills;

   g) water treatment residuals management;

   h) treatment strategies for phosphorus reduction;

   i) treatment strategies for sulphate and cadmium reduction, if needed in the future;

   j) nitrate reduction through treatment and improved blasting practices; and,

   k) predictive tools and treatment/management technologies for calcite formation.

iv. All on-site field trials for mitigation strategies and on-site piloting work for water treatment must be discussed with the director to determine whether they will require permit amendments before proceeding.

7.3.2 REPORTING

The permittee must submit an annual Research and Technology Development Progress Report by March 31st of each year that contains:

i. A detailed rationalization of the overall research program including reasons why specific research areas are/are not being investigated in a given year;

ii. Detailed information on research objectives, study designs, data collected, results and interpretation, and plans for future research and technology development;

iii. An evaluation of the technologies relative to their potential for implementation at specific locations within the Designated Area;

iv. A timeframe for implementation of technologies at pilot and at full-scales and for integration into the Adaptive Management Plan; and,

v. Portions of the report that contain proprietary information must be marked “Confidential – Proprietary.” Release of information is subject to the Freedom and Information Privacy Act.

8. MONITORING REQUIREMENTS

The director may alter the monitoring and reporting requirements in this permit as needed. The need for changes to the programs will be based on results submitted as well as any other information obtained by the director in connection with the discharges.

8.1 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING PROGRAMS

The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in Appendix 2 Tables 10 through 25. The permittee must sample flow at the sites listed and at the frequency recommended in Appendix B in the approved Regional Surface Flow Monitoring Plan. The discharge and receiving environment water sampling sites are located approximately as shown in Appendix 1.

8.1.1 SAMPLING SITES

Discharge and receiving environment sample collection locations are described and numerically identified in Tables 1 through 8.

TABLE 1: COMPLIANCE POINTS SAMPLING LOCATIONS (APPENDIX 1C)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE*	*SITE DESCRIPTION*
E223753	FR_FRABCH	FRO	Fording River, approximately 100 m upstream of Chauncey Creek
0200378	GH_FR1	GHO	Fording River, approximately 205 m downstream of Greenhills Creek
E300090	GH_ERC	GHO	Elk River, approximately 220 m downstream of Thompson Creek
E297110	LC_LCDSSLCC	LCO	Line Creek, immediately downstream of South Line Creek Confluence (approximately 1500 m downstream of the WLC WTP outfall)
E102682	EV_HC1	EVO	Harmer Spillway
E300091	EV_MC2	EVO	Michel Creek, at Highway 3 Bridge
E258937	CM_MC2	CMO	Michel Creek, approximately 50m upstream of Andy Goode Creek

TABLE 2: ORDER STATIONS SAMPLING LOCATIONS (APPENDIX 1D AND 1E)

SITE IDENTIFICATION #	*ORDER STATION (EVR IDENTIFIER)*	*SITE DESCRIPTION*
0200378	FR4 (GH_FR1)	Upper Fording River, downstream of Greenhills Creek
0200028	FR5 (LC_LC5)	Lower Fording River, downstream of Line Creek
0206661	ER1 (GH_ER1)	Elk River, upstream of Boivin Creek
0200027	ER2 (EV_ER4)	Elk River, upstream of Grave Creek (from Fording River to Michel Creek)
0200393	ER3 (EV_ER1)	Elk River, downstream of Michel Creek
E294312	ER4 (RG_ELKORES)	Elk River, at Elko Reservoir
	LK2	Koocanusa Reservoir transect, south of the Elk River, refer to Table 2A for individual transect sampling locations

TABLE 2A: KOOCANUSA RESERVOIR ORDER STATION LK2 – TRANSECT SAMPLING LOCATIONS (APPENDIX 1E)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E300230	RG_DSELK	Koocanusa Reservoir south of Elk River, middle transect sampling location
E327371	RG_DSELK_L2	Koocanusa Reservoir south of Elk River, transect sampling location 250 m towards left downstream bank from RG_DSELK
E327372	RG_DSELK_L1	Koocanusa Reservoir south of Elk River, transect sampling location 125 m towards left downstream bank from RG_DSELK
E327373	RG_DSELK_R1	Koocanusa Reservoir south of Elk River, transect sampling location 125 m towards right downstream bank from RG_DSELK
E327374	RG_DSELK_R2	Koocanusa Reservoir south of Elk River, transect sampling location 250 m towards right downstream bank from RG_DSELK

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Date amended: December 19, 2025
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TABLE 3: FORDING RIVER OPERATIONS DISCHARGE, RECEIVING ENVIRONMENT, AND OTHER SAMPLE LOCATIONS (APPENDIX 1F)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E102475	FR_TP1	Tailings Slurry to North Tailings Pond
E206660	FR_TP3	Tailings Slurry to South Tailings Pond
E102476	FR_NL1	North Loop Settling Pond Decant to the Fording River
E102478	FR_MS1	Maintenance and Services Settling Pond Decant to the Fording River
E102480	FR_EC1	Eagle Settling Pond Decant to the Fording River
E102481	FR_CC1	Clode Settling Pond Decant to the Fording River
E208394	FR_SKP1	South Kilmarnock Settling Pond Decant - Phase 1
E208395	FR_SKP2	South Kilmarnock Settling Pond Decant- Phase 2
E216781	FR_HP1	Henretta Pit Effluent into the Henretta diversion culverts
E261897	FR_SP1	Smith Ponds Decant to the Fording River
E217403	FR_3PIT	Swift Pit Effluent to the Fording River
E320694	FR_SCOUT	Discharge from the pipeline conveying the combined, untreated mine-influenced flow from Swift-Cataract dosed with antiscalant, and Swift Clean Water Diversion at the FRO-S AWTF Outfall Structure
E304835	FR_LP1	Liverpool Sediment Pond Decant to the Fording River
E304750	FR_PP1	Post Sediment Pond Decant to the Fording River
E306924	FR_LMP1	Lake Mountain Sediment Pond Decant to Lake Mountain Creek
E325311	FR_FWP1	Floodplain Widening Sediment Pond Decant to the Fording River
E325312	FR_FWP1H	Floodplain Widening Sediment Pond in-pond sample location
0200201	FR_FR2	Fording River upstream of Kilmarnock Creek
E320695	FR_SCOUTDS	Fording River downstream (approx. 100 m) of FRO-S AWTF Outfall Structure
E300071	FR_FRCP1	Fording River, approximately 525 m downstream of Cataract Creek
0200251	FR_FR1	Fording River downstream of Henretta
E216777	FR_UFR1	Fording River upstream of Henretta
E216778	FR_HC1	Henretta Creek at mouth
E300096	FR_HC3	Henretta Creek upstream of McQuarrie Creek
E300097	FR_FRRD	Fording River near Fording River Road
0200252	FR_KC1	Kilmarnock Creek at mouth

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TABLE 4: GREENHILLS OPERATIONS DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1G)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E287438	GH_TPS	Tailings Pond Water
E102709	GH_GH1	Greenhills Creek Sediment Pond Decant to Greenhills Creek
E207436	GH_TC2	Thompson Creek Sediment Pond Decant to Thompson Creek
0200385	GH_PC1	Porter Creek Sed. Pond Decant to Porter Creek
E257795	GH_WC1	Wolfram Creek Sediment Pond Decant to the Elk River
E257796	GH_LC1	Leask Creek Sediment Pond Decant to the Elk River
E339005	GH_LC2	Leask Creek Sediment Pond Inflow
E207437	GH_RLP	Rail Loop Sediment Pond Decant
0200388	GH_MC1	Mickelson Creek at LRP Road
E287433	GH_WADE	Wade Creek at LRP Road
E305855	GH_WOLF_SP1	Wolf Creek Sediment Pond Decant to the Elk River
E305854	GH_WILLOW_SP1	Willow Creek Sediment Pond Decant to the Elk River
0200389	GH_ER2	Elk River upstream of Greenhills Operation
E102714	GH_TC1	Thompson Creek at LRP Road
E287432	GH_COUGAR	Cougar Creek at LRP Road
E287437	GH_BR_F	Branch F at LRP Road
E305875	GH_NNC	No Name Creek
E305876	GH_ER1A	Elk River Side Channel downstream of Wolfram Creek
E305877	GH_ERSC2	Elk River downstream of Thompson Creek
E305878	GH_ERSC4	Elk River Side Channel upstream of Wolfram Creek
E327411	GH_RC1	Rush Creek at LRP Road
E327412	GH_FC1	Fowler Creek at LRP Road

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TABLE 5: LINE CREEK OPERATIONS PHASE I DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1H)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E221268	LC_LC9	No Name Creek Sediment Pond Decant
E216144	LC_LC7	MSA North Ponds to Line Creek
E304613	LC_LC7DSTF	MSA North Ponds to Line Creek Alternate
E219411	LC_LC8	Contingency Treatment System to Line Creek
0200044	LC_LC4	Line Creek upstream of Process Plant (~5,550 m downstream of WLC AWTF outfall)
0200337	LC_LC3	Line Creek downstream of West Line Creek (~200 m downstream of WLC AWTF outfall)
0200335	LC_LC2	Line Creek upstream of Rock Drain
E293369	LC_LCUSWLC	Line Creek upstream of West Line Creek, below rock drain (~ 140 m upstream of WLC AWTF outfall)
E216142	LC_LC1	Line Creek upstream MSA North Pit
E282149	LC_SLC	South Line Creek West Side of Main Rock Drain
E261958	LC_WLC	West Line Creek
E223240	LC_LC12	North Horseshoe Creek Near Mouth
E308146	LC_HSP	Horseshoe Ridge Pit water to Line Creek via Line Creek Rock Drain

TABLE 6: LINE CREEK OPERATIONS PHASE II DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1H)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E295211	LC_SPDC	LCO Dry Creek Sedimentation Ponds to Dry Creek
E295313	LC_DSSW	Diversion Structure Spillway
E295314	LC_SP1SW	Sedimentation Pond 1 Spillway
E295315	LC_SP2SW	Sedimentation Pond 2 Spillway
E288274	LC_DCEF	East Tributary of LCO Dry Creek
E288273	LC_DC3	LCO Dry Creek upstream of East Tributary Creek
E295210	LC_DCDS	LCO Dry Creek downstream of sedimentation ponds
E288270	LC_DC1	LCO Dry Creek near mouth (at bridge)
E295213	LC_UC	Unnamed Creek
E288275	LC_GRCK	Grace Creek upstream of the CP rail tracks
E326826	LC_FRB	Fording River Bridge, downstream of LCO Dry Creek
E295214	RG_CH1	Chauncey Creek

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TABLE 7: ELKVIEW OPERATIONS DISCHARGE, RECEIVING ENVIRONMENT AND OTHER SAMPLE LOCATIONS (APPENDIX 1I)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E296310	EV_GH1	West Fork Tailings Impoundment to ground
0200097	EV_EC1	Erickson Creek at Mouth to Michel Creek
E296311	EV_SP1	South Pit Creek Sedimentation Pond Decant to Michel Creek
E208057	EV_MG1	Lower Milligan Creek Sedimentation Pond Decant to Michel Creek
E206231	EV_GT1	Gate Creek Sedimentation Pond Decant to Michel Creek
E102685	EV_BC1	Bodie Creek Sedimentation Pond Decant to Bodie Creek
E302170	EV_AQ6	Aqueduct Pond Control Structure to Aqueduct Creek
E102679	EV_OC1	Otto Creek Sedimentation Pond, measured 70 m upstream of the confluence with the Elk River
E208043	EV_GC2	Goddard Creek Sedimentation Pond Decant to Elk River via Goddard Marsh
E258135	EV_LC1	Lindsay Creek Infiltration Pond to ground
E102681	EV_SM1	6 Mile Creek Sedimentation Pond Decant to Elk River
0200203	EV_MC3	Michel Creek upstream of Erickson Creek
0200111	EV_ER2	Elk River upstream of Michel Creek
E298592	EV_BLM2	Balmer Creek at CFI Road
E298591	EV_FC1	Fennelon Creek at CFI Road
E298594	EV_SPR2	Spring Creek upstream of confluence with Aqueduct Creek
E298593	EV_TC1	Thresher Creek at Milligan Road

TABLE 8: COAL MOUNTAIN OPERATIONS DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1J)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E102488	CM_SPD	Main Interceptor Sedimentation Ponds Decant to Corbin Creek
E330652	CM_CCOFF	Decant Discharge monitoring location for Corbin Sedimentation Pond Decant to Corbin Creek
E298733	CM_PC2	Pengelly Channel to Corbin Creek
E298734	CM_SOW	Sowchuck Sump
E258175	CM_MC1	Michel Creek upstream of Operations
0200209	CM_CC1	Corbin Creek near confluence with Michel Creek

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TABLE 9: KOOCANUSA RESERVOIR RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1E)

SITE IDENTIFICATION #	*EVR IDENTIFIER*	*SITE DESCRIPTION*
E300095	RG_KERRRD	Koocanusa Reservoir, downstream of Kikkoman Creek
E300092	RG_GRASMERE	Koocanusa Reservoir, west of Grasmere
E300093	RG_USGOLD	Koocanusa Reservoir, upstream of Gold Creek
E300094	RG_BORDER	Koocanusa Reservoir, upstream of the Canada/US border

8.1.2 SAMPLING AND ANALYTICAL PROCEDURES

The following sections apply to the monitoring required as per Section 8 of this permit.

8.1.2.1 SAMPLING PROCEDURES & LAB ANALYSES

The permittee must carry out sampling in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2013 Edition" or most recent edition, or by alternative procedures as authorized by the director.

A copy of the above manual is available on the Ministry web page at https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-field-sampling-manual.

The permittee must carry out analyses in accordance with procedures described in the "British Columbia Environmental Laboratory Manual, 2020 Edition", or the most recent edition or by alternative procedures as authorized by the director.

A copy of the above manual is available on the ministry web page at https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-environmental-laboratory-manual.

8.1.2.1.1 *Minimum Detection Limit*

Minimum analytical detection limits for each parameter required by this permit must be suitable for comparison with the applicable standards listed in the most recent Approved and Working Water Quality Guidelines prepared by the ministry or other applicable limits acceptable to the director.

8.1.2.1.2 *Quality Assurance/Quality Control (QA/QC) Program*

The permittee must implement a Quality Assurance and Quality Control program 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 Environmental Laboratory Manual." The permittee must submit samples to analytical laboratory(ies) that meet the definition of a qualified laboratory under the Environmental Data Quality Assurance Regulation unless otherwise instructed by the director.

8.1.2.2 FLOW MONITORING

8.1.2.2.1 *Flow Calculation*

Flow calculation methods for receiving streams or creeks where flow measurements are not taken must be based on a regional hydrological evaluation and recommendations made 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 and acceptable to the director.

For the purposes of permit fee calculation, mean annual flows for the previous calendar year will be used.

8.1.2.2.2 *Flow Measurement*

Flow monitoring programs must be designed and implemented, and flow measurements conducted, with the intent of achieving acceptable data quality standards as defined in the approved Regional Surface Flow Monitoring Plan.

In order to appropriately determine data quality, flow measurement must be conducted in accordance with the Manual of British Columbia Hydrometric Standards (RISC, 2018), or by suitable alternative procedures as authorized by the director. The "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples" may also be used in conjunction with the Hydrometric Standards to provide more detailed guidance on monitoring of flow using rated structures, or as a reference for alternative monitoring methods.

8.1.2.2.3 *Metadata Summary*

The permittee must compile flow monitoring station metadata for all mine sites and Elk Valley monitoring locations, including:

i. Station lat/long, elevation, basin area and median basin elevation;

ii. Measurement method;

iii. Measurement frequency;

iv. Rating curve established, and stability of rating curve;

v. Identify where benchmarks and staff gauge are installed;

vi. Identify where flow is measured and where it is calculated (by summing/subtracting/scaling other gauged flows);

vii. Identify where data is collected to meet a permit condition;

viii. Identify qualitatively where station information is considered representative of “mine affected” or “natural” catchments;

ix. Targeted RISC data grade as defined in the approved Regional Surface Flow Monitoring Plan;

x. identify the percent contribution of mean annual flow to nearest downstream Order station listed;

xi. identify qualitatively where station information likely representative of total watershed yield, and if not, list the known issues affecting the ability of the station to represent total watershed yield;

xii. a general site description of each hydrometric monitoring station including a photo(s) of the station; and,

xiii. The permittee must submit an updated Metadata Summary every three years, beginning February 28, 2021.

8.1.2.2.4 *Regional Surface Flow Monitoring Plan*

The permittee must develop a Regional Surface Flow Monitoring Plan. The intent of the Regional Surface Flow Monitoring Plan is to review the permittee’s flow monitoring network in the Elk Valley (including receiving environment and discharge locations) to define the appropriate temporal and spatial frequency of flow monitoring locations. The plan should include:

i. Definition of the assessment criteria and associated data requirements for the different types of flow monitoring locations

ii. An assessment of each existing flow monitoring location, identification of stations not meeting the assessment criteria; and identification of locations where additional flow monitoring is needed; and,

iii. A plan with timelines to implement or modify flow monitoring locations based on results of the assessment, including definition of the appropriate measurement methods and acceptable data quality standard for each type of flow monitoring location.

iv. The permittee must submit an updated version of the Regional Surface Flow Monitoring Plan for approval by the director every three years, beginning December 31, 2020. Updates must include, when appropriate, changes to the location, frequency and grading of monitoring stations and to data needs and grading criteria. In the interim if changes to the monitoring program are recommended that result in a reduction in monitoring requirements these changes must be approved by the director prior to adoption.

8.1.2.3 TEMPORARY MODIFIED SAMPLING SCHEDULE FOR THE LCO MSX SHORT DUMP PROJECT

i. Site E304613 shall be temporarily used to collect water samples only when access to E216144 is restricted due to safety concerns with the progression of the MSX Short Dump.

ii. At least twice per year during the duration of the MSX Short Dump Project, paired samples must be taken from the site E304613 and E216144 when safe access is available to E216144. The results should be compared in the Annual Report.

iii. During the duration of the MSX Short Dump Project, water samples do not have to be collected when access to 0200335 is restricted due to safety concerns with the progression of the MSX Short Dump. In the event regular scheduled sampling times cannot be met every effort must be made to obtain the number of samples normally required for a 6-month period. Missed samples and non-routine sampling times must be itemized in the Quarterly Report.

8.1.2.4 TEMPORARY SAMPLING SCHEDULE FOR THE FLOODPLAIN WIDENING SEDIMENT POND

The permittee must conduct the additional monitoring and sampling for the Floodplain Widening Sediment Pond as described in Table 8A below:

TABLE 8A – FORDING RIVER OPERATIONS FLOODPLAIN WIDENING SEDIMENT POND TEMPORARY SAMPLING SCHEDULE

	FLOODPLAIN WIDENING SEDIMENT POND INLET	FLOODPLAIN WIDENING SEDIMENT POND IN-POND SAMPLE LOCATION
Site Identification Number	*E329272*	*E325312*
EVR ID	*FR_FWP2*	*FR_FWP1H*
PARAMETER		
Field Parameters(a)	M	As per Table 13
Conventional Parameters (b)	M	As per Table 13
Major Ions (c)	M	As per Table 13
Nutrients (d)	M	As per Table 13
Total and Dissolved Metals Scan (e)	M	As per Table 13
Visual Observation	M	W(2)
Dissolved and Total Organic Carbon	-	M(1)
Selenium Speciation(i)	-	M(1)
Chlorophyll-*a*	-	M(1)

1) Sample collection must be conducted immediately during the growing season (March 15 to October 31) if: standing water is present in the pond for > 1 week; and the most recent sample results received for either the pond inlet or in-pond samples show elevated levels of dissolved selenium (≥2.0 µg/L) and total phosphorus (≥0.010 mg/L).
2) Weekly observations from March 15 to October 31 of each year.

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8.1.2.5 Rush Creek (E327411) and Fowler Creek (E327412) are subject to nutrient analysis, as required under Appendix 2, Table 16. If during routine sampling, three (3) or more consecutive monitoring results exceed one (1) or both the following screening values for orthophosphate or total phosphorus during the June to September, inclusive, sampling events:

Total Phosphorus	0.03 mg/L
Orthophosphate	0.006 mg/L

then a notification must be submitted to the director by email at ENVSECoal@gov.bc.ca, and the requirements of subsection 8.1.2.6 must be met.

8.1.2.6

i. The permittee must cause a Qualified Professional to develop an Aquatic Effects Monitoring Program (AEMP) study design for Rush and/or Fowler Creeks, as applicable, to characterize and assess the potential changes to aquatic health as a result of the development of the Site F MCR Storage Facility.

ii. The permittee must submit the AEMP study design to the director for approval by March 31st of the following year that the exceedances were identified.

iii. The AEMP must include, but not necessarily be limited to:

a) An evaluation of applicable monitoring options, including but not limited to: periphyton chlorophyll-a, Ash Free Dry Mass (AFDM), Biological Oxygen Demand (BOD), and periphyton scoring surveys associated with routine benthic invertebrate kick sampling (as applicable); and

b) The prescribed monitoring program frequency, rationale for any proposed monitoring, proposed timeframe of the study, and reporting timelines. The report must include any applicable recommendations for future or additional monitoring requirements.

iv. The permittee must implement the approved AEMP.

8.2 GROUNDWATER MONITORING PROGRAM

8.2.1 REGIONAL GROUNDWATER MONITORING

The permittee must implement a comprehensive regional groundwater monitoring program for Management Units 1, 2, 3, 4 and relevant portions of 5, as defined in the Elk Valley Water Quality Plan, prepared by a Qualified Professional. The intent of the program is to monitor groundwater and groundwater systems within the valley bottom unconsolidated deposits along the mainstems in the Elk Valley and where appropriate, underlying bedrock, outside the mine operations boundaries.

The program must include the following as they pertain to the regional program:

i. A program to establish and maintain a groundwater monitoring well network in the Elk Valley, with wells (single/multi-level in unconsolidated deposits and bedrock, as appropriate for intended purpose) installed in locations that are representative of background and mine-impacted conditions.

ii. An ongoing monitoring program, developed in accordance with the BC Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016).

iii. A conceptual hydrogeological model for the Elk Valley, developed and updated by integrating all available groundwater information collected as part of the regional and site-specific groundwater monitoring programs, relevant operational field investigations, and relevant conceptual and numerical modelling studies carried out for diverse purposes (e.g., as part of permitting applications, water supply assessments and geotechnical investigations). The conceptual hydrogeological model must include, but is not limited to, a description of the following, where relevant: aquifer characteristics (e.g., location, extent and geometry and hydraulic properties), regional groundwater flow patterns (directions, gradients and velocities), recharge and discharge areas, groundwater interactions with surface water, the effects of surface and groundwater withdrawals, groundwater quality and the transport of mine-related parameters of concern. Seasonal fluctuations and trends of all

relevant hydrogeological variables must also be included in the hydrogeological characterization.

iv. An evaluation of the regional effects of the permittee's operations on groundwater and where relevant on surface water, as a result of surface water – groundwater interaction, in Management Units 1, 2, 3, 4 and relevant portions of 5, by comparison to all applicable standards.

v. Identification of limitations and data gaps and recommendation of additional field activities and/or studies to fill in gaps, where possible, and to refine the conceptual hydrogeological model.

vi. A proposed schedule for the additional recommended field activities and studies described in point v.

vii. Where appropriate, identify activities, studies and investigations proposed to be discontinued or existing monitoring infrastructure to be decommissioned/removed in order to optimize/improve the program.

The plan must be updated every three years starting in 2017 and submitted to the director by September 30 for approval. Each update must consider relevant changes to permit requirements and results of special studies.

8.2.2 SITE SPECIFIC GROUNDWATER MONITORING

The permittee must develop and implement a comprehensive groundwater monitoring program at each mine site (Fording River Operations, Greenhills Operations, Line Creek Operations, Elkview Operations, Coal Mountain Operations), prepared by a Qualified Professional. The intent of each program is to monitor groundwater and groundwater systems within the valley bottom unconsolidated deposits and, where appropriate, the bedrock downgradient of potential mine-related sources of groundwater contamination within or in proximity of the mine operations boundaries.

Updated Site-Specific Groundwater Monitoring Plans must be submitted to the director for approval by October 31, 2021. Thereafter, the plans must be updated and submitted to the director for approval by October 31 every three years. The plans must include points i. to vii. in Section 8.2.1, as they pertain to each mine site.

8.2.2.1 LINE CREEK MINE PHASE II GROUNDWATER MONITORING PROGRAM

The Permittee must develop and implement a comprehensive groundwater monitoring program for the Line Creek Mine Phase II area, prepared by a qualified professional. This program must be conducted to the satisfaction of the Director and should achieve the following objectives at a minimum:

i. Characterize the groundwater resource (including water quality, quantity, flow characteristics, hydraulic conductivity of the affected aquifer(s), and relationship to surface water system);

ii. Identify (and if necessary, quantify) impacts to groundwater from mining-related activities;

iii. Provide the information necessary to support the development and verification of water quality predictions for the mine site (as per Section 9.9);

The Terms of Reference for the monitoring program shall be submitted to the Director, Environmental Protection by January 31, 2013.

The monitoring program must be submitted to the Director for approval by March 31, 2014. Monitoring activities must commence in 2014.

Monitoring results and interpretation must be compiled into a written report and submitted on an annual basis for each calendar year to the Director, Environmental Protection, by March 31 of the following year. Included in the submission must be a Study Design for the next year.

8.2.3 CEDAR NORTH IN-PIT BACKFILL EXTENSION

8.2.3.1 The permittee must develop a study design to refine the hydrogeological characterization of fault F42 and to obtain site-specific estimates of hydraulic conductivity in the weathered bedrock located between Cedar North Pit and the Elk River and Michel Creek valley bottom. The study design must be developed by a Qualified Professional and should include, but not be limited to:

i. estimating hydraulic conductivity using hydraulic testing methods, along the F42 fault alignment south of the interception with the conveyor tunnel, and along a hypothetical fault extension towards Michel Creek;

ii. estimating hydraulic conductivity of the weathered bedrock to obtain site-specific estimates of hydraulic conductivity between Cedar North Pit and the Elk River valley bottom; and

iii. establishing monitoring well(s) along the F42 fault alignment south of the interception with the conveyor tunnel at the hydraulic testing site(s), if the results indicate a potential for the fault to convey mine-impacted groundwater, currently or as a result of future mining activities.

A study design for the completion of the field activities described at i. and ii. must be submitted to the director for approval by October 31, 2021. The permittee must implement the approved study design.

8.2.3.2 The permittee must update the BRE Project groundwater flow model by adding the following as calibration targets:

i. the groundwater levels collected as part of the activities outlined in Section 8.2.3.1; and

ii. the streamflow and groundwater level data set collected from the hydrometric stations and monitoring wells located near the model's west – southwest boundary, on Lindsay Creek, Goddard Creek, Otto Creek, Aqueduct Creek, Bodie Creek and Gate Creek.

The BRE Project groundwater flow model update must also include the simulation of faults in the model.

8.2.3.3 The permittee must use the information obtained from activities outlined in Section 8.2.3.1 and 8.2.3.2 to refine the groundwater flow component of the water balances for the Cedar North Pit and EVO Dry Creek catchments.

8.2.4 LCO ERX CCR FACILITY GROUNDWATER MONITORING PROGRAM AND TRIGGER RESPONSE PLAN

8.2.4.1 LCO ERX CCR Facility Groundwater Monitoring Program

The permittee must cause a Qualified Professional to develop a Groundwater Monitoring Program designed to detect mine-contact groundwater flow towards Grave Lake from the LCO East Refuse Extension (ERX) Coarse Coal Refuse (CCR) Facility.

The permittee must submit the Groundwater Monitoring Program to the director by December 30, 2024, for approval. The submission must include the monitoring and sampling locations, any proposed new monitoring locations, sampling frequency and supporting rationale.

The permittee must implement the approved Groundwater Monitoring Program. Results must be incorporated into subsequent annual Regional Groundwater Monitoring Program (RGMP) and applicable Site-Specific Groundwater Monitoring Program (SSGMP) reports and tri-annual RGMP and SSGMP updates.

8.2.4.2 LCO ERX CCR Facility Trigger Response Plan

The permittee must develop a Trigger Response Plan, based on the LCO ERX CCR Facility Groundwater Monitoring Program, intended to protect Grave Lake human and environmental receptors. The permittee must submit the Trigger Response Plan to the director by December 30, 2024, for approval.

The permittee must implement the approved Trigger Response Plan. Implementation of the Trigger Response Plan must be documented in the Annual Report.

8.3 LOCAL AQUATIC EFFECTS MONITORING PROGRAMS (LAEMPs)

The permittee must develop and implement Local Aquatic Effects Monitoring Programs (LAEMPs) as described in this section to assess potential effects to aquatic ecosystems associated with local influences like mitigation and changes to mining operations.

8.3.1 Study Design

LAEMP study designs must be prepared in consultation with the EMC. The permittee must submit the LAEMP study designs to the director for approval by the dates listed below:

i. LCO Phase II (Dry Creek) LAEMP: Annually on June 1
ii. FRO LAEMP: May 31, 2027, and every third year thereafter
iii. EVO LAEMP: June 30, 2025, and every third year thereafter
iv. Greenhills Creek LAEMP: June 30, 2027, and every third year thereafter
v. LCO Line Creek LAEMP: July 1, 2026, and every third year thereafter

The permittee must prepare and submit LAEMP reports as described in Section 9.5.

8.3.2 Study Area/Purpose

8.3.2.1 LCO Phase II (Dry Creek) LAEMP

The purpose of the LCO Phase II LAEMP is to assess the effects of mining activities from the Line Creek Phase II in the receiving environments of LCO Dry Creek, Grace Creek and Unnamed Creek. The LAEMP must also evaluate the influence of, and any proposed effects from the Dry Creek Water Treatment Plant in the Dry Creek watershed.

8.3.2.2 FRO LAEMP

The purpose of the FRO LAEMP is to assess the magnitude and extent of influence from water treatment and mining activity in the upper Fording River, including changes in water quality, benthic invertebrate community variation, biological productivity, water temperature, and Westslope Cutthroat Trout health metrics.

8.3.2.3 EVO LAEMP

The purpose of the EVO LAEMP is to evaluate the magnitude and extent of influence from EVO SRF discharge on water quality (including temperature), calcite and benthic invertebrate communities to assess what factors are contributing to the observed effects. The EVO LAEMP must consider the possibility of impacts resulting from potential selenium speciation. The EVO LAEMP must focus on Erickson Creek from EV_ECOUT (E321814) to EV_EC1 (0200097) and Michel Creek between EV_MC3 (0200203) and EV_MC2 (E300091).

8.3.2.4 Greenhills Creek LAEMP

The purpose of the Greenhills Creek LAEMP is to assess existing aquatic environmental conditions in Greenhills and Gardine Creeks as well as changes in aqueous chemical, physical, and biological conditions. The Greenhills Creek LAEMP must evaluate calcite presence and concretion in the study area and whether any changes are associated with antiscalant addition.

8.3.2.5 LCO Line Creek LAEMP

The purpose of the LCO Line Creek LAEMP is to assess the magnitude and extent of influence from water treatment and mining activity in Line Creek, including changes in water quality, benthic invertebrate community variation, benthic invertebrate tissue selenium, biological productivity, water temperature, and fish health metrics.

8.3.2.5.1 Supplemental Temperature Effects Memorandum

The permittee must cause a Qualified Professional to prepare a memorandum regarding the potential effects of increased temperature on overwintering fish and bull trout hatching time in Line Creek as a result of the LCO Line Creek Water Treatment Project (AMS Job 429240). The memorandum must be submitted to the director by January 15, 2026.

The memorandum must include the following information if available through a literature review or analysis of existing site-specific temperature and biological data:

i. Predicted changes to bull trout egg hatch timing;

ii. The magnitude and spatial extent of temperature increases between monitoring locations LC_LC3 and LC_LCDSSLCC;

iii. An assessment of the availability and quantity of instream food resources for overwintering fish from January to April, considering earlier hatch timing and the potential for increased metabolic demands; and

iv. The suitability of current monitoring locations for modeling and impact assessment.

The memorandum must be accompanied by recommendations regarding whether any changes or updates are needed to the LAEMP study design due July 1, 2026, to address any outstanding information.

8.4 REGIONAL AQUATIC EFFECTS MONITORING PROGRAM (RAEMP)

The purpose of the Regional Aquatic Effect Monitoring Program is to monitor and interpret indicators of regional, mine-related impacts to the aquatic ecosystem in the Elk River watershed and the BC portion of Koocanusa Reservoir. The permittee must implement the RAEMP as per the latest director approved study design. A final Study Design for each subsequent three-year cycle must be submitted to the director for approval by February 28 in the first year of each three-year cycle. Reporting for the RAEMP must be prepared and submitted as per Section 9.5.

8.5 **CALCITE MONITORING**

8.5.1 CALCITE MONITORING PROGRAM

i. The permittee must continue to conduct annual calcite monitoring following the methods in the approved monitoring program.

ii. The permittee must submit, for director's approval, changes to the monitoring program by April 15 of the data collection year.

8.5.2 SEASONAL CALCITE SUPPORTING STUDY – 2015/2016

The permittee must have a Qualified Professional develop a monitoring program to assess seasonality of calcite formation and potential dissolution. The program must, at minimum, include multiple locations and assess seasonal variation in the rate of calcite formation or dissolution, water quality, and presence and density of algae, and the presence and density of benthic invertebrates.

i. An Initial Study Design for the program must be submitted to the Environmental Monitoring Committee for input prior to submission to the director for acceptance by March 1, 2015.

ii. Monitoring results and interpretation for the 2015 program must be compiled into a written report with a study design for the 2016 program and submitted to the satisfaction of the director by March 31, 2016.

iii. Monitoring results and interpretation of the 2016 program must be compiled into a written report and submitted to the satisfaction of the director by March 31, 2017.

8.6 SELENIUM SPECIATION MONITORING PROGRAM

The permittee must develop and implement a Selenium Speciation Monitoring Program. The Selenium Speciation Monitoring Program is intended to:

- Identify sites in the Designated Area, affected or potentially influenced by the permittee's current operations, where organic and reduced forms of selenium are occurring or are likely to occur;
- Investigate the physical and/or biogeochemical mechanisms driving selenium speciation and the generation of organic and reduced forms of selenium species; and
- Assess the site-specific bioaccumulation of selenium in biological resources.

The Selenium Speciation Monitoring Program must include the following elements:

i. Assessment of water quality and selenium tissue concentrations in benthic invertebrates; and

ii. Characterization of factors that lead to enhanced selenium bioaccumulation in the receiving environment, as applicable.

The following timelines apply:

1) A written report of selenium speciation data collected to-date within the Designated Area, that includes analysis and interpretation of the data, must be compiled and submitted to the EMC and the director by March 31, 2021.

2) Selenium Speciation Monitoring Program Study Design must be reviewed by the EMC prior to submission to the director, for approval, by July 30, 2021. Thereafter, the study design must be updated and submitted, for approval, to the director by July 30th every three years.

The approved Selenium Speciation Monitoring Program Study Design must be implemented, and an annual report must be submitted to the director and to the EMC as per Section 9.11.

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for Director, *Environmental Management Act*
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8.7 GRAVE LAKE FUGITIVE DUST IMPACT STUDY

The permittee must cause a qualified professional to develop and implement a study to determine the magnitude and extent of fugitive dust impact from EVR Operations Limited operations on Grave Lake and Grave Lake Marsh [large]. The study design must be submitted to the Environmental Monitoring Committee for input by July 31, 2024.

The study must, at minimum:

i. assess sediment quality including spatial and temporal changes;
ii. develop a conceptual site model (CSM) for the fugitive dust pathway and assess the risk to aquatic receptors; and,
iii. provide recommendations for future long-term monitoring.

An interim report must be submitted to the director by December 31, 2025. Monitoring results, interpretation and recommendations must be compiled into a written report and submitted to the director by December 31, 2026.

8.8 CHRONIC TOXICITY TESTING PROGRAM

The permittee must develop and implement a toxicity testing program for receiving environments affected by coal mining operations. The purpose of the program is to evaluate chronic toxicity at the compliance points and other locations throughout the Elk Valley.

The program must be planned and implemented by Qualified Professionals using methods that have documented test procedures, reliability, and quality assurance.

The toxicity testing program must include, at a minimum, the following elements:

i. For the purposes of the following requirements the listed mine-influenced stations must include:

- FR_MULTIPLATE (E326860),
- FR_FRCP1 (E300071),
- FR_FRABCH (E223753),
- LC_DCDS (E295210),

- GH_FR1 (0200378),
- LC_LC3 (0200337),
- LC_LCDSSLCC (E297110),
- LC_LC5 (0200028),
- EV_HC1 (E102682),
- GH_ERC (E300090),
- CM_MC2 (E258937), and
- EV_MC2 (E300091).

Appropriate reference stations must be determined in consultation with the Environmental Monitoring Committee.

The following toxicity test must be conducted during each semi-annual (spring and fall) sampling event at all listed mine-influenced stations plus multiple reference stations:

- 30-day early life-stage test with the rainbow trout (*Oncorhynchus mykiss*; EPS1/RM/28) using <24-hour post-fertilization eggs; endpoints: survival, viability, length, wet weight (plus documentation of observed deformities or behavioral changes);
    - When rainbow trout gametes of suitable quality are unavailable, this test may be substituted with the 30-day early life stage test with fathead minnow, *Pimephales promelas* (USEPA 1996).
    - The permittee must summarize the availability of rainbow trout gametes of suitable quality for the past sampling year in the Regional Chronic Toxicity Testing Program Annual Report as per Section 9.3.
- 28-day water-only test with amphipod, *Hyalella azteca* (adapted from USEPA 2000, with appropriate supplementation of halides); endpoints: survival, growth.

The following toxicity test must be conducted during each semi-annual (summer and winter) sampling event at all listed mine-influenced stations plus multiple reference stations:

- 30-day early life-stage test with the fathead minnow, *Pimephales promelas* (USEPA 1996) using <24-hour post-fertilization eggs; endpoints: survival, normal development, length, biomass (plus documentation of observed deformities or behavioral changes).

The following toxicity tests must be conducted during each quarterly sampling event at all listed mine-influenced stations plus multiple reference stations:

- 7-day water-only test with the cladoceran, *Ceriodaphnia dubia* (EPS1/RM/21); endpoints: survival, reproduction.

ii. Toxicity testing methods must be consistent with Environment Canada's, U.S. Environmental Protection Agency's, or ASTM's approved biological test methods. Waters used for fathead minnow (*Pimephales promelas*) and rainbow trout (*Oncorhynchus mykiss*) 30-day early life-stage tests may be augmented with up to, and not exceeding, 20 ug/L copper to control for fungi and microbial pathogens. Ameliorating factors that influence copper toxicity (e.g., water hardness, dissolved organic carbon, and major ions) must be considered when determining the lowest and most effective dose below this limit.

iii. A Quality Assurance/Quality Control component.

iv. Testing dates that coincide with water quality sampling and that target predicted worst-case times such as low flow, during flocculant use, or when discharge quality is expected to be reduced.

The suite of toxicity tests will be reviewed on an annual basis by the EMC and recommendations provided to the director for consideration. The permittee must prepare and submit an annual chronic toxicity report as described in Section 9.3.

8.8.1 CLODE CREEK CHRONIC TOXICITY STUDY

8.8.1.1 The permittee must include monitoring station FR_CC1 (E102481) in the Chronic Toxicity Testing Program in Q2 2023 and Q2 2024.

8.8.1.2 The purpose of the Clode Creek Chronic Toxicity Study is to characterize the magnitude of chronic and sublethal effects from Clode Creek waters before and after Phase 2 FRO-N SRF discharge. The focus of this assessment is on early fish life stages and as such, only chronic toxicity testing of rainbow trout embryo/alevin is required for this study.

8.8.1.3 The permittee must prepare a report of the results of the Clode Creek Chronic Toxicity Study. The draft report must be presented to the EMC in October or November 2024 for review prior to submission to the director as an ancillary report to the Section 9.3 annual chronic toxicity report in 2025.

8.9 **HUMAN HEALTH EVALUATION**

8.9.1 HUMAN HEALTH DATA EVALUATION PROGRAM

The permittee must develop and implement a Human Health Data Evaluation Program. The program must be developed in consultation with the Elk Valley Human Health Working Group and be designed so that data relevant to the assessment of human health risk are regularly compared to human health-based screening values and reported out. Data gaps and recommendations identified in the 2023 Human Health Risk Assessment (HHRA) must be addressed by the program.

8.9.1.1 FISH ASSESSMENT PROGRAM

As part of the Human Health Data Evaluation Program the permittee must develop and implement a Human Health Fish Assessment Program to assess the human health risk associated with the consumption of fish potentially influenced by the permittee's operations, from locations and species within the Designated Area that are typically used and preferred by people that harvest fish. Data must be screened against relevant human health-based screening values. The program must be developed in consultation with the Elk Valley Human Health Working Group and incorporated into the overall Human Health Data Evaluation Program.

The following timeline applies:

The Human Health Data Evaluation Program must be reviewed by the Elk Valley Human Health Working Group and submitted to the director for approval by November 30, 2024.

8.9.2 PARTICULATE MATTER INHALATION AND DEPOSITION PATHWAY SCOPING STUDY

The permittee must undertake a Particulate Matter Inhalation and Deposition Pathway Scoping Study to improve understanding of exposure and human health risks associated with air quality influenced by the permittee's mining operations within the Designated Area. The study must be developed in consultation with the Elk Valley Human Health Working Group.

The following timeline applies:

A Terms of Reference for the study must be submitted to the Elk Valley Human Health Working Group and director by June 30, 2024, and must include proposed submission dates for a study design and written report.

The Permittee must post a copy of the report to the Permittee's website annually, within six months of submission.

8.10 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

The permittee shall re-evaluate the Screening Level Ecological Risk Assessment. The Screening Level Ecological Risk Assessment re-evaluation must address the following points:

i. some contaminants of potential concern exceeded the criteria for negligible risk,

ii. there was an incorrect use of tissue concentrations as indicators of toxicity, and

iii. multiple food type dietary exposure was not incorporated.

The re-evaluation must be conducted by an approved Contaminated Sites Approved Professional (CSAP) or follow the BC Contaminated Sites Regulation approved methodologies. If the re-evaluation is not conducted by an approved CSAP, the re-evaluation must be submitted to the director for review and acceptance. The re-evaluation shall be submitted by July 31, 2015.

In the event that this re-evaluation determines changes to the monitoring requirements, this information shall be shared with the EMC and a report with recommendations provided to the director regarding the outcome of the re-evaluation.

8.11 DETAILED ECOLOGICAL RISK ASSESSMENT

A Detailed Ecological Risk Assessment may be required.

9. REPORTING REQUIREMENTS

9.1 SUBMISSION RESULTS

The permittee must submit water quality and benthic invertebrate tissue selenium concentration data of all effluent discharge and water analyses, and biological sampling associated with monitoring programs required in this permit, collected at sites with Ministry site identification numbers. Without limiting any requirement under this permit to report information to the director, the permittee must upload data to the Ministry's environmental monitoring results database within the following timelines:

i. surface water quality data within 30 days of the end of the quarter in which the samples were collected;
ii. surface water quality data collected as part of the biological monitoring programs in quarter 1, 2, and 4 within 30 days of the end of the quarter in which the samples were collected, and in quarter 3 within 60 days of the end of the quarter in which the samples were collected;
iii. groundwater quality data within 60 days of the end of the quarter in which the samples were collected;
iv. benthic invertebrate tissue selenium concentration data collected as part of the biological monitoring programs in quarter 1, 2 and 4 within 60 days of the end of the quarter in which the samples were collected, and in quarter 3 within 90 days of the end of the quarter in which the samples were collected; and
v. flow data is to be submitted annually.

For instructions on the electronic submission process or for more information visit the Ministry website:
https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply

All data and calculations required in this permit, whether or not required to be uploaded to the Ministry's environmental monitoring results database, must be managed by the permittee and provided to the director or member of the EMC upon request in a format specified by the director or member of the EMC. The permittee must provide all requested data within 10 business days of the original request or within the timeline agreed upon by both the permittee and the requestor.

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All data lab sheets are to be kept on site and are to be provided in an electronic format to the director or member of the EMC upon request.

All deliverables required by Section 9 must not exceed manageable file sizes or must be divided into smaller files prior to submittal.

9.2 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING DATA

9.2.1 NON-COMPLIANCE NOTIFICATION

The permittee must immediately notify the director or designate by e-mail (ENVSECoal@gov.bc.ca) of any non-compliance with the requirements of this permit, including requirements within the appendices, by the permittee and take appropriate remedial action to remedy any effects of such non-compliance.

The permittee must provide the director and KFNGs with written confirmation of all such non-compliance events, including available test results within 24 hours of the original notification unless otherwise directed by the director.

9.2.2 NON-COMPLIANCE REPORTING

If the permittee fails to comply with any of the requirements of this authorization, the permittee must, within 30 days of such non-compliance, submit to the director and KFNGs, a written report that is satisfactory to the director and includes, but is not necessarily limited to, the following:

i. all relevant test results obtained by the permittee related to the noncompliance,

ii. an explanation of the most probable cause(s) of the noncompliance, and

iii. a description of remedial action planned and/or taken by the permittee to prevent similar noncompliance(s) in the future.

The permittee must submit all non-compliance reporting required to be submitted under this section by email to (ENVSECoal@gov.bc.ca).

9.2.3 MONITORING AND REPORTING FOLLOWING TOXICITY NON-COMPLIANCE

In addition to Section 9.2.1, for any acute toxicity test failure in the effluent, the permittee must:

i. Immediately conduct a confirmatory test on the effluent using multiple concentrations (i.e. 96 hr LC50 for Rainbow Trout or 48 hr LC50 for Daphnia magna, as appropriate). The director may require a Toxicity Identification Evaluation (TIE) to be initiated to determine the cause of the effluent toxicity,

ii. Immediately take corrective action, and

iii. Forward all test results including raw laboratory data sheets to the director as soon as they are available. As soon as possible, submit a full report indicating the cause and effects of the incident, which identifies all actions taken by the permittee to correct, restore and prevent a similar event from occurring in the future. This report must be submitted with the next quarterly report or as otherwise instructed by the director.

9.2.4 QUARTERLY REPORTING

The permittee must submit a written quarterly report to the director or designate, due within 30 days of the end of the quarter in which the samples were taken. The quarterly report must include:

i. Effluent water quality results used to calculate monthly averages for the limits in Section 2, if applicable;

ii. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director;

iii. Identification of all missing data and all QA/QC issues;

iv. All toxicity test results and raw laboratory data sheets for all mortality results;

v. All reportable spills or other incidents related to water quality, occurring in the quarter;

vi. Explanation of the most probable cause(s) of any non-compliances;

vii. All measures taken to reduce or eliminate non-compliances;

viii. All other reports or documentation as specified by this permit to be submitted quarterly; and

ix. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director.

a) Any data collected at the compliance points in Section 2 for research-oriented activities that do not meet the analytical requirements in Section 8.1.2.1 of the Permit must be submitted separate from Quarterly Reports in a project report at the completion of the applicable study.

x. A summary of measures taken under the Nitrogen Source Control Plan, Section 5.3.

xi. An appendix containing the LK2 Order station transect discrete sample results for each sampling event, the reason samples could not be collected, and whether stratification was observed.

The format of the quarterly report must be suitable for review by the public.

9.2.5 ANNUAL REPORTING

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 Ministry site identification numbers and permittee descriptors.

ii. A summary of non-compliances with the permit conditions for the previous calendar year. This must include interpretation of significance, and the status of corrective actions and/or ongoing investigations.

iii. A summary of measured parameters including all collected monitoring data for the reporting year suitably tabulated (i.e., excel spreadsheets), and including appropriate graphs showing

comparisons of all data to limits, Approved and Working Water Quality Guidelines, Site Performance Objectives, or other criteria and benchmarks as specified by the director. For parameters with water quality limits or targets specified in Sections 2, 3.1 and 3.3, compare monitoring data to predictions at each compliance point and Order Station using the most up to date Regional Water Quality Model referenced in Section 9.9.

iv. An analysis and discussion of early warning triggers for management action as developed under the Adaptive Management Plan for surface water quality. This analysis will include Order parameters and non-Order parameters of concern at key receiving environment sites as identified in the AMP and an evaluation of upstream source sites and activities when monitoring results exceed the early warning trigger criteria.

v. All acute toxicity test-specific reports from the laboratory for samples found to be acutely toxic as per Section 6.2.1 and an interpreted summary and discussion of results, including recommendations and all subsequent actions.

vi. All acute toxicity test lab reports must include data and/or observations for hardness, alkalinity, pH, temperature, and formation of precipitate either in the vessel or on the organism.

vii. A summary of all QA/QC issues during the year.

viii. The following hydrology information:

a) A description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary.

b) A summary table of the discharge measurements recorded during the year. The summary must include staff gauge measurements, calculated flow values from a stage-discharge rating curve, and manual flow measurements.

c) A hydrograph(s) at a scale appropriate for visually comparing flow values between stations.

d) A data quality grade for each monitoring station using the Manual of British Columbia Hydrometric Standards (RISC, 2018) methodology, and comparison of the grade to target

grades as listed in the Regional Surface Flow Monitoring Program.

e) In conjunction with the submission of the annual report, final non-continuous flow data will be uploaded to the Ministry's environmental monitoring database while final continuous flow data records and associated rating curves will be provided in Excel format.

ix. An interpreted summary and discussion of the effectiveness of measures taken under the Nitrogen Source Control Plan, Section 5.3.

The Annual Report must be submitted to the director by March 31 of each year following the data collection calendar year.

The format of the Annual Report must be suitable for review by the public. The Permittee must post a copy of the report to the EVR website annually, within six months of submission. Copies must be made available for the Ministry of Mining and Critical Minerals and Ktunaxa First Nation. The Permittee may omit proprietary information from the publicly available annual report in accordance with the Freedom of Information and Protection of Privacy Act, as agreed to by the Director.

9.3 REGIONAL CHRONIC TOXICITY TESTING PROGRAM ANNUAL REPORT

The permittee must prepare on an annual basis a report for the Chronic Toxicity Testing Program, as per Section 8.8. The report must summarize all chronic toxicity data from the laboratory and include an interpreted summary and discussion of results, including recommendations and subsequent actions. The report is to be submitted to the director by April 30 of each year following the data collection calendar year.

The Permittee must post a copy of the report to the Permittee's website annually, within six months of submission.

9.4 **GROUNDWATER**

9.4.1 ANNUAL GROUNDWATER MONITORING REPORTING

The permittee must prepare on an annual basis a report or series of reports summarizing monitoring activities and results for the Regional and Site-Specific Groundwater Monitoring Programs. The annual report(s) must be submitted to the director by March 31st of each year following the data collection calendar year. The Permittee must post a copy of the report(s) to the Permittee's website annually, within six months of submission.

The annual report(s) must include, but is not limited to:

i. A map of surface and groundwater monitoring locations with Ministry site identification numbers and permittee descriptors;

ii. Cross sections showing well installation details, stratigraphy, groundwater elevations, and where relevant surface water elevations and inferred groundwater flow direction(s). Cross sections should be in the direction of groundwater flow and/or perpendicular to groundwater flow, as appropriate;

iii. Drawings showing locations and water quality data of groundwater sampling points;

iv. Summary of program modifications relative to previous years and additional one-time activities, such as the installation of new monitoring wells;

v. Summary of measured parameters, including appropriate graphs and comparison of results to, Approved and Working Water Quality Guidelines, or other criteria and benchmarks as specified by the director;

vi. If applicable, a summary of exceedances of screening benchmarks;

vii. Evaluation and discussion of spatial patterns and temporal trends;

viii. Evaluation and discussion of the correlation between the monitoring results of surface water and groundwater monitoring stations, where relevant, in terms of spatial distribution and temporal changes;

ix. Relevant information from specific studies on surface water and groundwater to support the hydrogeological characterization;

x. A summary of all QA/QC issues during the year; and

xi. Recommendations for further study or measures to be taken.

9.5 AQUATIC EFFECTS MONITORING

9.5.1 LAEMP Annual Reports

The LAEMP annual reports must be reported on in accordance with generally accepted standards of good scientific practice in a written report and submitted to the director of each year following the data collection calendar year on the dates listed below. The LAEMP annual reports must be submitted to the EMC within one week following submission to the director. The Permittee must post a copy of the reports to the Permittee's website annually, within six months of submission.

i. LCO Phase II (Dry Creek) LAEMP: May 31

ii. FRO LAEMP: May 31

iii. EVO LAEMP: June 30

iv. Greenhills Creek LAEMP: June 30

v. LCO Line Creek LAEMP: April 30, 2027, and every year thereafter

Deviations from the approved study designs that occurred in the data collection year and supporting rationale must be described in each of the LAEMP reports. The LAEMP reports must further outline any recommended changes to the monitoring program for the following monitoring cycle.

9.5.2 RAEMP

The RAEMP report must be submitted to the director by November 30 of the final year of each three-year monitoring cycle. The RAEMP report must be submitted to the EMC within one week following submission to the director. The Permittee must post a copy of the report to the Permittee's website within six months of submission.

The permittee must submit a report that contains a detailed rationalization of the overall RAEMP including reasons why specific monitoring areas are/are not being monitored in a given year. The report may include a discussion and analysis of the results of the previous cycle of monitoring of the components listed below. A rationale for exclusion or modification of components must be included in the report.

i. Water quality
ii. Sediment quality and calcite
iii. Water and sediment toxicity testing
iv. Periphyton productivity and community structure
v. Benthic invertebrate community structure and tissue contaminants
vi. Fish population metrics and tissue contaminants
vii. Amphibian and bird egg tissue contaminants
viii. QA/QC

Each report will also discuss cumulative effects by providing an integrated interpretation of conditions in the Elk River Watershed.

Each report will, on a three-year cycle, verify and calibrate the selenium bioaccumulation model using the most recent three years of water quality, aquatic effects and other data from any special studies undertaken.

9.5.3 Annual Data Packages

Annual data packages must include data from the previous data collection calendar year and contain a cover letter that summarizes data trends and unexpected results or monitoring signals. Data packages must further include plots illustrating monitoring data in the study area, including water quality, physical habitat characteristics, and biological data. The data packages must be prepared and signed by a Qualified Professional. The data packages must be submitted to the director annually by the dates listed below. The annual data packages must be submitted to the EMC within one week following submission to the director.

i. LCO Phase I: April 30, 2026

The LCO Phase I annual data package is for the area monitored in accordance with the director's February 16, 2024 approval of the 2023 LCO Line Creek LAEMP study design.

9.5.4 RAEMP Annual Data Package

The RAEMP annual data package provides an annual overview of monitoring data trends between the RAEMP triannual reporting cycle. It provides an opportunity for review and interpretation of unexpected signals in the monitoring data that may require attention prior to RAEMP reporting.

The RAEMP data package must include a cover letter that is specific to the monitoring area associated with CMm, as outlined in the RAEMP study design. The intent of this cover letter is to track environmental quality on an ongoing basis and ensure the extent of aqueous nickel effects align with expectations. The cover letter must summarize data trends and unexpected results or monitoring signals and must be prepared and signed by a Qualified Professional.

Annual data packages must be prepared and signed by a Qualified Professional and submitted to the director as per the approved study designs. The annual data package must be submitted to the EMC within one week following submission to the director.

9.6 **HUMAN HEALTH DATA EVALUATION PROGRAM**

The permittee must prepare written summary reports for the Human Health Data Evaluation Program that include results from the Human Health Fish Assessment Program, as per Section 8.9.1. The first report covering calendar years 2021-2025 must be compiled and submitted to the Human Health Working Group and director by November 30, 2026. Subsequent reports much be submitted every three years thereafter, for data from the previous three calendar years.

The Permittee must post a copy of the report to the Permittee's website, within six months of submission.

9.7 CALCITE

A Calcite Monitoring Annual Report must be submitted to the director by April 15 of each year following the data collection calendar year. The Permittee must post a copy of the report to the Permittee's website annually, within six months of submission.

The report must include the following, at minimum:

i. A map of monitoring locations;

ii. A summary of background information on that year's program, including discussion of program modifications relative to previous years;

iii. Results of stream selection reassessment – highlight streams added/removed;

iv. Summary of where sampling followed the methodology in the monitoring plan document, and details where sampling deviated from the approved methodology;

v. Statement of results for the period over which sampling was conducted;

vi. Reference to the raw data, provided as appendices;

vii. General discussion of observations, including summary tables of sites with increasing and decreasing deposition indices;

viii. Interpretation of location, extent, and any other observations;

ix. A summary of any QA/QC issues during the year;

x. Recommendations for sites to add, sites to remove, modifications to methodology, monitoring frequency adjustments; and

xi. A statistical evaluation of monitoring data to evaluate the presence of short and long term calcite related trends in the Elk Valley main stems and select tributaries.

9.8 KOOCANUSA RESERVOIR

The permittee must prepare on an annual basis a report summarizing activities and monitoring results. The report must be submitted to the EMC by June 30 of each year.

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9.9 WATER QUALITY MODELLING

The permittee must update the regional water quality model and complete a water quality prediction report for each mine site and the Designated Area as a whole to be submitted to the director.

This report must be updated every five years starting September 30, 2029, or more frequently as required, based on changes to the mine plan, when observed water quality and water quantity are regularly and significantly different from predicted values, or as otherwise required by the director in writing. The report must include data collected from the monitoring programs described in Section 8 as well as any other special studies undertaken to investigate water quality in the Designated Area.

On a five-year cycle, verify and, failing verification, calibrate the Elk Valley Regional Water Quality Model using the most recent water quality data and regional flow data from appropriate (e.g., Environment Canada regional) hydrometric data stations.

The report must provide:

i. Current and projected (through the next twenty years) bank cubic meters of waste rock at the mine, detailed by affected drainage;

ii. Hydrology modelling information, detailed by affected drainage:

   a) Identify the specific hydrology information used in the modeling work;

   b) An evaluation of the relative data accuracy/precision and overall confidence in the data used. The evaluation should consider any relative bias that a station may introduce (e.g., a station's ability to represent total watershed yield). Documentation must clearly provide a rationale for why specific data was selected for use in the model;

iii. Current and predicted concentrations of Parameters of Concern as required, in the surface water of affected drainages through the life of the mine based on current model, which incorporates waste rock volumes and local hydrology, compared to BC Water Quality Guidelines or water quality targets for selenium, nitrate, sulphate and cadmium;

iv. A description of the calibration and validation of the flow model and water quality;

v. A sensitivity analysis for variation in flows and potential errors in measured input data;

vi. Water quality and water quantity model output in electronic format;

vii. A monitoring plan for continued evaluation of ii), iii) and iv) as the mine progresses;

viii. Refined hydrology, hydrogeology and geochemical source term information (including refinements for cadmium source terms), together with any site-specific water balance models and hydrogeology studies;

ix. Changes to the mine plan; and

x. Information and outcomes from research and technology development studies that have been incorporated into the model.

9.9.1 EVALUATION OF WATER QUALITY MODELLING FOR TRIBUTARIES (LCO)

i. The permittee shall assess the conservatism and uncertainty associated with the scaling approach used to predict tributary concentrations in the EVWQP by independent comparison with predictions obtained from project specific model outputs and provide recommendation for evaluating future water quality in tributaries in the Elk River watershed.

ii. During operations, the Permittee must track waste rock placement, water quality and flow monitoring data to enable calibration, updating and refinement of the water quality predictions and model. The Permittee must complete the first water quality prediction report for Line Creek Operations and submit it to the Director, Environmental Protection by March 31, 2014.

iii. A report presenting the comparison and analysis of water quality modelling methods, as well as a list of tributaries where the scaling method was/or was not applied in the EVWQP shall be provided to the director by February 28, 2015.

9.9.2 MODEL VALIDATION REPORT

9.9.2.1 The permittee must cause a Qualified Professional to develop a Model Validation Report (MVR). The MVR must compare predictions derived using the most recently submitted Elk Valley Regional Water Quality Model (RWQM; Section 9.9) updated, at a minimum, according to 9.9.2.2 below, with concurrent monitoring data, to assess model performance. The permittee must submit the MVR to the director by September 30, 2027.

9.9.2.2 The model validation is to be carried out by: 1) updating the RWQM climate inputs using measured data collected through to December 31st of the two years prior to the current MVR submission date (for clarity, the September 30, 2027 MVR required in 9.9.2.1 must be developed using a climate dataset up to December 31, 2025), and then 2) generating water quality and quantity predictions using the RWQM with the updated climate inputs.

9.9.2.3 The MVR must include, but is not limited to, the following:

i. Comparison of measured and predicted water quantity at all model calibration nodes included in the most recent RWQM submission.

ii. Comparison of measured and predicted concentrations of nitrate, selenium, sulphate and cadmium at all model calibration nodes included in the most recent RWQM submission.

iii. Interpretation of comparison results, including identifying the cause of any poor model performance.

iv. A list of monitoring and/or modelling actions the permittee will implement to improve model performance.

9.9.2.4 The permittee must cause a Qualified Professional to update and submit the updated MVR to the director by September 30, 2032, and every five years thereafter.

9.10 ENVIRONMENTAL IMPACT ASSESSMENT - CHANGES TO MINE PLANS

Where changes to a mine plan requires amendment of the Mines Act Permit for a site, the permittee must provide the director and KFNGs with a project description detailing the changes and results of water quality modelling that assesses the effects on water quality at the applicable Order Stations/compliance points. The director may require an environmental impact assessment to be completed to evaluate the effects of the changes on the environment.

9.10.1 FRO MINE PLAN

If FRO's mine plan changes such that FRO's total waste rock volume exceeds the maximum volume assessed in the Swift Environmental Assessment Certificate application and the North Spoil Re-handle screening-level assessment an environmental effects assessment be conducted.

9.11 SELENIUM SPECIATION MONITORING PROGRAM

The permittee must prepare an annual report documenting the activities and results of monitoring undertaken for each element of the Selenium Speciation Monitoring Program, as per Section 8.6. The report must be submitted to the director and the EMC by May 31st of each year.

The Permittee must post a copy of the report to the Permittee's website annually, within six months of submission.

9.12 VERACITY OF DATA

The permittee must ensure all information submitted as a requirement of this permit is accurate and free from mistakes or misleading statements. The permittee must include in any submission required under this permit an explanation for any data that:

a) is required under the permit but is missing from the submission; and
b) the permittee considers to be not representative of the actual discharge, conditions, or other circumstances the data is intended to measure.

9.13 ANNUAL STATUS FORMS

The permittee must submit to the director an annual status report for each calendar year, in the form of the Annual Status Form template found on the Ministry website. The first Annual Status Form for 2023 must be submitted by March 31, 2024.

For each numbered requirement in the permit, the permittee must include the following information in the Annual Status Form:

a) An assessment of compliance against the requirement for the previous year, determining whether the permittee was in compliance, out of compliance, or if the requirement did not apply for that year;
b) Justification for the compliance determination; and
c) If the Annual Report or other submissions made to the director support the compliance determination, identify the submission and relevant page or part of the submission.

10. ADAPTIVE MANAGEMENT

The permittee must develop and implement a detailed adaptive management plan (AMP) to support implementation of the ABMP, to achieve water quality targets including calcite targets, ensure that human health and the environment are protected, and where necessary, restored, and to achieve continuous improvement of water quality in the Elk Valley. The adaptive management cycle consists of six stages, as summarized below. Elements of the AMP required for this permit have been included in the ABMP, but other key components remain outstanding, as described below. The permittee must prepare and implement an AMP to the satisfaction of the director. The AMP must fulfill the following requirements at a minimum:

1) Stage one – Assess and Define the Scope
    a) Section 1.2 of the Elk Valley Area Based Management Plan identifies the following environmental management objectives that apply to the AMP: protection of aquatic ecosystem health; management of bioaccumulation of Parameters of Concern in the receiving environment (including fish tissue); protection of human health; and protection of groundwater.

b) The AMP should support continuous improvement of water quality conditions in the Elk Valley such that human health and ecosystem health are protected in the long-term, without restrictions or limitations on the use of water resources or associated biological resources.

c) Identify areas of uncertainty for further analysis and development of hypotheses to support adaptive management. Uncertainties may include effects on aquatic health, actual water quality conditions in space and time, treatment capability and results, R&D project success and implementation, efficacy of passive and semi-passive mitigation methods, etc.

d) The conceptual water quality model in Annex D of the ABMP should link management activities to effects to water quality and other components of the aquatic environment.

e) Select measurement end points for monitoring and determining what activities and/or actions could be adjusted to influence the measurement endpoints to improve water quality and the aquatic environment to meet the environmental management objectives of the ABMP.

2) Stage two – Design of Adaptive Management Plan

a) Review of existing monitoring programs in relation to uncertainties and alternative hypotheses developed above in 1.b and ensure that the monitoring will provide sufficient information to evaluate which hypothesis is most supported. Clear linkages between the AMP and the RAEMP, supporting studies, other monitoring and water quality modelling must be included.

b) Establish early-warning triggers for management action. If not already in place, identify the locations where the indicators will be monitored and develop a monitoring program to assess the status of these indicators.

c) An assessment framework for evaluating whether an outcome is acceptable or not must be provided. Monitoring and operational outcomes or indicators must be detailed and what responses will be taken as a result of exceedances of each indicator, as well as the order and timeframe in which the responses will be implemented.

d) Develop and test hypotheses associated with alternative mitigation strategies. The intention is to evaluate applying active adaptive management to research and development activities related to non-active water treatment plant technologies and calcite management.

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3) Stage three – Implement the Adaptive Management Plan
   a) Implement the AMP as designed.
   b) Document all deviations to the AMP including rationale and information considered in the decision to deviate.

4) Stage four - Conduct Monitoring
   a) Implement and follow the various monitoring programs and supporting studies in this permit and within the ABMP. Additional monitoring may be required as per 2.b above.
   b) Identify how collected information/data will be managed to facilitate evaluation of hypotheses and status of indicators.

5) Stage five – Evaluate the results of monitoring activities
   a) Describe how the information/data from the monitoring programs and supporting studies will be analyzed/evaluated for the AMP.
   b) Document exceedances of the indicators and the management responses that were undertaken.
   c) Identify whether the results were expected, where results deviated from those expected, why the deviations occurred, and what lessons were learned.
   d) Communicate results to the EMC (Section 11.2).

6) Stage six – Adjust and Revise the Hypotheses and Management Strategies
   a) Adjust the ABMP implementation plans and actions as required, including knowledge gained from Section 7.2 – Research and Development.
   b) Communicate changes to ABMP implementation plans and activities to the EMC.
   c) Reassess expected outcomes, potential impacts, and responses to these outcomes for an adjusted plan. Where plan components are related to impacts on Human Health, the permittee shall make reasonable efforts to consult with Interior Health (hbe@interiorhealth.ca).
   d) Adjust the AMP as required in consultation with the EMC.

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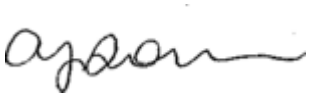

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The permittee must develop and implement an Adaptive Management Plan to ensure that the management goals in the approved ABMP are met. The permittee must deliver the following:

i. The permittee must prepare a draft Terms of Reference (TOR) for the Adaptive Management Plan for discussion at the EMC by February 15, 2015.

ii. The permittee must submit a final TOR by March 15, 2015 to the director for review and approval.

iii. The permittee must prepare a draft AMP for discussion at the EMC by September 30, 2015.

iv. The permittee must submit the final AMP by February 29, 2016 to the director for review and acceptance.

v. The permittee must prepare and submit an annual report documenting the activities undertaken in each stage of the Adaptive Management Plan. The AMP report must be submitted to the director annually by July 31. The first AMP report is due July 31, 2016.

vi. The permittee must update and revise the AMP every three years. The next update report is due December 15, 2021.

vii. The permittee must implement the AMP to the satisfaction of the director.

viii. The permittee must notify the director immediately regarding significant deviations from or adjustments to the accepted AMP (e.g., changes in triggers, responses, timeframes and/or study designs).

10.1 HUMAN HEALTH RELATED ADAPTIVE MANAGEMENT PLAN UPDATE

The next Management Question 6 Evaluation Report must include actions initiated and planned to reduce risks to human health in consideration of the results of the HHRA. The report must evaluate how the most recent Water Quality Mitigation Plan contributes to reducing risks to human health. The Permittee must post a copy of the report to the Permittee's website annually, within six months of submission.

In consultation with the Elk Valley Human Health Working Group, the 2024 Adaptive Management Plan Update must use the HHRA results to revise and refine Management Question 6 and associated key uncertainties and underlying uncertainties. This must include, but is not limited to, the addition of a key uncertainty pertaining to where and what foods the Ktunaxa harvest, and would prefer to harvest, so that potential risks to human health can be sufficiently assessed. Evaluation of this key uncertainty must consider Ktunaxa knowledge interests.

11. DATA ANALYSIS ACCOUNTABILITY AND TRANSPARENCY

11.1 FIRST NATIONS REPORTING REQUIREMENT

Unless otherwise agreed to by the KFNGs and the permittee, the permittee must provide the KFNGs with information related to any material changes to the Water Quality Mitigation Plan, Adaptive Management Plan, the Calcite Management Plan and the Research and Technology Development Plan. In addition, the permittee must provide the KFNGs with all data, information and/or reports generated during the implementation of these plans in accordance with this permit.

11.2 ENVIRONMENTAL MONITORING COMMITTEE (EMC)

The permittee must establish an Environmental Monitoring Committee (EMC), consisting of representatives from the Ministry of Environment and Parks, the Ministry of Mining and Critical Minerals, Environment Canada, the Ktunaxa Nation, Interior Health Authority, and the permittee. The Committee will review submissions and provide technical advice to the permittee and director regarding monitoring submissions in Sections:

8.2.1 Groundwater Monitoring Program

8.3 Local Aquatic Effects Monitoring

8.4 Regional Aquatic Effects Monitoring

8.5 Calcite Monitoring

8.6 Selenium Speciation Monitoring Program

8.8 Chronic Toxicity Testing Program

8.9 Human Health Evaluation

10. Adaptive Management

11.3 Third-Party Audit

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The committee will also provide input to the permittee regarding reports which are required under Sections:

4 Tributary Evaluation and Management

9.2.5 Annual Reporting

9.3 Toxicity Reporting

9.4 Groundwater

9.5 LAEMP

9.5 RAEMP

9.7 Calcite

9.8 Koocanusa Reservoir

9.9 Water Quality Modelling

9.11 Selenium Speciation Monitoring Program

10 Adaptive Management

11.3 Third-Party Audit

The EMC will confirm the scope of third-party audit in Section 11.3 a minimum of 9 months prior to the audit submission deadline.

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11.3 THIRD-PARTY AUDIT

Monitoring data for this permit and its analysis is subject to the review and audit by a third-party qualified professional on a three-year cycle. The audit must include a review of monitoring data and data analysis for reports submitted under this permit relevant to at least three components (monitoring endpoints) of EVR's environmental monitoring programs undertaken as requirements of this permit for the previous three years and must address at least the following:

i. Data quality and completeness;

ii. Protocols and procedures from the QA/QC plan for the monitoring program; and,

iii. Standard operating procedures and data handling protocols in place for EVR Operations Limited.

The audit objectives scope, components, and criteria must be selected in consultation with the EMC. Each Third-Party Audit Report must be submitted to the EMC and to the director, by October 31 of each audit year. The next Third-Party Audit Report must be submitted to the director by October 31, 2020. The Third-Party Audit Report must report on actions taken to address findings of previous reports.

12. SECURITY

Although financial security under the Environmental Management Act is not required at this time, the director may require security in the amount and form subject to the conditions the director specifies.

13. PUBLICATION OF DOCUMENTS

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

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APPENDICES 1A-1K: EVR OPERATIONS LIMITED (EVR) OPERATIONS MAPS

APPENDIX 1A – EVR Location Map

APPENDIX 1B – EVR Sampling Locations Overview Map

APPENDIX 1C – EVR Sampling Locations Map – Compliance Points

APPENDIX 1D – EVR Sampling Locations Map – Order Stations

APPENDIX 1E – EVR Sampling Locations Map – Koocanusa Reservoir

APPENDIX 1F – EVR Sampling Locations Map – Fording River Operations

APPENDIX 1G – EVR Sampling Locations Map – Greenhills Operations

APPENDIX 1H – EVR Sampling Locations Map – Line Creek Operations

APPENDIX 1I – EVR Sampling Locations Map – Line Creek Operations Phase II

APPENDIX 1Ia – Dry Creek Water Management System Benthic Invertebrate Tissue Monitoring Location Map – Line Creek Operations

APPENDIX 1J – EVR Sampling Locations Map – Elkview Operations

APPENDIX 1K – EVR Sampling Locations Map – Coal Mountain Operations

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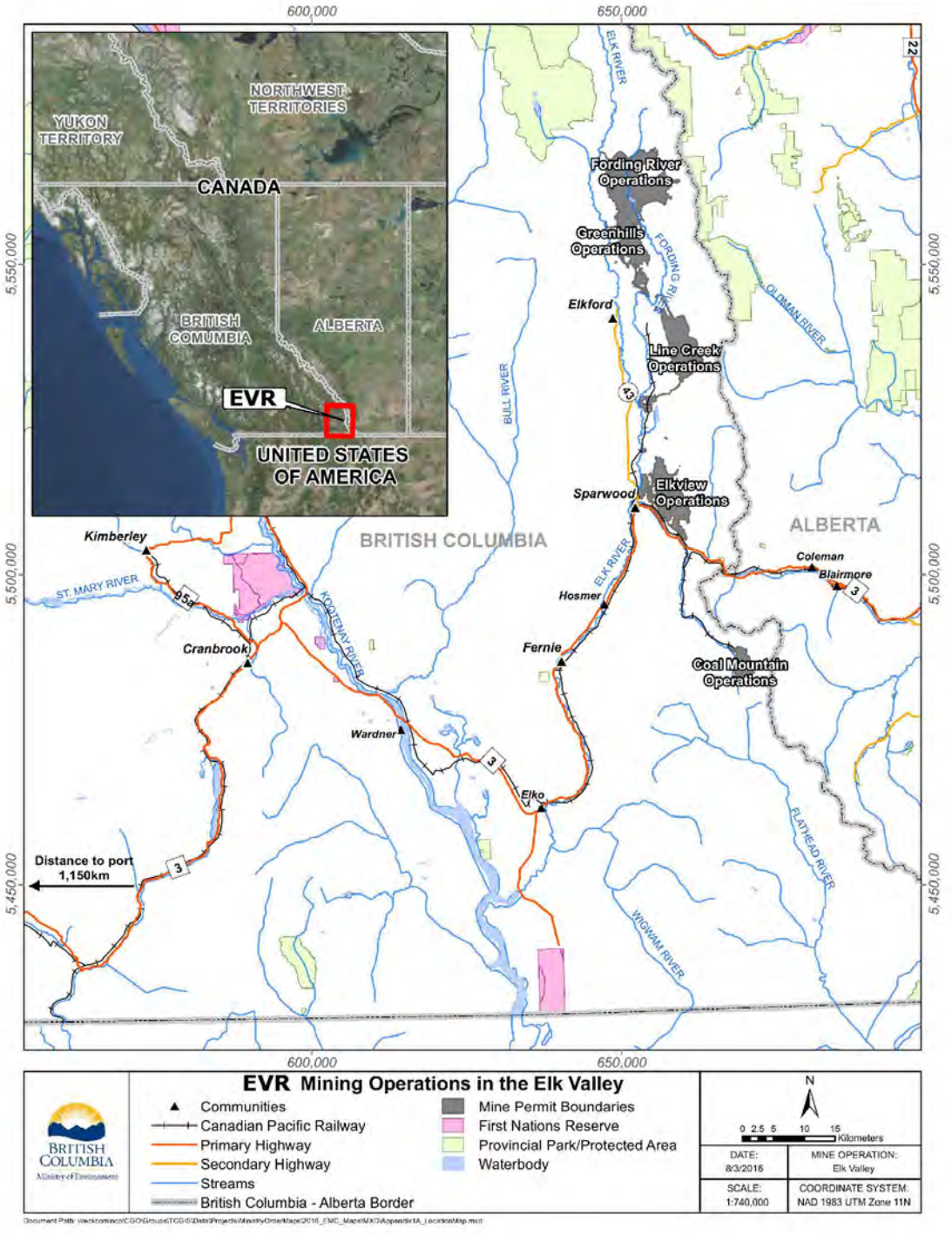
APPENDIX 1A – EVR Location Map



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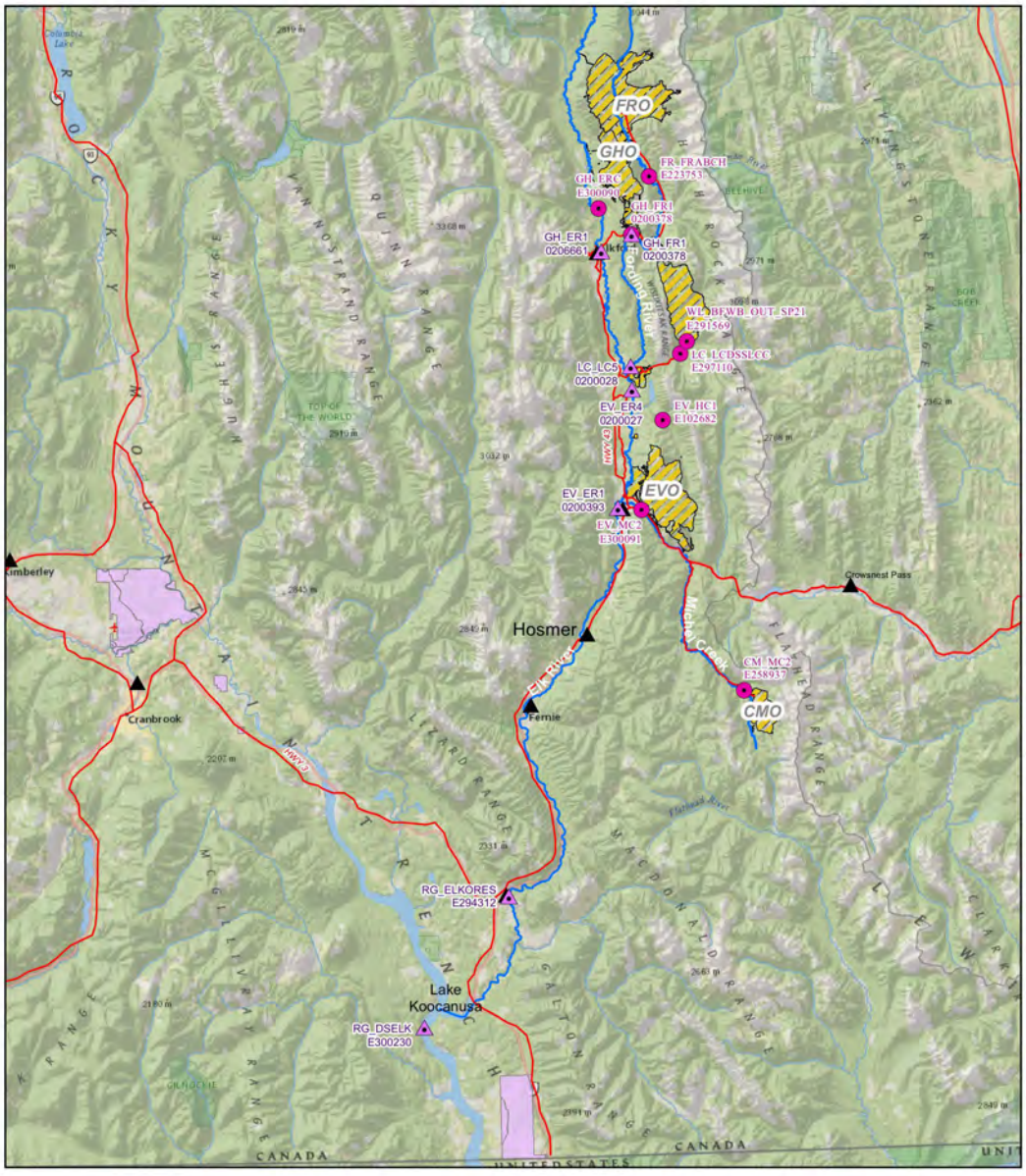
APPENDIX 1B – EVR Sampling Locations Overview Map



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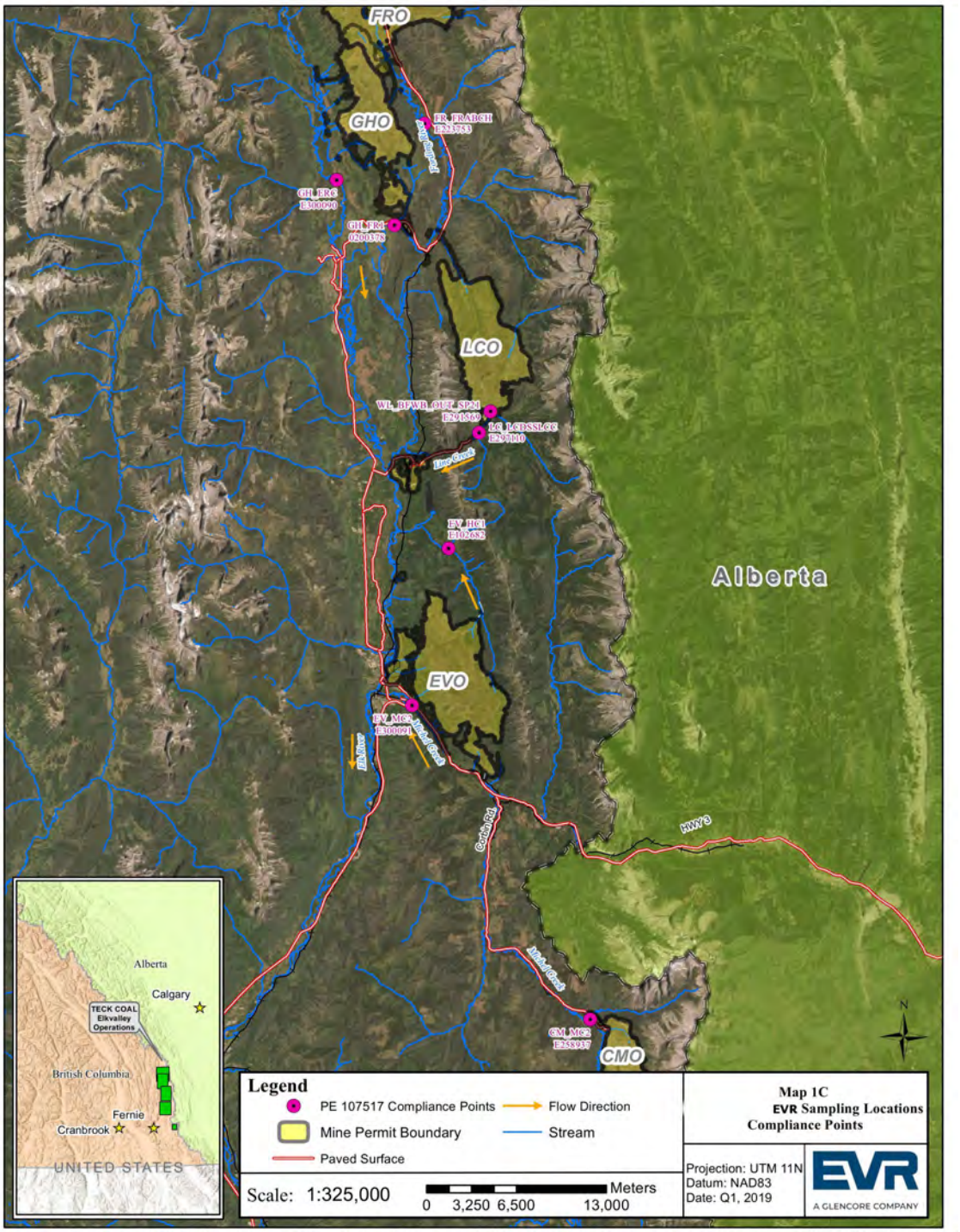
APPENDIX 1C – EVR Sampling Locations Map – Compliance Points



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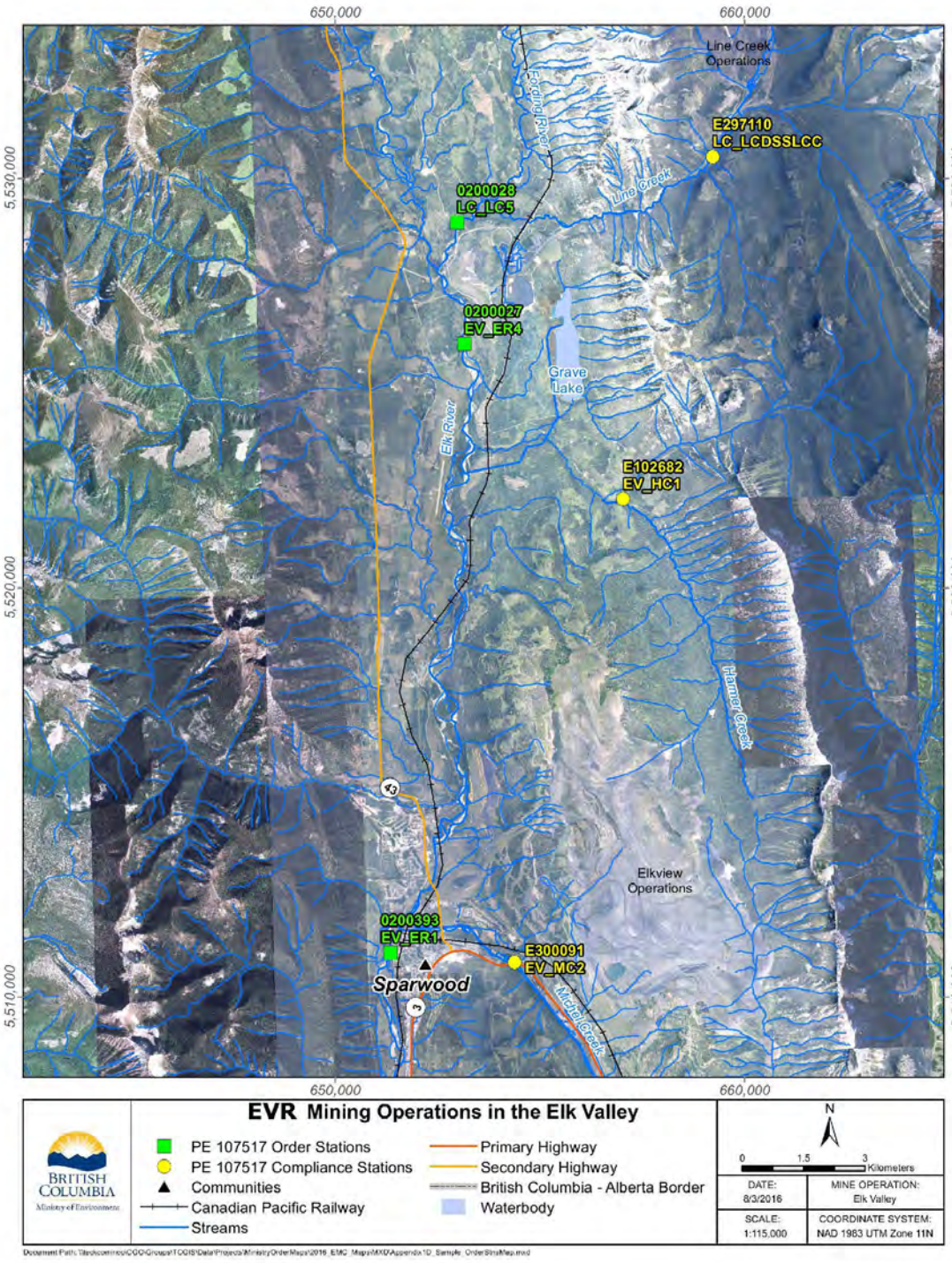
APPENDIX 1D – EVR Sampling Locations Map – Order Stations



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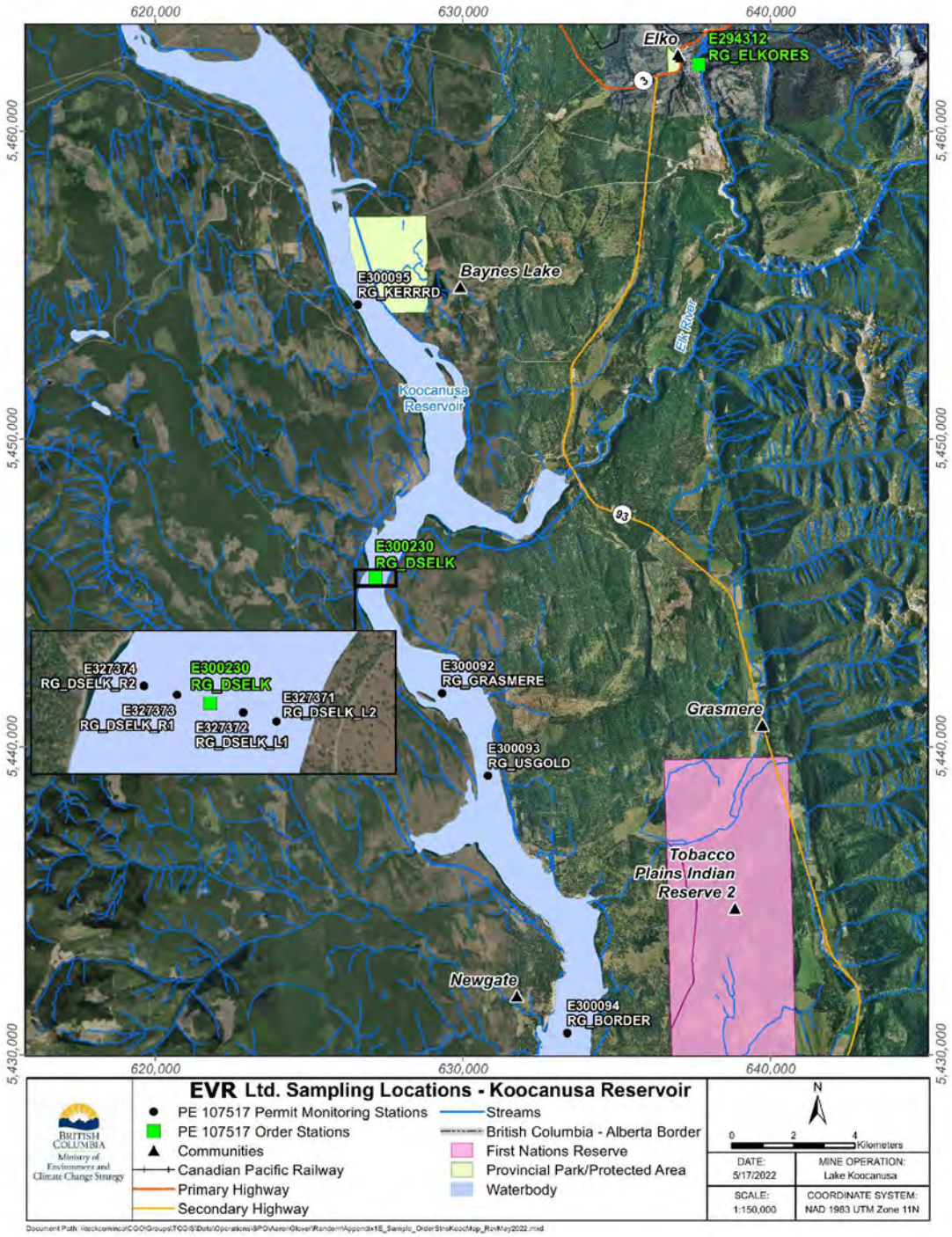
APPENDIX 1E – EVR Sampling Locations Map – Koocanusa Reservoir



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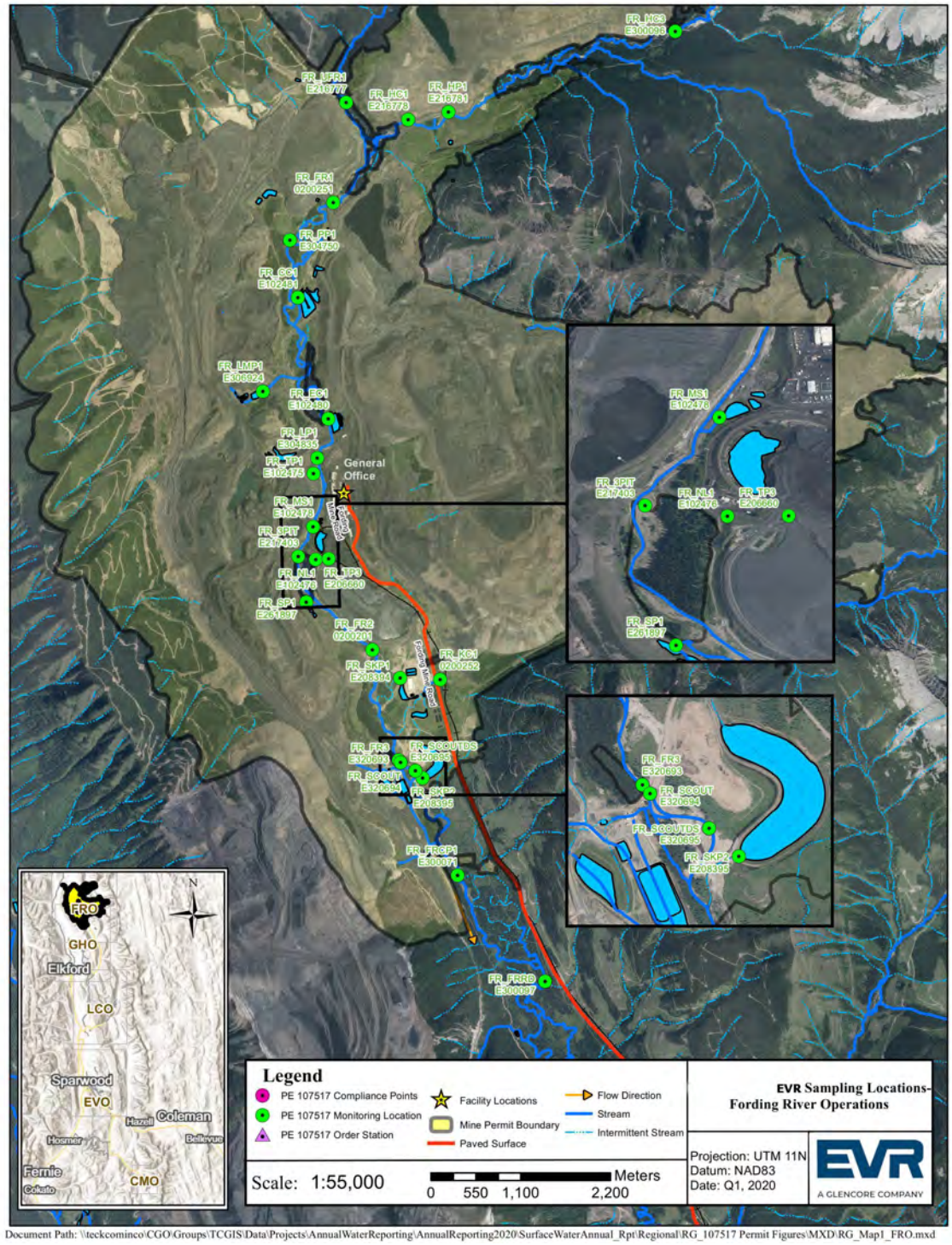
APPENDIX 1F – EVR Sampling Locations Map – Fording River Operations



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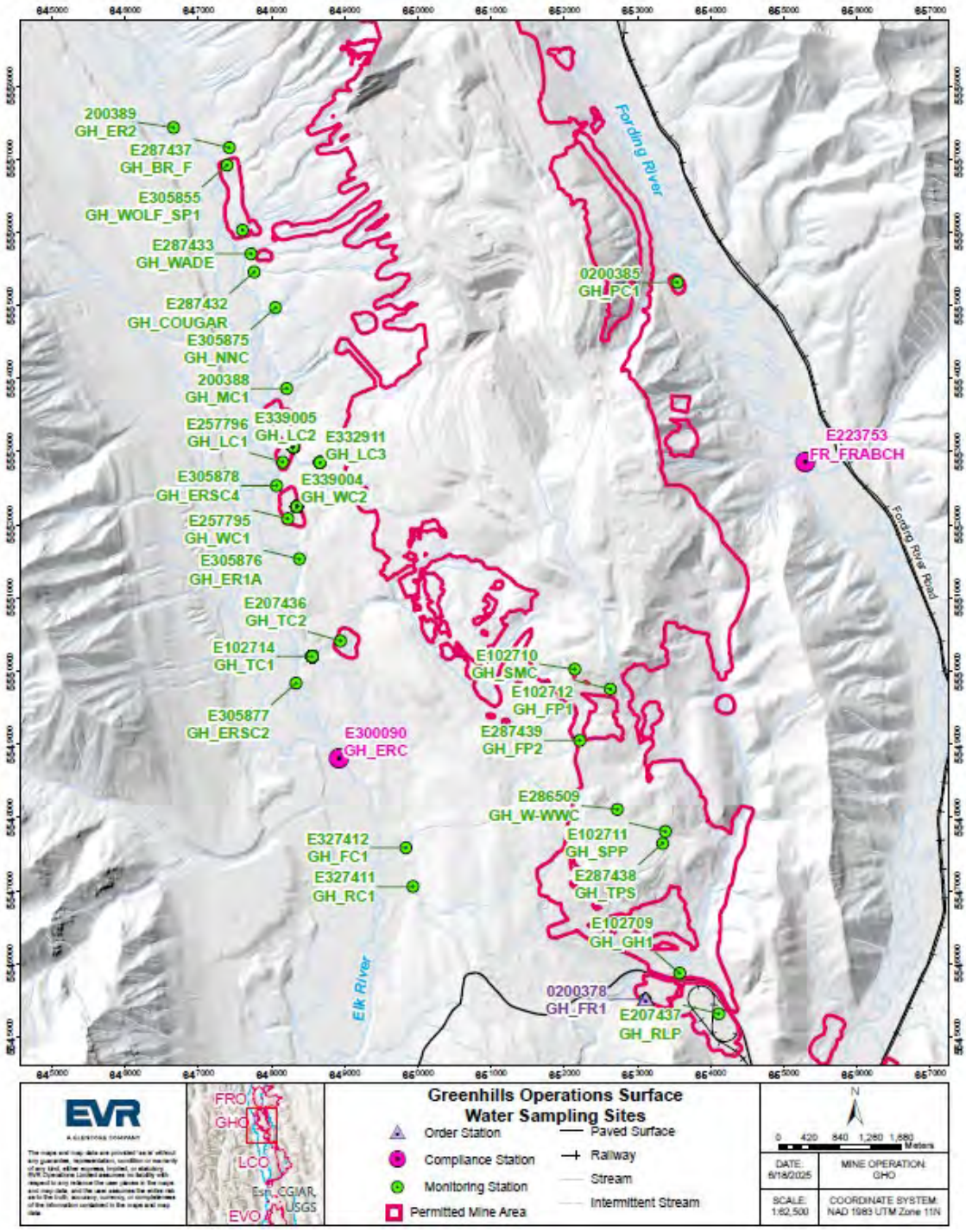
APPENDIX 1G – EVR Sampling Locations Map – Greenhills Operations



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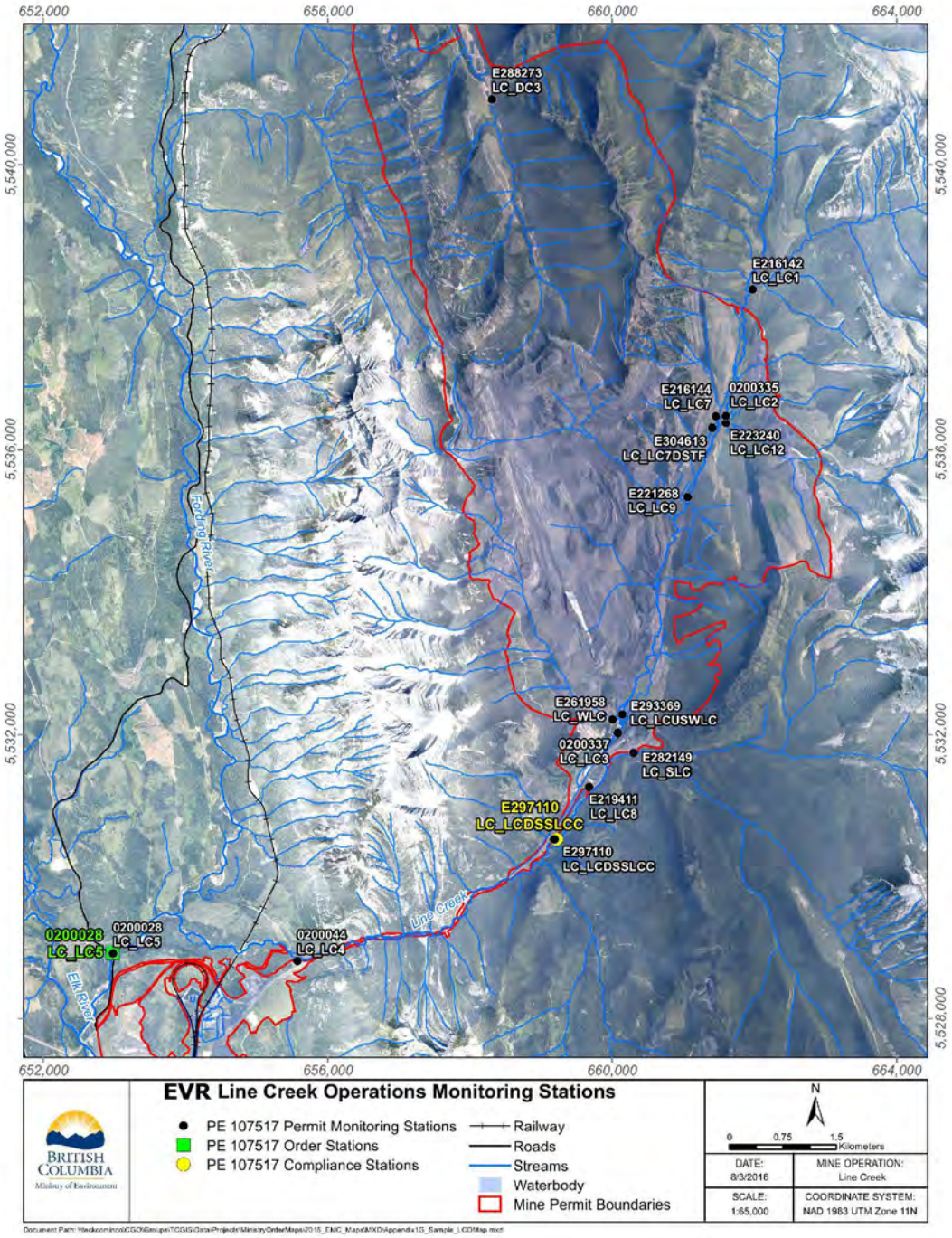
APPENDIX 1H – EVR Sampling Locations Map – Line Creek Operations Phase I



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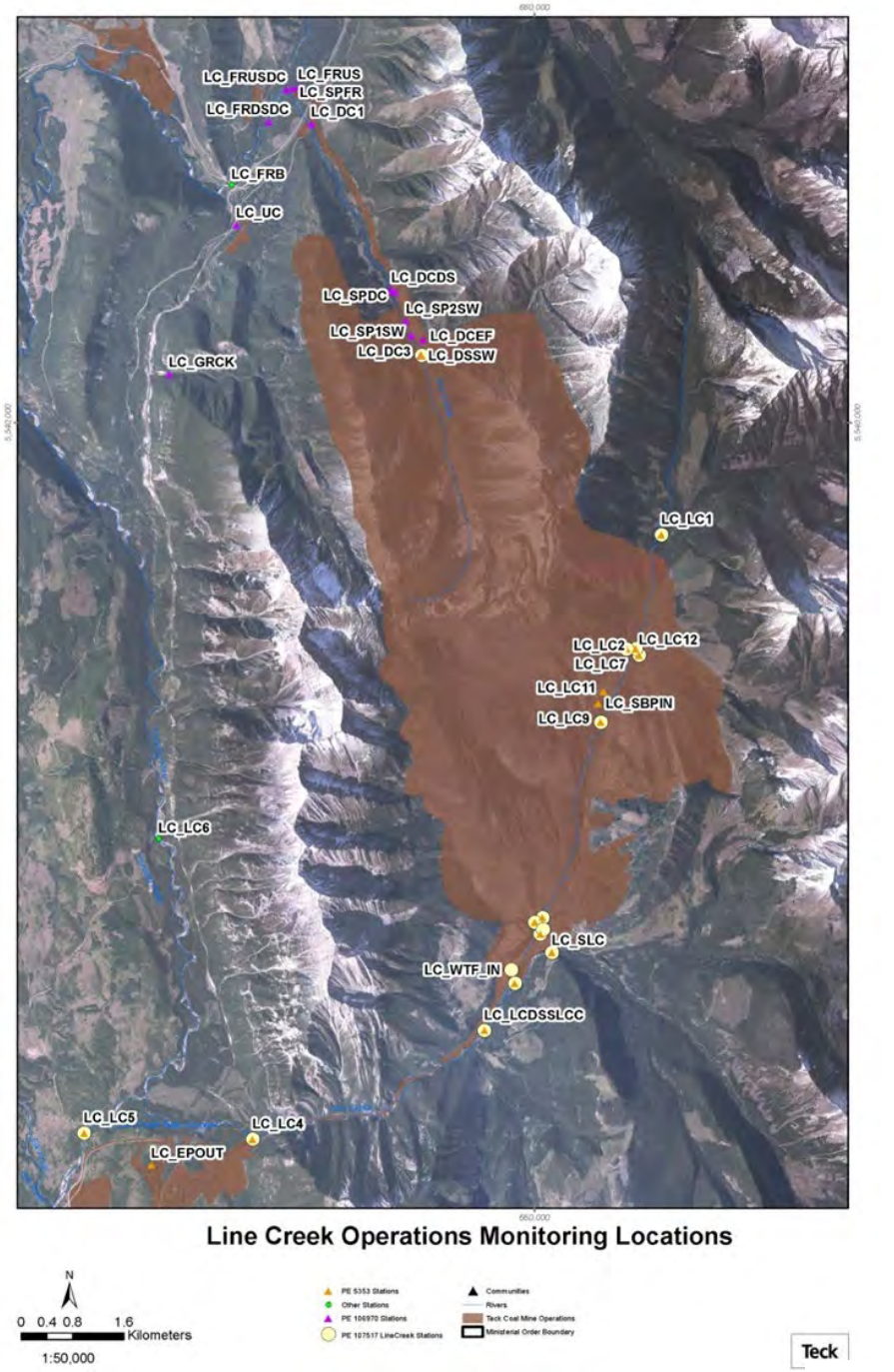
APPENDIX 1I – EVR Sampling Locations Map – Line Creek Operations Phase II



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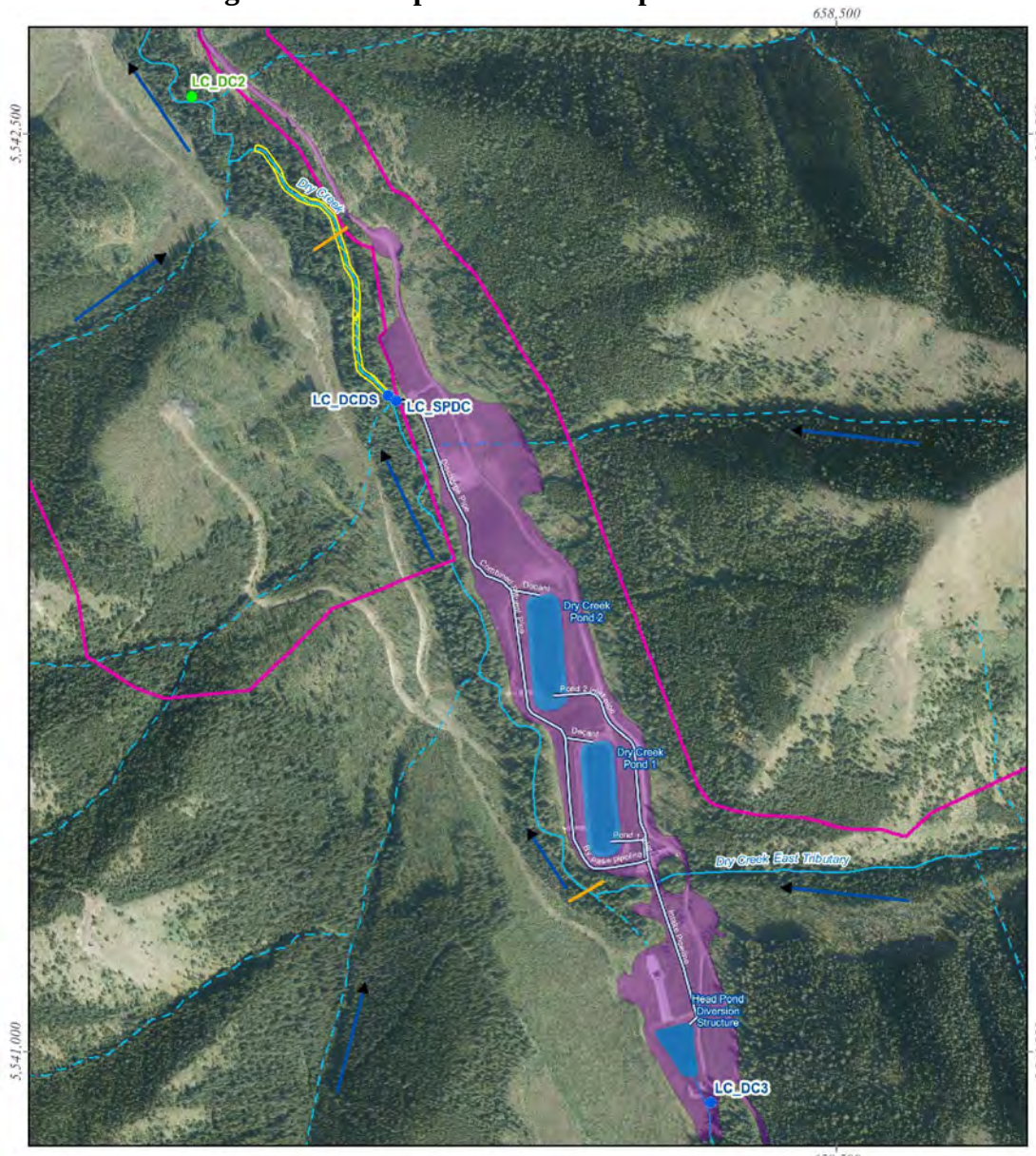
APPENDIX 1Ia – Dry Creek Water Management System Benthic Invertebrate Tissue Monitoring Location Map – Line Creek Operations



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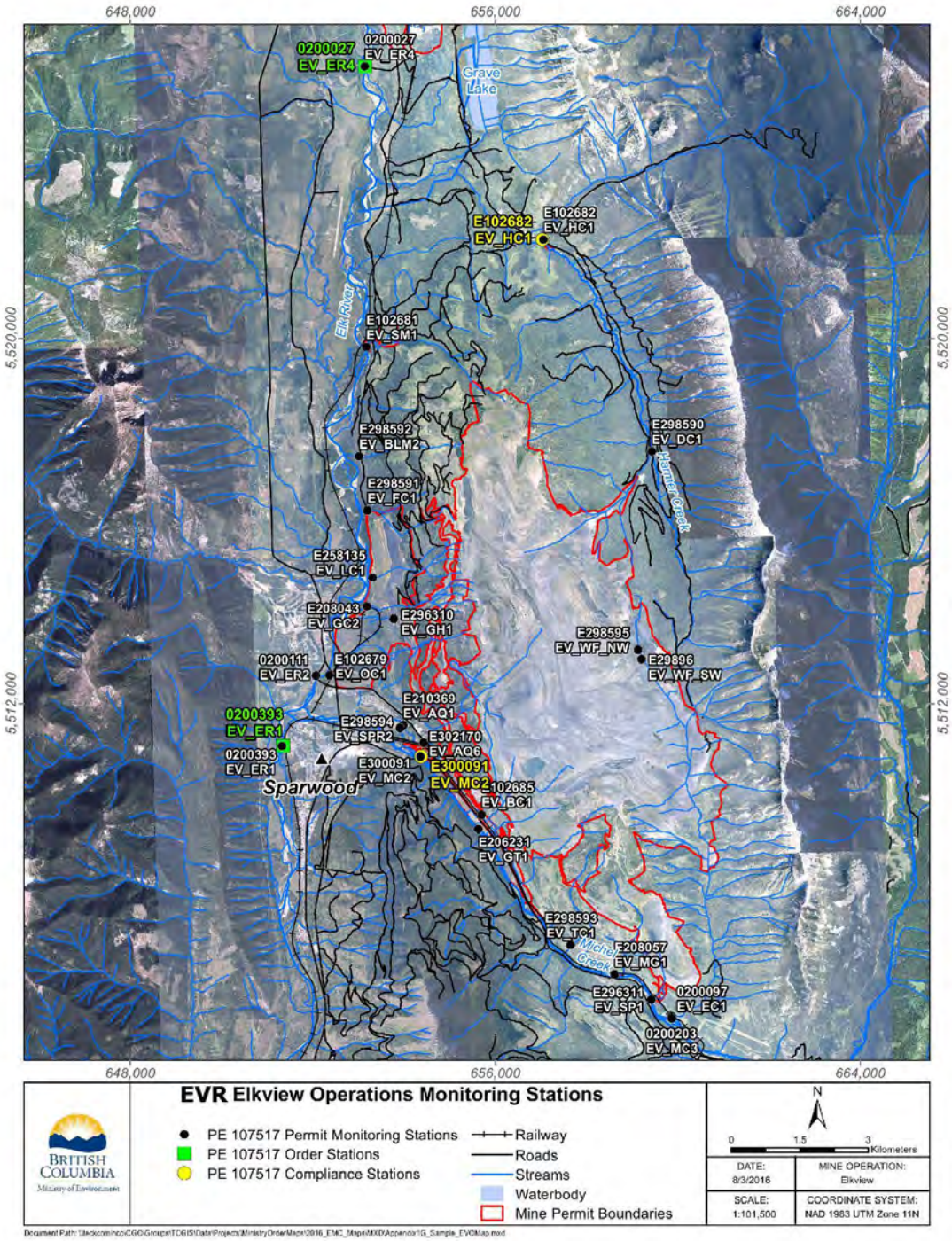
APPENDIX 1J – EVR Sampling Locations Map – Elkview Operations



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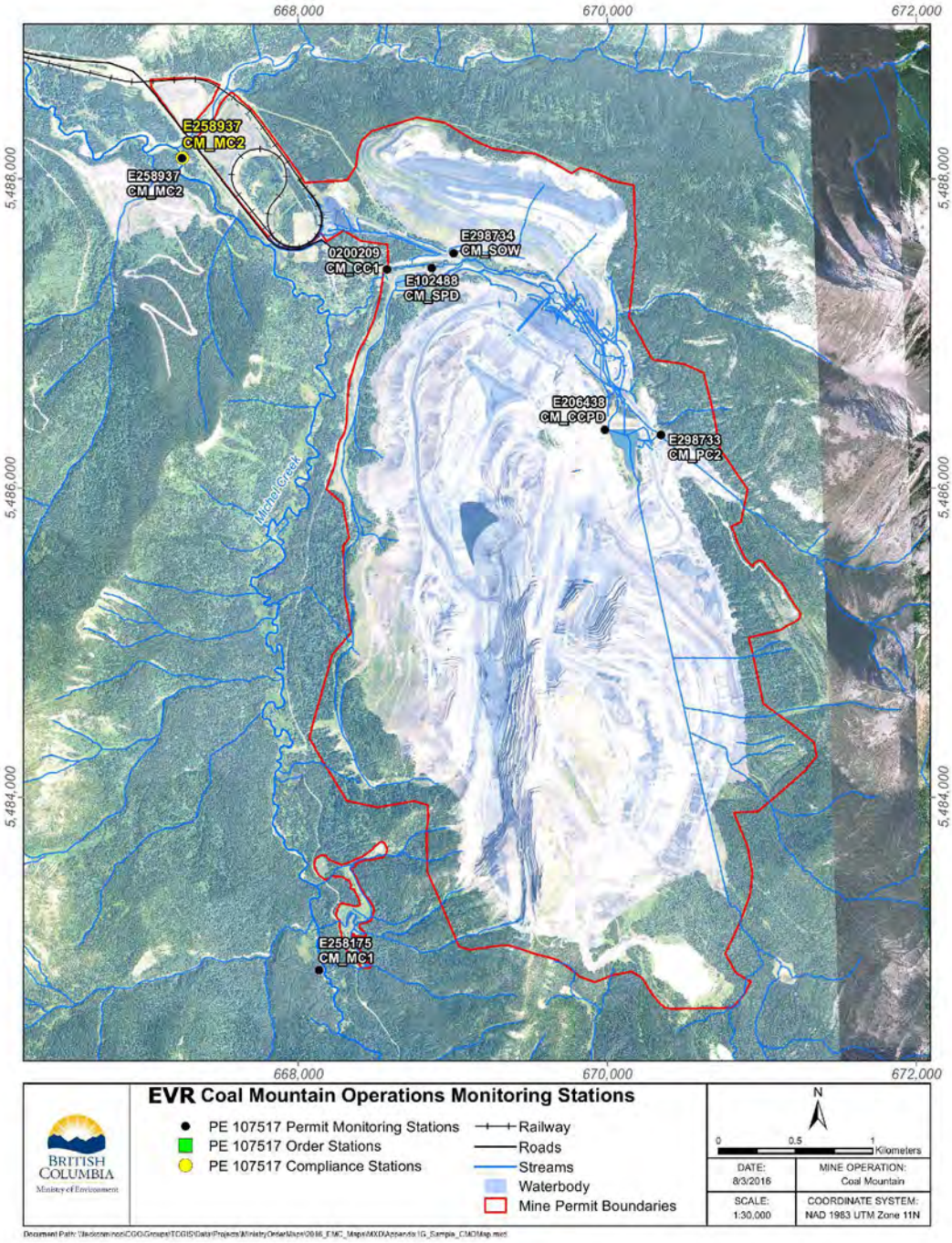
APPENDIX 1K – EVR Sampling Locations Map – Coal Mountain Operations



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APPENDIX 2: SURFACE WATER DISCHARGE AND RECEIVING ENVIRONMENT MONITORING PROGRAM

TABLE 10 - DESIGNATED AREA MONITORING PROGRAM – COMPLIANCE POINTS

	FRO – FORDING RIVER ~100m UPSTREAM OF CHAUNCEY CREEK (4)	GHO – FORDING RIVER ~205m DOWNSTREAM OF GREENHILLS CREEK	GHO – ELK RIVER ~220m DOWNSTREAM OF THOMPSON CREEK	LCO – LINE CREEK IMMEDIATELY DOWNSTREAM OF SOUTH LINE CREEK CONFLUENCE	EVO – HARMER SPILLWAY	EVO – MICHEL CREEK AT HWY 3 BRIDGE (4)	CMO – MICHEL CREEK 50m UPSTREAM OF ANDY GOODE CREEK
Site Identification Number	*E223753*	*0200378*	*E300090*	*E297110*	*E102682*	*E300091*	*E258937*
PARAMETER							
Field Parameters(a)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Conventional Parameters (b)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Major Ions (c)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Nutrients (d)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Total and Dissolved Metals Scans (e)	W/M	W/M	W/M	W/M	W/M	W/M	W/M

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 4.

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TABLE 11 – DESIGNATED AREA MONITORING PROGRAM – ORDER STATIONS

	FR4 GH_FR1	FR5 LC_LC5	ER1 GH_ER1	ER2 EV_ER4	ER3 EV_ER1	ER4 RG_ELKORES	LK2
	UPPER FORDING RIVER (DOWNSTREAM OF GREENHILLS CREEK)	LOWER FORDING RIVER (DOWNSTREAM OF LINE CREEK)	ELK RIVER UPSTREAM OF BOIVIN CREEK	ELK RIVER UPSTREAM OF GRAVE CREEK (FROM FORDING RIVER TO MICHEL CREEK)	ELK RIVER DOWNSTREAM MICHEL CREEK	ELK RIVER AT ELKO RESERVOIR	KOOCANUSA RESERVOIR TRANSECT SOUTH OF THE ELK RIVER (4)
Site Identification Number	*0200378*	*0200028*	*E206661*	*0200027*	*0200393*	*E294312*	
PARAMETER							
Field Parameters (a)	W/M	W/M	W/M	W/M	W/M	W/M	M/T
Conventional Parameters (b)	W/M	W/M	W/M	W/M	W/M	W/M	M/T
Major Ions (c)	W/M	W/M	W/M	W/M	W/M	W/M	M/T
Nutrients (d)	W/M	W/M	W/M	W/M	W/M	W/M	M/T
Total and Dissolved Metals Scan (e)	W/M	W/M	W/M	W/M	W/M	W/M	M/T
Secchi depth and chlorophyll-a	-	-	-	-	-	-	M/T

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Refer to Table 2A for transect sampling locations and Site Identification Number IDs.

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TABLE 12 - DESIGNATED AREA MONITORING PROGRAM – KOOCANUSA RESERVOIR RECEIVING ENVIRONMENT STATIONS

	KOOCANUSA RESERVOIR DOWNSTREAM OF KIKKOMAN CREEK	KOOCANUSA RESERVOIR WEST OF GRASMERE	KOOCANUSA RESERVOIR UPSTREAM OF GOLD CREEK	KOOCANUSA RESERVOIR UPSTREAM OF CANADA/US BORDER
Site Identification Number	*E300095*	*E300092*	*E300093*	*E300094*
PARAMETER				
Field Parameters (a)	M	M	M	M
Conventional Parameters (b)	M/EH	M/EH	M/EH	M
Major Ions (c)	M/EH	M/EH	M/EH	M
Nutrients (d)	M/EH	M/EH	M/EH	M
Total and Dissolved Metals Scan (e)	M/EH	M/EH	M/EH	M
Secchi depth and chlorophyll-a	M	M	M	M

Note: sample collection is based upon access; ice on the reservoir may prevent sample collection, if this is the case, the monitoring report must include a reason in the report

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 13 - FORDING RIVER OPERATIONS DISCHARGE MONITORING PROGRAM

	TAILINGS SLURRY TO NORTH TAILINGS POND	TAILINGS SLURRY TO SOUTH TAILINGS POND	NORTH LOOP POND DECANT (h)	MAINTENANCE AND SERVICES POND DECANT	EAGLE POND DECANT (h)	CLODE POND DECANT (h)	SOUTH KILMARNOCK POND DECANT – PHASE I (h)	SOUTH KILMARNOCK POND DECANT – PHASE II (h)	HENRETTA PIT EFFLUENT INTO DIVERSION CULVERTS (j)	SMITH PONDS DECANT (h)	SWIFT PIT EFFLUENT TO FORDING RIVER	SWIFT-CATARACT SED. POND DOSED WITH ANTISCALANT TO FORDING RIVER (4;5)	LIVERPOOL SED. PONDS DECANT (h)	POST SED. PONDS DECANT (h)	LAKE MOUNTAIN SED. PONDS TO LAKE MOUNTAIN CREEK	FLOODPLAIN WIDENING SED. POND DECANT (h)
Site Identification Number	*E102475*	*E206660*	*E102476*	*E102478*	*E102480*	*E102481*	*E208394*	*E208395*	*E216781*	*E261897*	*E217403*	*E320694*	*E304835*	*E304750*	*E306924*	*E325311*
(h) In-pond sample *Site Identification Number*	-	-	*E310046*	-	*E310047*	*E310048*	*E310049*	*E310050*	-	*E310051*	-	-	*E310052*	*E310054*	-	*E325312*
PARAMETER																
Field Parameters (a)	-	-	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Conventional Parameters (b)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Major Ions (c)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Nutrients (d)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	-	Q	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	-	-	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	-	Q	Q

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.
5) Samples are to be collected only when there is discharge via overflow from the FRO-S AWTF Swift Creek Intake. If the discharge is initiated because of a recirculation event at FRO-S AWTF, the monitoring program is not effective during the first four (4) hours of the recirculation event.

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TABLE 14 – FORDING RIVER OPERATIONS RECEIVING ENVIRONMENT AND OTHER MONITORING PROGRAM

	FORDING RIVER U/S OF KILMARNOCK CREEK	FORDING RIVER D/S OF FRO-S AWTF OUTFALL STRUCTURE (4)	FORDING RIVER ~525 m D/S OF CATARACT CREEK	FORDING RIVER D/S OF HENRETTA	FORDING RIVER U/S OF HENRETTA	HENRETTA CREEK AT MOUTH	HENRETTA CREEK UPSTREAM OF MCQUARRIE CREEK	FORDING RIVER NEAR FORDING RIVER ROAD	KILMARNOCK CREEK AT MOUTH
Site Identification Number	*0200201*	*E320695*	*E300071*	*0200251*	*E216777*	*E216778*	*E300096*	*E300097*	*0200252*
PARAMETER									
Field Parameters (a)	W/M	W/M	W/M	M	M	W/M	M	M	M
Conventional Parameters (b)	W/M	W/M	W/M	M	M	W/M	M	M	M
Major Ions (c)	W/M	W/M	W/M	M	M	W/M	M	M	M
Nutrients (d)	W/M	W/M	W/M	M	M	W/M	M	M	M
Total and Dissolved Metals Scan (e)	W/M	W/M	W/M	M	M	W/M	M	M	M

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in three monitoring tables in this permit, therefore monitoring data must be reported according to the requisite reporting requirements in Section 9 and Appendices 4 and 5.

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TABLE 15 – GREENHILLS OPERATIONS DISCHARGE MONITORING PROGRAM

	TAILINGS POND WATER	GREENHILLS CREEK SED. POND DECANT (4)	THOMPSON CREEK SED. POND DECANT	PORTER CREEK SED. POND DECANT	WOLFRAM CREEK SED. POND DECANT	LEASK CREEK SED. POND DECANT	LEASK CREEK SED. POND INFLOW	RAIL LOOP SED. POND DECANT	MICKELSON CREEK AT LRP ROAD	WADE CREEK AT LRP ROAD	WOLF CREEK SED. POND DECANT	WILLOW CREEK SED. POND DECANT
Site Identification Number	*E287438*	*E102709*	*E207436*	*0200385*	*E257795*	*E257796*	*E339005*	*E207437*	*0200388*	*E287433*	*E305855*	*E305854*
PARAMETER												
Field Parameters (a)	-	M	M	M	M	M	M	M	M	M	M	M
Conventional Parameters (b)	SA	M	M	M	M	M	M	M	M	M	M	M
Major Ions (c)	SA	M	M	M	M	M	M	M	M	M	M	M
Nutrients (d)	SA	M	M	M	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	M	M	M	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	Q	-	-	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	Q	-	-	Q	Q	Q

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.

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Mining Authorizations

TABLE 16 – GREENHILLS OPERATIONS RECEIVING ENVIRONMENT MONITORING PROGRAM

	ELK RIVER UPSTREAM OF GREENHILLS OPERATIONS	THOMPSON CREEK AT LRP ROAD	COUGAR CREEK AT LRP ROAD	BRANCH F AT LRP ROAD	NO NAME CREEK	ELK RIVER SIDE CHANNEL D/S WOLFRAM CREEK	ELK RIVER D/S OF THOMPSON CREEK	ELK RIVER SIDE CHANNEL U/S WOLFRAM CREEK	RUSH CREEK AT LRP ROAD	FOWLER CREEK AT LRP ROAD
Site Identification Number	*0200389*	*E102714*	*E287432*	*E287437*	*E305875*	*E305876*	*E305877*	*E305878*	*E327411*	*E327412*
PARAMETER										
Field Parameters (a)	M	M	M	M	M	M	M	M	M	M
Conventional Parameters (b)	M	M	M	M	M	M	M	M	M	M
Major Ions (c)	M	M	M	M	M	M	M	M	M	M
Nutrients (d)	M	M	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	-	-	-	-	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	-	-	-	-	-	-	-	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 17 - LINE CREEK OPERATIONS PHASE I DISCHARGE MONITORING PROGRAM

	NO NAME CREEK SED. POND DECANT	MSA NORTH PONDS DECANT	MSA NORTH PONDS ALTERNATE (4)	CONTINGENCY TREATMENT SYSTEM (r)	HORSESHOE RIDGE PIT WATER VIA LINE CREEK ROCK DRAIN TO LINE CREEK (WHEN IN USE)
Site Identification Number	*E221268*	*E216144*	*E304613*	*E219411*	*E308146*
PARAMETERS					
Field Parameters (a)	M	M	M	M	M
Conventional Parameters (b)	M	M	M	M	M
Major Ions (c)	M	M	M	M	M
Nutrients (d)	M	M	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	Q	-	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	Q	Q	-	Q

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location E304613 to be used as an alternate for E216144, as required.

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TABLE 18 - LINE CREEK OPERATIONS PHASE II DISCHARGE MONITORING PROGRAM

	LCO DRY CREEK SED. PONDS TO DRY CREEK	DIVERSION STRUCTURE SPILLWAY (WHEN IN USE)	SED. POND 1 SPILLWAY (WHEN IN USE)	SED. POND 2 SPILLWAY (WHEN IN USE)
Site Identification Number	*E295211*	*E295313*	*E295314*	*E295315*
PARAMETER				
Field Parameters (a)	BP-W/$M_{(i)}$	D*/W	D*/W	D*/W
Conventional Parameters (b)	BP-W/M	D*/W	D*/W	D*/W
Major Ions (c)	BP-W/M	D*/W	D*/W	D*/W
Nutrients (d)	BP-W/M	D*/W	D*/W	D*/W
Dissolved Metals (e)	BP-W/M	D*/W	D*/W	D*/W
Total Metals (e)	BP-W/M	D*/W	D*/W	D*/W
96 hour Rainbow Trout single concentration toxicity test (g)	Q	-	-	-
48 hour Daphnia magna single concentration toxicity test (g)	Q	-	-	-
Selenium Speciation	BP-W/M	-	-	-
Chlorophyll-*a* (h)	BP-W/M	-	-	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 19 – LINE CREEK OPERATIONS PHASE I RECEIVING ENVIRONMENT MONITORING PROGRAM

	LINE CREEK U/S OF PROCESS PLANT	LINE CREEK D/S OF WEST LINE CREEK (4)	LINE CREEK U/S OF ROCK DRAIN	LINE CREEK U/S OF WLC BELOW ROCK DRAIN	LINE CREEK U/S MSA NORTH PIT	SOUTH LINE CREEK	WEST LINE CREEK	NORTH HORSESHOE CREEK NEAR MOUTH
Site Identification Number	*0200044*	*0200337*	*0200335*	*E293369*	*E216142*	*E282149*	*E261958*	*E223240*
PARAMETER								
Field Parameters (a)	W/M	W/M	M	M	M	M	M	M
Conventional Parameters (b)	W/M	W/M	M	M	M	M	M	M
Major Ions (c)	W/M	W/M	M	M	M	M	M	M
Nutrients (d)	W/M	W/M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	W/M	W/M	M	M	M	M	M	M

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in multiple monitoring programs in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in Section 9 and Appendix 4.

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TABLE 20 – LINE CREEK OPERATIONS PHASE II RECEIVING ENVIRONMENT MONITORING PROGRAM

	EAST TRIBUTARY OF LCO DRY CREEK	LCO DRY CREEK U/S OF EAST TRIBUTARY CREEK	LCO DRY CREEK D/S OF SED. PONDS	LCO DRY CREEK NEAR MOUTH	UNNAMED CREEK	GRACE CREEK U/S OF THE CP RAIL TRACKS	FORDING RIVER D/S OF LCO DRY CREEK	CHAUNCEY CREEK
Site Identification Number	*E288274*	*E288273*	*E295210*	*E288270*	*E295213*	*E288275*	*E288272*	*E295214*
PARAMETER								
Field Parameters (a)	M	BP-W/M	BP-W/$M_{(j)}$	W/M	M	M	W/M	M
Conventional Parameters (b)	M	BP-W/M	BP-W/M	W/M	M	M	W/M	M
Major Ions (c)	M	BP-W/M	BP-W/M	W/M	M	M	W/M	M
Nutrients (d)	M	BP-W/M	BP-W/M	W/M	M	M	W/M	M
Dissolved Metals (e)	M	BP-W/M	BP-W/M	W/M	M	M	W/M	M
Total Metals (e)	M	BP-W/M	BP-W/M	W/M	M	M	W/M	M
Selenium Speciation	-	BP-W/M	BP-W/M	-	-	-	-	-
Chlorophyll-*a*	M	BP-W/M	BP-W/M	W/M	-	-	-	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 21 - ELKVIEW OPERATIONS DISCHARGE MONITORING PROGRAM

	WESTFORK TAILINGS IMPOUNDMENT TO GROUND	ERICKSON CREEK AT MOUTH	SOUTH PIT CREEK SED. POND DECANT	LOWER MILLIGAN CREEK SED. POND DECANT	GATE CREEK SED. POND DECANT	BODIE CREEK SED. POND DECANT	AQUEDUCT POND CONTROL STRUCTURE TO AQUEDUCT CREEK
Site Identification Number	*E296310*	*0200097*	*E296311*	*E208057*	*E206231*	*E102685*	*E302170*
PARAMETER							
Field Parameters (a)	SA	M	M	M	M	M	M
Conventional Parameters (b)	SA	M	M	M	M	M	M
Major Ions (c)	SA	M	M	M	M	M	M
Nutrients (d)	SA	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	Q

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 22 - ELKVIEW OPERATIONS DISCHARGE MONITORING PROGRAM (CONTINUED)

	OTTO CREEK AT MOUTH	GODDARD CREEK SED. POND DECANT	LINDSAY CREEK INFILTRATION POND TO GROUND	6 MILE CREEK SED. POND DECANT
Site Identification Number	*E102679*	*E208043*	*E258135*	*E102681*
PARAMETER				
Field Parameters (a)	M	M	M	M
Conventional Parameters (b)	M	M	M	M
Major Ions (c)	M	M	M	M
Nutrients (d)	M	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	Q	Q	Q

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 23– ELKVIEW OPERATIONS RECEIVING ENVIRONMENT AND OTHER MONITORING PROGRAM

	MICHEL CREEK U/S OF ERICKSON CREEK	ELK RIVER U/S OF MICHEL CREEK	BALMER CREEK AT CFI ROAD	FENNELON CREEK AT CFI ROAD	SPRING CREEK AT MOUTH	THRESHER CREEK AT MILLIGAN ROAD
Site Identification Number	*0200203*	*0200111*	*E298592*	*E298591*	*E298594*	*E298593*
PARAMETER						
Field Parameters (a)	W/M	M	M	M	M	M
Conventional Parameters (b)	W/M	M	M	M	M	M
Major Ions (c)	W/M	M	M	M	M	M
Nutrients (d)	W/M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	W/M	M	M	M	M	M

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 24– COAL MOUNTAIN OPERATIONS DISCHARGE MONITORING PROGRAM

	MAIN INTERCEPTOR SED. POND DECANT (h)	CORBIN SED. POND DECANT (h)	PENGELLY CHANNEL DECANT (h)	SOWCHUCK SUMP
Site Identification Number	*E102488*	*E330652*	*E298733*	*E298734*
PARAMTER				
Field Parameters (a)	M	M	M	M
Conventional Parameters (b)	M	M	M	M
Major Ions (c)	M	M	M	M
Nutrients (d)	M	M	M	M
Total Metals Scan (e)	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	Q	-
48 hour LT50 *Daphnia magna* single concentration toxicity test (g)	Q	Q	Q	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 25 – COAL MOUNTAIN OPERATIONS RECEIVING ENVIRONMENT MONITORING PROGRAM

	MICHEL CREEK U/S OF OPERATIONS	CORBIN CREEK NEAR CONFLUENCE WITH MICHEL CREEK
Site Identification Number	*E258175*	*0200209*
PARAMETER		
Field Parameters(a)	M	W/M
Conventional Parameters (b)	M	W/M
Major Ions (c)	M	W/M
Nutrients (d)	M	W/M
Total Metals Scan (e)	M	W/M

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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APPENDIX 3: MONITORING PROGRAM NOTES AND EXPLANATIONS

Table 26 - Abbreviations for Surface Water Monitoring Program

A	Annual frequency
3X/W	Sampling three times per week
1X/2W	Sampling once every two weeks
1X/6W	Six week in-stream cycle
TW	Twice weekly
TA	Twice annually
C	Continuous Monitoring refer to (f) Table 24
D	Daily frequency
D*/W	One sample within the first 24 hours when actively discharging at spillway, then weekly thereafter for continued discharge from the spillways. Discharge from the spillway(s) occurs for flows greater than a 1:10 year, 24-hour storm event.
M	Monthly frequency
M/EH	Monthly frequency of one epilimnetic composite of water sampled from three depths (e.g. 1m, 5m,10m) and another hypolimnetic composite of water sampled from three depths (e.g. 20m,32m,45m) Stratification into an epilimnion and hypolimnion will be confirmed wherever a thermocline (defined as a 1°C change over 1 meter depth) is recorded. This temperature differential must be sustained in order to constitute stratification. Where stratified, one composite sample will be formed from three evenly spaced grab samples in the epilimnion and one composite sample similarly from the hypolimnion. Where unstratified, samples will be collected 3 m from the surface, 3 m from the substrate and at the mid-point of the water column. These samples will be averaged to comprise a composite sample.
M/T	Should conditions allow; monthly frequency of discrete samples from all sampled depths at all transect sampling locations identified in Table 2A. The number of discrete samples at each transect sampling location is determined by the depth of the reservoir at that location. If the depth is <6m, then a single sample is taken at the mid-point of the water column. If the depth is 6-12 m then a sample is taken at ½ depth and a second sample is taken at ⅔ depth. If the depth is > 12m, then three samples are taken: 3 m from surface, mid-point depth, and 3 m from the substrate.
Q	Quarterly frequency
Q*	Toxicity testing done every two weeks until six months after commissioning is completed, at which time testing must be done quarterly.
SA	Semi-Annual frequency (twice per year), SA sampling schedules must coincide with the monthly sampling schedule for sampling locations where both sampling frequencies are required.
W/M	Weekly frequency March 15 – July 15, monthly during the rest of the year.

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BP-W/M	Weekly frequency March 15 to at least August 31 during bypass of the LCO Dry Creek Water Management System, monthly during the rest of the year, depending on unexpected monitoring results that indicate potential ortho-P uptake or the generation of organic selenium species.
BOD	5-day Biochemical Oxygen Demand
EPH	Extractable Petroleum Hydrocarbons, a combination of HEPH (C19-32) & LEPH (C10-19)
TSS	Total Suspended Solids

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Table 27- Surface Water Monitoring Program: Explanatory Notes

a	**Field Parameters** must include water temperature, specific conductance, dissolved oxygen, pH; for Koocanusa Reservoir locations this includes vertical profiles of dissolved oxygen and temperature
b	**Conventional Parameters** must include specific conductance, total dissolved solids, total suspended solids, hardness, alkalinity, dissolved organic carbon, total organic carbon, and turbidity.
c	**Major Ions** must include bromide, fluoride, calcium, chloride, magnesium, potassium, sodium, sulphate.
d	**Nutrients** must include ammonia, nitrate, nitrite, TKN, orthophosphate, total phosphorus.
e	**Dissolved Metals Scan** must include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc. **Total Metals Scan** must include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc.
f	Flow monitoring locations may be changed through approved flow monitoring plan and must follow latest approved plan. Flow measurements must be taken in accordance with Section 8.1.2.2 or in accordance with an approved Flow Monitoring Plan.
g	Acute toxicity tests must coincide with water quality sampling and must be implemented in accordance with the toxicity testing program approved by the director. EVR shall collect samples when ponds are decanting within the permitted sampling frequency
h	If the discharge point is not decanting to the receiving environment, water quality samples must be taken just inside the decant point for all parameters, with the exception of toxicity.
i	**Selenium Speciation** must include total selenium, dissolved selenium, selenate (Se (VI)), selenite (Se (IV)), methylseleninic acid (MeSe (IV)), selenocyanate (SeCN), selenomethionine (SeMe), selenosulfate, dimethylselenoxide (DMSeO), methaneselenonic acid (MeSe(VI) and unknown selenium species.
j	Field observations of algae growth (presence/absence and photograph)
o (LCO)	Water temperature, dissolved oxygen, pH must be continuously monitored.
r (LCO)	To be sampled only when in use.

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APPENDIX 4: SELENIUM, NITRATE, AND SULPHATE TREATMENT FACILITIES

APPENDIX 4A – Selenium, Nitrate, and Sulphate Treatment Facility General Operational Requirements

APPENDIX 4B – West Line Creek Active Water Treatment Facility (AWTF)

APPENDIX 4C – Elkview Operations Saturated Rock Fill (EVO SRF)

APPENDIX 4D – Fording River Operations – South (FRO-S) AWTF

APPENDIX 4E – Fording River Operations – North (FRO-N) SRF

APPENDIX 4F – Line Creek Operations Dry Creek Water Treatment Plant (LCO DC WTP)

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APPENDIX 4A – Selenium, Nitrate, and Sulphate Treatment Facility General Operational Requirements

This section includes requirements that apply to all selenium, nitrate, and sulphate treatment facilities, herein referred to as water treatment facility(ies). Subsequent sections include facility-specific requirements.

4A1 COMMISSIONING

For the purpose of this permit, commissioning means bringing water treatment facility works into operation. When commissioning new additional treatment works that increase treatment capacity at an existing water treatment facility (i.e., new phase), the entire facility including all previous phases is considered to be in commissioning. The permittee must notify the director when the facility commences commissioning.

During pre-commissioning and commissioning of a treatment facility, the discharge is required to be non-acutely toxic as per Section 6.2 and the downstream Compliance Point compliance limits apply. During the time that commissioning is underway, periodic reporting on the status of commissioning must be provided to the satisfaction of the director. Notification of process modification, as outlined in Section 4A4, is not required during the commissioning period. System optimization adjustments made during the commissioning period must be reported in the Commissioning Report, as per Section 4A8. Once the commissioning phase is complete the operational phase begins, and the permittee must notify the director.

4A2 COMMISSIONING PLAN

A Commissioning Plan for each water treatment facility must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of the discharge from the treatment facility while in forward flow during the commissioning phase. The Commissioning Plan must include but is not necessarily limited to operational procedures required to commission and to start-up following a shut-down of the water treatment facility, including sequencing, estimated timeline of steps, and any additional monitoring and reporting required to demonstrate that no adverse environmental impacts result from commissioning. The Commissioning Plan must, at a minimum, include the operational monitoring for each specific facility as required by subsequent sections.

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4A3 **OPERATIONS PLAN**

An Operations Plan for each water treatment facility and the associated authorized works in Appendix 4 must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of the discharge from the treatment facility during the operational phase. The Operations Plan must include but is not necessarily limited to:

i. The facility operator's manual, with provision for its continual improvement;

ii. An overview of the planned maintenance program which includes an inventory of facility components and authorized replacement parts, and a detailed description of inspection, repair and replacement frequency for facility components;

iii. Documentation to verify that the facility is operated at all times within specifications and in a manner to ensure compliance with this authorization and other applicable legislation;

iv. Procedures for safely shutting down the treatment facility;

v. Procedures for safely restarting the LCO Dry Creek Water Treatment Plant;

vi. Actions to be taken if effluent quality fails to meet the requirements of this permit;

vii. Contingency planning which describes built-in redundancy of the facility and outlines measures to prevent emergency conditions from occurring; and

viii. Key metrics to be used to demonstrate the performance of the treatment facility relative to the intended performance.

The Operations Plan must be reviewed and updated following the first year of facility operations and as needed thereafter to assess its appropriateness for the authorized works, discharges and conditions. Results of the initial review must be provided to the director in the commissioning report prepared under Section 4A6 of this permit. Changes in procedures may be required by the director on the basis of this or later assessments, the operational records for the treatment facility and/or the results of discharge and receiving environment monitoring under Section 8. Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates

must be summarized in the quarterly report for the time period when the minor update was made.

4A4 PROCESS MODIFICATIONS

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 from the water treatment facilities. Notwithstanding notification under this Section, permitted levels must not be exceeded.

During commissioning notification for process modifications is not required for operational refinements or adjustments of works as needed to optimize efficiency and/or effluent quality. Adjustments made during the commissioning period must be reported in the Commissioning Report, as per Section 4A8.

4A5 NEW WORKS

The director may require upgrading of the water treatment works and disposal facilities based on monitoring results, and/or any other pertinent information. Plans and specifications for new pollution treatment works and upgrades to existing works must be submitted to the director as an amendment application. All new works must be approved before a discharge from the works commences.

4A6 SITE SPECIFIC ENVIRONMENTAL EMERGENCY RESPONSE PLAN

A Site-Specific Environmental Emergency Response Plan must be prepared for all water treatment facilities. The plan must be submitted to the director prior to commencement of the discharge from the water treatment facilities.

The plan must include, but is not limited to:

i. A description of measures to mitigate any health or environmental impacts, if emergencies occur;

ii. Specific reference to the Spill Reporting Regulation; and

iii. Instructions for staff in the event of an emergency, including contact information for local authorities (fire, police, public health), Emergency Management BC, and the director.

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Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4A7 DISCHARGE MONITORING

The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in subsequent sections in Appendix 4. The influent and discharge water sampling sites are located approximately as shown in subsequent sections in Appendix 4. Sampling and analytical procedures in Section 8.1.2 apply to the monitoring required per Appendix 4 of this permit.

4A8 COMMISSIONING REPORT

Within 12 months of finalizing the commissioning phase of the water treatment facility, the permittee must submit a commissioning report, prepared by a Qualified Professional to the director. The report must document the results of performance monitoring and system optimization over the first year of forward flow at the facility and recommend any necessary system improvements.

4A9 QUARTERLY TREATMENT PERFORMANCE REPORT

The permittee must submit a quarterly treatment performance report to the director within 30 days of the end of the quarter in which the samples were collected. The quarterly treatment performance report must include the following for each water treatment facility:

i. Monthly averages for the limits and SPOs in Sections 2 and 3, and Appendix 4, if applicable, and effluent water quality results used to calculate these averages;

ii. The number and percentage of hours in recirculation or shutdown for the LCO DC WTP; the number and percentage of hours in recirculation or shutdown, excluding June and July, for the FRO-N SRF; the number and percentage of hours in recirculation or shutdown, excluding May and June, for the WLC AWTF; and the calculated rolling 30-day cumulative total hours in recirculation or shutdown for each day of the quarter for FRO-S AWTF;

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iii. A summary of timing, duration, and cause of authorized and unauthorized bypass events and routine and enhanced monitoring conducted during each downtime event.

iv. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director;

v. Facility throughput and availability;

vi. Selenium, nitrate, and sulphate load removal, as applicable;

vii. Nickel load removal;

viii. A summary of selenium speciation data;

ix. Identification of all missing data and all QA/QC issues;

x. All acute toxicity test-specific reports from the laboratory for samples found to be acutely toxic as per Section 6.2.1;

xi. All reportable spills or other incidents related to water quality, occurring in the quarter;

xii. A summary of operational and/or performance highlights and trends from the quarter, including key performance indicators;

xiii. Effluent water quality results exceeding alarm level 3 at the effluent retention pond;

xiv. Explanation of the most probable cause(s) of any non-compliances;

xv. All measures taken to reduce or eliminate non-compliances; and

xvi. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director.

Results from samples collected in the last month of the quarter that are not available must be included in the following quarterly report. Any deviation from the information listed in this section must be communicated in the quarterly report and include rationale for the changes.

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4A10 ANNUAL TREATMENT PERFORMANCE REPORT

The permittee must submit an annual treatment performance report to the director by March 31 of each year following the data collection calendar year. The report may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit a series of reports. Each deliverable should not exceed manageable file sizes.

The report must include the following for each water treatment facility:

i. A summary of facility performance compared to the key performance metrics listed in the Operations Plan;

ii. Influent sources and flow rates, including alternate sources;

iii. Selenium, nitrate, and sulphate load removal, as applicable;

iv. Nickel load removal;

v. Quantities of reagents used and residuals generated;

vi. Details on continuous improvement initiatives;

vii. A description of any incidents including process upsets, spills (quantity and quality, including analytical results), issues with and bypasses of the Authorized Works, contingency discharges, and use of Horseshoe Ridge Pit flow mitigations. Include the number and percentage of hours in recirculation or shutdown, excluding May and June, for WLC AWTF; the number and percentage of hours in recirculation or shutdown for the LCO DC WTP; and the number and percentage of hours in recirculation or shutdown, excluding June and July, for the FRO-N SRF.

viii. Quantity and quality of effluent (e.g., non-hazardous waste liquids) discharged to the Turnbull South Pit Tailings Storage Facility;

ix. A summary of non-compliances with the requirements of Appendix 4 for the previous calendar year. This must include interpretation of significance, and the status of corrective actions and/or ongoing investigations;

x. A map of monitoring locations with Ministry site identification numbers and permittee descriptors;

xi. A summary and evaluation of key operational and receiving environment monitoring data associated with the water treatment

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facilities and all analytical results from the monitoring plans in Appendix 4 for the reporting year. Data must be suitably tabulated (i.e., excel spreadsheets), with appropriate graphs and comparison of results to limits, Approved and Working Water Quality Guidelines, Site Performance Objectives, or other criteria and benchmarks as specified by the director;

xii. For the first five (5) years of operation following commissioning, a comparison of effluent water quality results for parameters listed in the Discharge Trigger Response Plan at the Effluent Retention Pond outlet and/or at the point of discharge to the receiving environment, should they be different, to upper bound and expected operations case projections presented in the relevant permitting application.

xiii. If Site Performance Objectives in Appendix 4 are exceeded the permittee must provide an interpretation of significance, and the status of corrective actions and/or ongoing investigations;

xiv. All acute toxicity test-specific reports from the laboratory for samples found to be acutely toxic as per Section 6.2.1 and an interpreted summary and discussion of results, including recommendations and all subsequent actions;

xv. All acute toxicity test lab reports must include data and/or observations for hardness, alkalinity, pH, temperature, and formation of precipitate either in the vessel or on the organism; and

xvi. A summary of all QA/QC issues during the year.

The report must include the following for each Saturated Rock Fill (SRF):

i. Plan view maps of inferred groundwater level contours for wet and dry season conditions that show water level changes due to operation of the SRF;

ii. Groundwater level data from monitoring wells within and below the SRF active flow zone;

iii. Daily and cumulative pumping rates from each extraction and injection well that is part of the SRF;

iv. An assessment of non-injected groundwater entrained into the SRF active flow zone and water loss from the SRF active flow zone to the pit and from the pit to the regional groundwater system monitoring data; and

v. Discussion on the performance of the SRF (i.e., wellfield performance, control of the active flow zone, balance of pumping rates, water loss and entrainment, etc.).

If the water treatment facility authorization in this appendix includes a Discharge Trigger Response Plan (TRP), the permittee must cause a Qualified Professional to conduct an annual review of the TRP and report the results as part of the Annual Treatment Performance Report. The first TRP review for 2023 must be submitted by March 31, 2024. The TRP review must include, but not necessarily be limited to:

- An assessment of the effectiveness of the TRP in meeting the purpose of the TRP;
- A summary of all exceedances of increased-risk trigger levels (i.e., triggers requiring operational actions or shutdown) throughout the year;
- A summary of all actions planned / taken, and adherence to the trigger actions listed in the TRP;
- Recommendations for updates to the TRP; and
- Any other comments, recommendations, or observations the Qualified Professional considers would be relevant to the director in reviewing or approving the TRP, if applicable.

APPENDIX 4B – West Line Creek (WLC) AWTF

Additional requirements are detailed in Appendix 4A.

4B1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the West Line Creek Active Water Treatment Facility (WLC AWTF) to Line Creek. The site reference number for this discharge is E291569 (WL_BPO) as shown in Appendix 4B5.

The sources of water to be treated by the WLC AWTF are contact water from West Line Creek, Line Creek, North Line Creek (NLC) pit, and Mine Services Area West (MSAW) pit, and non-hazardous leachate from the WLC AWTF residual waste landfill.

4B1.1 The effective treatment capacity is to be used to calculate permit fees for effluent discharges. The effective treatment capacity through the WLC AWTF is 17,500 cubic meters per day (i.e., 95% of the design capacity of 18,420 m^3/day). This flow rate refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4B1.2 The treated effluent discharged to Line Creek must not be acutely toxic, as per Section 6.2. The characteristics of the discharge at the Buffer Pond Outfall (WL_BPO, E291569) must not exceed:

Effective Date	October 1, 2026
PARAMETER	LIMIT[(a)]
Antiscalant	25 mg/L, two-minute time weighted average [(b)]

(a) Discharge characteristics for Antiscalant must be determined by dosing rates.
(b) According to the calculation in the Operations Plan.

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4B1.3 Limits for total selenium, nitrate (as N), sulphate, and dissolved nickel in effluent discharged from the WLC AWTF are included in the Line Creek Operations compliance limits at the Line Creek Operations Line Creek Compliance Point (Section 2.4).

4B1.4 A Site Performance Objective for dissolved nickel in Line Creek downstream of the WLC AWTF is established in Section 3.3.1.

4B1.5 The permittee must manage the parameters listed in the table below in accordance with the WLC AWTF Discharge Trigger Response Plan required in Section 4B3.1. Treated effluent during normal operations is predicted to have characteristics as presented in the following table. These maximum concentrations should not be interpreted as compliance limits; they are to be used to calculate permit fees for effluent discharges:

PARAMETER	MAXIMUM PREDICTED CONCENTRATION
Total Sulphide	0.270 mg/L
Nitrite [(a)]	0.046 mg/L
Ammonia (as N) [(a)]	0.4 mg/L
Dissolved Oxygen	5 mg/L, minimum
pH	6.5 – 8.8 pH units, range
Hydrogen Peroxide	0.7 mg/L
Ozone	0.01 mg/L
Biological Oxygen Demand	25 mg/L
Total Phosphorus [(a)]	0.13 mg/L

(a) from LCO Line Creek Water Treatment Project full construction and operations application Table 5.4-1

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4B1.6 The authorized works associated with this discharge are the NLC pit and MSAW pit intakes; West Line Creek intake structure; West Line Creek Active Water Treatment Facility (WLC AWTF) including the biological treatment unit, advanced oxidation process, and the reverse osmosis high density sludge (RO-HDS) treatment unit; combined Line Creek intake and outfall structure; infrastructure associated with transferring leachate influent from the WLC AWTF residual waste landfill; infrastructure associated with transferring process streams between the RO-HDS and the biological treatment units; receiving and mixing tanks; MSAW/NLC combination tank; buffer pond, buffer pond overflow spillway, wet pond, and groundwater diversion; Horseshoe Ridge Pit water pumping infrastructure and No Name Creek outfall; conveyance piping systems with low point drains, high point vents, pressure safety valves, and rupture discs; and related appurtenances approximately located as shown on the Site Plan in Appendix 4B5.

4B1.7 The location of the facilities from which the discharge originates and the location of the point of discharge is District Lot 6772, District Lot 4588, Kootenay Land District.

4B2 **SITE PERFORMANCE OBJECTIVE**

4B2.1 Total Phosphorus

The following Site Performance Objective (SPO) is established for Line Creek. The SPO is a management target to be applied at the Line Creek Operations Line Creek Compliance Point immediately downstream of the confluence with South Line Creek (LC_LCDSSLCC; E297110). The permittee must manage WLC AWTF effluent to maintain conditions at or below the SPO value. The SPO should not be interpreted as a compliance limit.

PARAMETER	OBJECTIVE	METHOD/NOTES
Total Phosphorus	≤ 20µg/L	Growing season average calculated from measurements collected every two weeks between June 15 and September 30 annually.

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4B3 **OPERATIONAL REQUIREMENTS**

4B3.1 AWTF Discharge Trigger Response Plan

4B3.1.1 The permittee must develop an WLC AWTF Discharge Trigger Response Plan (TRP) to facilitate timely responses to ensure that acute toxicity thresholds are not exceeded. The permittee must submit the TRP to the director by October 1, 2026, and must maintain and update the TRP in accordance with the requirements below.

4B3.1.2 The TRP must include, but not be limited to:

a) An Alarm Table to respond to unforeseen upset conditions and maintain effluent quality below acute toxicity thresholds for the following parameters: BOD (or proxy), ammonia, nitrite, sulphide, dissolved oxygen, total phosphorus, pH, hydrogen peroxide, and ozone.

4B3.1.3 In the event of a Level 3 alarm at the Buffer Pond Outfall (WL_BPO, E291569) while discharging to Line Creek the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca. This notification must include the following information:

a) Any supporting data confirming the exceedance of the trigger; and,

b) A summary of the actions taken and/or planned in response to the Level 3 alarm.

4B3.1.4 The permittee must implement the most recent version of the TRP.

4B3.1.5 The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4B3.1.6 The permittee must update the TRP based on the recommended updates included in the Annual Treatment Performance Report, and submit to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated TRP as part of a cover letter for the updated TRP.

4B3.1.7 The permittee must maintain the most recently updated version of the TRP onsite for inspection by ENV at any time.

4B3.2 WLC AWTF Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the WLC AWTF compared to the historical performance of the facility and the treatment capacity, including but not limited to:

- removal of nitrate, selenium, sulphate, and nickel load;
- instream concentrations of parameters with Line Creek Operations compliance limits at the Line Creek Operations Line Creek Compliance Point (Section 2.4) and
- implementation of alarm strategy level 3 responses.

i. The performance metrics to be tracked must be submitted to the director by October 1, 2026.

ii. The permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics.

iii. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

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4B3.3 WLC AWTF Maintenance of Works, Emergency Procedures and Bypasses

This section refers only to authorized discharges and Authorized Works defined in Section 4B1 and is applicable during the operational phase of this facility. Under normal operations, temporary downtime (i.e., recirculation or shutdown) occurs during routine maintenance, unplanned maintenance, and during unscheduled events such as power fluctuations, alarm level exceedances, etc.

4B.3.3.1 The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan. The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

4B3.3.2 In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges.

4B3.3.3 The permittee must submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KFNGs. This information must be submitted with the next quarterly treatment performance report required in Section 4A9 unless otherwise required by the director.

4B3.3.4 The permittee must not allow any discharge of sources authorized in 4B1 to bypass the Authorized Works, except with the prior written approval of the director or in the following circumstances. Section 2 compliance limits at all Compliance Points remain in effect during bypass events.

4B3.3.4.1 Under normal operations during forward flow, when there are water volumes from the sources authorized in 4B1, except non-hazardous leachate from the WLC AWTF residual waste landfill, which exceed the design capacity and/or amounts of these sources cannot be treated by the WLC AWTF due to operational constraints, these volumes may bypass the Authorized Works.

4B3.3.4.2 During planned maintenance, unplanned maintenance or other downtime (i.e., recirculation or shutdown with full closure of the intakes) untreated water from the sources authorized in 4B1, except non-hazardous leachate from the WLC AWTF residual waste landfill, may temporarily bypass the AWTF in May and June, but during the remaining months the downtime must not exceed 10% of hours in each calendar year within the January to April and July to December periods, inclusive. This percentage must be calculated and reported as per the Quarterly and Annual Treatment Performance Report requirements (Sections 4A9 and 4A10), and non-compliances identified in the annual calculation must be reported in accordance with Section 9.2, with the non-compliance notification (Section 9.2.1) to occur the same date that the Annual Treatment Performance Report is required for submission.

4B3.3.4.2.1 Should the facility remain in recirculation or shutdown for greater than 24 consecutive hours the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca and commence enhanced monitoring. The enhanced monitoring program is daily sampling at LC_LCDSSLCC (E297110) and LC_LC3 (0200337) and submission for total selenium, nitrate, sulphate, and dissolved nickel analyses. A sample must be collected during each calendar day that enhanced monitoring is required. The requirement for enhanced monitoring ends with the end of the downtime event.

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4B3.3.4.3 To prevent freezing, prevent water quality changes within the pipeline (e.g., generation of H_2S), and to control pressure and vacuum the permittee may bypass Authorized Works and discharge from either the influent or effluent pipelines at low point drains, high point vents, pressure safety valves or rupture discs at booster stations. The low point drains, high point vents, pressure safety valves and rupture discs must function as intended and the released water must be controlled via the operation's surface water management system.

4B3.3.4.4 When using the buffer pond overflow spillway as intended, the permittee may bypass Authorized Works and discharge from the spillway.

4B3.4 Selenium Bioaccumulation Management

If average selenium concentrations in benthic invertebrates (average of 5 replicate composite samples representative of the benthic invertebrate community calculated from measurements collected during the same sampling event) at LC_LC3 are above the Level 1 benchmark for dietary effects to juvenile fish growth (11 mg/kg dw) in three consecutive sampling events, the permittee must initiate an adaptive management response. This response must include:

i. Formal inclusion of the elevated selenium condition into the Adaptive Management Plan; and

ii. Notification of the elevated selenium concentrations to the director via email to ENVSECoal@gov.bc.ca.

4B4 WLC AWTF MONITORING PROGRAM

	NORTH LINE CREEK PIT INTAKE	MINE SERVICES AREA WEST PIT INTAKE	HORSESHOE RIDGE PIT WATER VIA NO NAME CREEK CLEAN WATER DIVERSION AT OUTFALL TO LINE CREEK (WHEN IN USE)	BUFFER POND OUTFALL (Effluent)	LINE CREEK ~200 M DOWNSTREAM OF OUTFALL (3)	LCO LINE CREEK COMPLIANCE POINT ~1500 M DOWSTREAM OF OUTFALL (3)
Site Identification Number	*E339264*	*E339265*	*E339266*	*E291569*	*0200337*	*E297110*
EVR Station ID	*WL_NLC*	*WL_MSAW*	*WL_HSP*	*WL_BPO*	*LC_LC3*	*LC_LCDSSLCC*
PARAMETER						
BOD	-	-	-	W	M	-
Total Selenium	-	-	-	W	-	-
Selenium Speciation (i)	-	-	-	M	M	-
Field Parameters (a)	M	M	M	W	M	W/M
Conventional Parameters (b)	M	M	M	M	M	W/M
Major Ions (c)	M	M	M	M	M	W/M
Nutrients (d)	M	M	M	M	M	W/M
Total and Dissolved Metals Scan (e)	M	M	M	M	M	W/M
Bromate	-	-	-	M	M	-
Total Phosphorus	-	-	-	-	-	Every two weeks beginning Jun 15 through Sept 30, annually
Temperature	-	-	-	C	C	-
Flow (f)	-	-	-	C	-	-
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	-	Q* (4)	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	-	-	Q* (4)	-	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 4.
4) Quarterly toxicity testing to be conducted during Stage 1 of commissioning (biological plant upgrades). Q* toxicity testing to be completed starting in Stage 2 of commissioning (RO-HDS facility commissioning).

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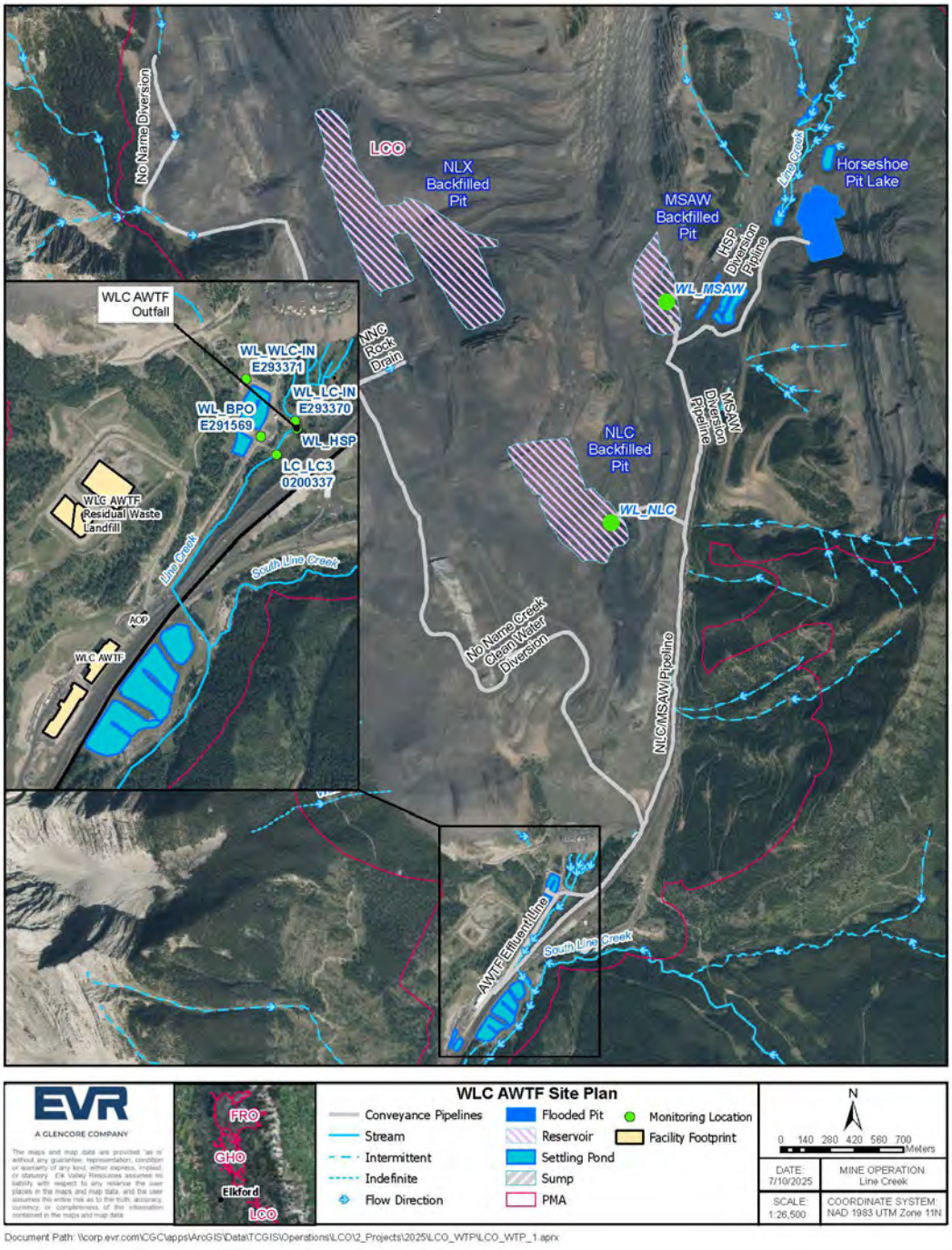
4B5 **WLC AWTF SITE PLAN**



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APPENDIX 4C – ELKVIEW OPERATIONS SATURATED ROCK FILL (EVO SRF)

Additional requirements are detailed in Appendix 4A.

4C1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Elkview Operations Saturated Rock Fill (EVO SRF) to Erickson Creek and Bodie Rock Drain. The site reference number for this discharge is the Effluent Retention Pond Outlet (F2_BPO, E321812) as shown in Appendix 4C5.

The sources of water to be treated by the EVO SRF are contact water from Erickson Creek and Natal Pit.

4C1.1 The effective treatment capacity is to be used to calculate permit fees for effluent discharges. The effective treatment capacity through the EVO SRF is 20,000 cubic meters per day (i.e., 95% of the design capacity of 21,053 m^3/day). This flow rate refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4C1.2 The treated effluent discharged to Erickson Creek must not be acutely toxic, as per Section 6.2. The characteristics of the discharge at the Effluent Retention Pond Outlet (F2_BPO, E321812) must not exceed:

PARAMETER	LIMIT[(a)]
Antiscalant	25 mg/L, two-minute time weighted average [(b)]

(a) Discharge characteristics for Antiscalant must be determined by dosing rates.
(b) According to the calculation in the Operations Plan

4C1.3 Limits for total selenium and nitrate (as N) in effluent discharged from the EVO SRF are included in the Elkview Operations compliance limit at the Elkview Operations Michel Creek Compliance Point (Section 2.6).

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4C1.4 The permittee must manage the parameters listed in the table below in accordance with the EVO SRF Discharge Trigger Response Plan required in Section 4C3.1. Treated effluent during normal operations is expected to have characteristics as presented in the following table. These maximum concentrations should not be interpreted as compliance limits; they are to be used to calculate permit fees for effluent discharges:

PARAMETER	MAXIMUM PREDICTED CONCENTRATION [(a)]
Total Sulphide	0.08 mg/L
Nitrite (as N)	0.4 mg/L
Ammonia	1.2 mg/L
Dissolved Oxygen	5.0 mg/L, minimum
pH	6.5 – 9.0 pH units, range
Biological Oxygen Demand	25 mg/L
Total Phosphorus	0.1 mg/L

(a) from EVO SRF Phase 2 operations application Table 5.3.3-1

4C1.5 The authorized works associated with this discharge are the Erickson Creek intake, influent pipeline from Erickson Creek, influent piping from Natal Pit, reagent dosing facilities, conveyance pipelines, injection wells, monitoring wells, extraction wells, Effluent retention pond, Erickson Creek effluent pipeline, Erickson Creek outfall, Bodie Rock Drain, low point drains, high point vents, pressure safety valves, rupture discs and related appurtenances approximately located as shown on the Site Plan in Appendix 4C5.

4C1.6 The location of the facilities from which the discharge originates and the location of the points of discharge are Lot 1, District Lot 4588 4589 Kootenay District, Plan 7590 9330, except parts included in Plans 9591 9262 10218 10797 11205 12980 14030 14643 15615 15081 17773 18084 18351 12403 NEP59847 NEP22563 NEP60990 NEP61045 NEP61240 NEP61298 NEP62835 NEP66365 NEP68373 NEP73532 NEP89674 PID: 010-681-043.

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4C2 **RECEIVING ENVIRONMENT LIMITS**

4C2.1 Water Temperature

Water temperature measured at Erickson Creek at mouth (EV_EC1; 0200097) must be managed to be equivalent to or below the following temperature limits:

PARAMETER		Daily Maximum Temperature[(a)]
Temperature	January 1 to April 30 and November 1 to December 31	7°C
	May 1 to August 31	13°C
	September 1 to October 31	10°C

(a) Based on the maximum of the hourly averages over 24 hours.

Based on the results of the LAEMP, the director may adjust these limits, and the permittee may be required to implement mitigation measures if needed to achieve the updated limits.

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4C3 **OPERATIONAL REQUIREMENTS**

4C3.1 SRF Discharge Trigger Response Plan

4C3.1.1 The previously submitted EVO SRF Operational Contingency Plan is now referred to as the EVO SRF Discharge Trigger Response Plan (TRP), and the permittee must maintain and update the TRP in accordance with the requirements below.

The purpose of the TRP is to facilitate timely responses to ensure that acute toxicity thresholds are not exceeded and to manage key parameters, indicative of SRF system performance, within the normal operating range.

4C3.1.2 The TRP must include, but not be limited to:

a) An Alarm Table to respond to unforeseen upset conditions and maintain effluent quality below acute toxicity thresholds for the following parameters: BOD (or proxy), ammonia, nitrite, sulphide, dissolved oxygen, and pH; and,

b) A Qualified Professional Guidance Table to foresee potential future upset conditions and respond to bring key parameters, indicative of SRF system performance, back within the normal operating range including at a minimum: nitrite, phosphorus, BOD, organic and reduced forms of selenium, iron, manganese, arsenic, sulphide, ammonia, cobalt, and nickel.

4C3.1.3 In the event of a Level 3 alarm at the Effluent Retention Pond (E321812, F2_BPO) while discharging to Erickson Creek the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca. This notification must include the following information:

a) Any supporting data confirming the exceedance of the trigger; and,

b) A summary of the actions taken and/or planned in response to the Level 3 alarm.

4C3.1.4 The permittee must implement the most recent version of the TRP.

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4C3.1.5 The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4C3.1.6 The permittee must update the TRP based on the recommended updates included in the Annual Treatment Performance Report, and submit to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated TRP as part of a cover letter for the updated TRP.

4C3.1.7 The permittee must maintain the most recently updated version of the TRP onsite for inspection by ENV at any time.

4C3.1.8 If the onsite laboratory sample results are in exceedance of the limits specified in Section 4C1.2, the permittee must immediately collect samples for analysis at a third-party qualified laboratory. These results must be included in the routine reports per Section 4A of Appendix 4.

4C3.2 EVO SRF Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the EVO SRF, including but not limited to removal of nitrate and selenium load. The performance metrics to be tracked must be submitted to the director 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics. The performance metrics must align with the EVWQP goals and environmental management objectives. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

4C3.3 Erickson Creek Discharge Management Plan

The permittee must develop and implement a discharge management plan to manage discharge from the EVO SRF to Erickson Creek. The plan must be submitted to the director 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the plan. The plan must describe the actions and monitoring EVR will implement to minimize change in streamflow between upstream and downstream of the Erickson Creek intake/outfall structure and follow the Federal Department of Fisheries and Oceans Canada (DFO) guidance on allowable rates of change in streamflow to avoid adverse effects to fish habitat. The permittee must report the monitoring results from the plan in the routine reports per Section 4A of Appendix 4.

4C3.4 Adaptive Management Plan Studies

The permittee must develop and implement the following studies under the Adaptive Management Plan (AMP) to resolve uncertainties regarding the water balance in Erickson Creek and potential unidentified mine contact water discharge pathways. The study designs must incorporate feedback from the Elk Valley Groundwater Working Group and be submitted to the director for approval by March 31, 2021.

i. Uncertainty: Erickson Creek water balance study. The study must resolve uncertainty related to the magnitude of total precipitation, evapotranspiration, surface flow and groundwater flow in the watershed. In completing the study, the permittee must demonstrate closure of the Erickson Creek water balance to the satisfaction of the director.

ii. Uncertainty: Michel Creek contaminant load balance study. The study must resolve uncertainty related to the potential existence of an unaccounted mine contact water discharge pathway from EVO to Michel Creek. The study must utilize measured water quality data from mine contact surface water and groundwater sources. If the mass balance for contaminant loadings cannot be adequately closed to the satisfaction of the director, then EVR must develop and implement an additional study to locate and characterize the missing contaminant load pathway(s).

Progress updates and study findings must be reported in the annual AMP report per Section 10.

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4C3.5 EVO SRF Maintenance of Works, Emergency Procedures and Bypasses

This section refers only to authorized discharges and Authorized Works defined in Section 4C1 and is applicable during the operational phase of this facility. Under normal operations, temporary downtime (i.e., recirculation or shutdown) occurs during routine maintenance, unplanned maintenance, and during unscheduled events such as power fluctuations, alarm level exceedances, etc..

4C3.5.1 The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan. The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

4C3.5.2 In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges.

4C3.5.3 The permittee must submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KFNGs. This information must be submitted with the next quarterly treatment performance report required in Section 4A9 unless otherwise required by the director.

4C3.5.4 The permittee must not allow any discharge of sources authorized in Section 4C1 to bypass the Authorized Works, except with the prior written approval of the director or as defined in the following circumstances. Section 2 compliance limits at all Compliance Points remain in effect during bypass events.

4C3.5.4.1 Under normal operations during forward flow, when there are water volumes in Erickson Creek which exceed the design capacity and/or amounts from this source cannot be treated by the EVO SRF due to operational constraints, these volumes may bypass the Authorized Works.

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4C3.5.4.2 During planned maintenance, unplanned maintenance or other downtime (i.e., recirculation or shutdown with full closure of the intakes) untreated water from Erickson Creek may temporarily bypass the SRF.

4C3.5.4.2.1 Should the facility remain in recirculation or shutdown for greater than 24 consecutive hours the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca and commence enhanced monitoring. The enhanced monitoring program is daily sampling at EV_EC1 (0200097) and EV_MC2 (E300091) and submission for total selenium and nitrate analyses. A sample must be collected during each calendar day that enhanced monitoring is required. The requirement for enhanced monitoring ends with the end of the downtime event.

4E3.5.4.3 To prevent freezing, prevent water quality changes within the pipeline (e.g., generation of H_2S), and to control pressure and vacuum the permittee may bypass Authorized Works and discharge from either the influent or effluent pipelines at low point drains, high point vents, pressure safety valves or rupture discs at booster stations. The low point drains, high point vents, pressure safety valves and rupture discs must function as intended and the released water must be controlled via the operation's surface water management system.

4C3.6 EVO SRF Nickel Mitigation Plan (NMP)

4C3.6.1 The permittee must develop and implement an EVO SRF Nickel Mitigation Plan by December 15, 2024. The EVO SRF Nickel Mitigation Plan may be the Elkview Operations Saturated Rock Fill Nickel Trigger Response Plan (TRP) updated in accordance with the requirements below.

The purpose of the Nickel Mitigation Plan is to ensure that procedures to minimize nickel concentrations in the effluent are implemented in a timely manner to minimize risks associated with elevated nickel concentrations in the receiving environment of Erickson Creek.

4C3.6.2 The Nickel Mitigation Plan must include, but not be limited to:

a) specific operational and management actions to be taken if 30-day average dissolved nickel concentrations in Erickson Creek exceed the following values at the specified locations, calculated using average values of measured concentrations of all samples of site-specific exposure- and toxicity-modifying factors collected in a rolling 30-day period, when the SRF is discharging to Erickson Creek:
   i. $10^{0.547x(logDOC)+0.411x(logHardness)-0.520x(logBicarbonate)+0.856}$ µg/L at EV_ECOUT (E321814); and
   ii. $10^{0.278x(logDOC)+0.498x(logHardness)-0.139x(pH)+2.052}$ µg/L at RG_ERCK (E326798); and
b) a schedule for implementation of the management actions.

4C3.6.3 The permittee must implement the most recent version of the Nickel Mitigation Plan. The most recent EVO SRF Trigger Response Plan for Nickel may be implemented until an EVO SRF Nickel Mitigation Plan is developed.

4C3.6.4 The permittee must submit any significant updates to the Nickel Mitigation Plan to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4C3.6.5 The permittee must cause a Qualified Professional to conduct an annual review of the Nickel Mitigation Strategy and report the results as a part of the Annual Treatment Performance Report. The first Nickel Mitigation Strategy review will be submitted with the 2024 Annual Water Treatment Performance Report. The annual review must include, but not necessarily be limited to:

- an assessment of the effectiveness of the NMP in meeting the purpose of the NMP;
- a summary of all exceedances of the values specified in Section 4C3.6.2 throughout the year;
- a summary of all actions planned / taken, and adherence to the operational and management actions listed in the NMP;
- recommendations for updates to the NMP; and
- any other comments, recommendations, or observations the Qualified Professional considers would be relevant to the director in reviewing the NMP.

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4C3.6.6 The permittee must update the Nickel Mitigation Plan based on the recommended updates included in the Annual Treatment Performance Report, and submit to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated Nickel Mitigation Plan as part of a cover letter for the updated Nickel Mitigation Plan.

4C3.6.7 The permittee must maintain the most recently updated version of the Nickel Mitigation Plan onsite for inspection by ENV at any time.

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4C4 EVO SRF MONITORING PROGRAM

	NATAL PIT INTAKE (Influent)	ERICKSON CREEK INTAKE (Influent)	EFFLUENT RETENTION POND OUTLET (Effluent)	ERICKSON CREEK OUTFALL (Effluent)	BODIE ROCK DRAIN (Effluent)	ERICKSON CREEK IMMEDIATELY DOWNSTREAM OF OUTFALL	ERICKSON CREEK AT MOUTH (3)	EVO MICHEL CREEK COMPLIANCE POINT (3)	MICHEL CREEK UPSTREAM OF BODIE AND GATE CREEK	MICHEL CREEK UPSTREAM OF ERICKSON CREEK (3)	GATE CREEK DISCHARGE MONITORING LOCATION (3)	BODIE CREEK DISCHARGE MONITORING LOCATION (3)	ELK RIVER DOWNSTREAM OF MICHEL CREEK
Site Identification Number	*E321791*	*E321811*	*E321812*	*E321813*	*E321815*	*E321814*	*0200097*	*E300091*	*310168*	*0200203*	*E206231*	*E102685*	*200393*
EVR Station ID	*F2_NWPI*	*F2_ECIN*	*F2_BPO*	*F2_ECF*	*F2_BRDF*	*EV_ECOUT*	*EV_EC1*	*EV_MC2*	*EV_MC2a*	*EV_MC3*	*EV_GT1*	*EV_BC1*	*EV_ER1*
PARAMETER													
Field parameters (a)	D	D	D	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
BOD	-	-	W	-	-	-	-	-	-	-	-	-	-
Conventional Parameters (b)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Major Ions (c)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Nutrients (d)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Total Sulphide	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Dissolved Metals Scan (e)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Total Metals Scan (e)	M	M	M	-	-	M	M	M/W	M	M/W	M	M	M/W
Total Selenium	-	-	3X/W	-	-	-	-	-	-	-	-	-	-
Flow	C	C	C	C	C	C	C	C	-	-	C	C	-
Temperature	C	C	-	C	-	-	C	-	-	-	-	-	-
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	Q	-	-	Q	Q	-	-	-	Q	Q	-
48 hour Daphnia magna single concentration toxicity test (g)	-	-	Q	-	-	Q	Q	-	-	-	Q	Q	-
Selenium Speciation (i)	W	W	W	-	-	-	-	M	M	M	-	-	-
Calcite Precipitation Propensity Monitoring	-	-	M	-	-	M	-	-	-	-	M	M	-
Rock Mass Monitoring (4)													

1) Refer to Table 26, Appendix 3, for abbreviation descriptions
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 4.
4) Rock mass monitoring to be conducted 1X/6W on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods. Locations to be determined, both upstream and downstream of EV_ECOUT.

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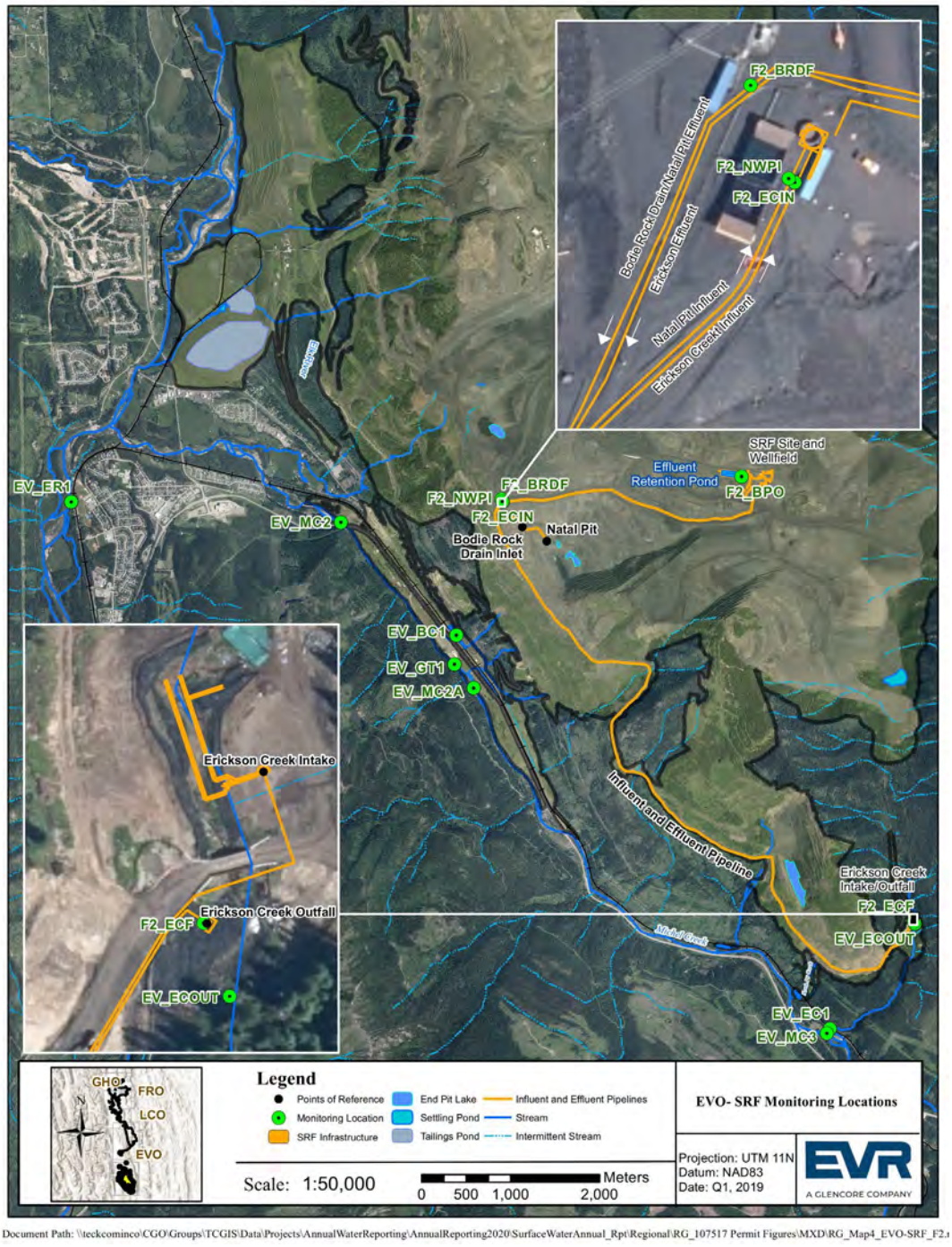
4C5 **EVO SRF SITE PLAN**



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APPENDIX 4D – Fording River Operations – South AWTF (FRO-S AWTF)

Additional requirements are detailed in Appendix 4A.

4D1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Fording River Operations – South Active Water Treatment Facility (FRO-S AWTF) to the Fording River and Kilmarnock Creek. The site reference number for this discharge is E321351 (FS_BPO) as shown in Appendix 4D4.

The sources of water to be treated by the FRO-S AWTF are contact water from Kilmarnock Creek, Cataract Creek, and Swift Creek catchments, Greenhills Operations Cougar Phase 3, 4, 6, and 7 Pit water, and non-hazardous leachate from the WLC AWTF residual waste landfill.

4D1.1 The effective treatment capacity is to be used to calculate permit fees for effluent discharges. The effective treatment capacity through the FRO-S AWTF is 20,000 cubic meters per day (i.e., 95% of the design capacity of 21,053 m^3/day). This flow rate refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4D1.2 The treated effluent discharged to the Fording River and Kilmarnock Creek must not be acutely toxic, as per Section 6.2. The characteristics of the discharge at the Effluent Retention Pond outlet (FS_BPO, E321351) must not exceed:

PARAMETER	LIMIT [(a)]
Antiscalant	25 mg/L, two-minute time weighted average [(b)]

(a) Discharge characteristics for Antiscalant must be determined by dosing rates.
(b) According to the calculation in the Operations Plan

4D1.3 Limits for total selenium and nitrate (as N) in effluent discharged from the FRO-S AWTF are included in the Fording River Operations compliance limit at the Fording River Operations Compliance Point (Section 2.1).

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4D1.4 The permittee must manage FRO-S AWTF effluent temperature to be equivalent to or below the following monthly average limits at the Fording River Outfall (FS_EFF-SC; E323231).

PARAMETER	LIMIT (*monthly average*)	
Temperature	January 1 to February 28	6°C
	March 1 to April 30*	6°C
	May 1 to September 30	13°C
	October 1 to October 31*	10°C
	November 1 to November 30*	6°C
	December 1 to December 31	6°C

*Effective date – September 1, 2022

4D1.5 The permittee must manage the parameters listed in the table below in accordance with the operational contingency plan required in Section 4D2.1. Treated effluent during normal operations was predicted in the FRO-S AWTF operations application to have characteristics as presented in the following table. These maximum concentrations should not be interpreted as compliance limits; however, are to be used to calculate permit fees for effluent discharges:

PARAMETER	MAXIMUM PREDICTED CONCENTRATION [(a)]
Sulphide	0.05 mg/L
Nitrite	0.2 mg/L
Ammonia	1 mg/L
Dissolved Oxygen	8 mg/L, minimum
pH	6.5 – 8.5 pH units, range
Hydrogen Peroxide	0.1 mg/L
Ozone	20 µg/L
Biological Oxygen Demand	45 mg/L
Total Phosphorus	0.1 mg/L
Chloride	150 mg/L
Total Suspended Solids	5 mg/L

(a) from FRO-S AWTF operations application Table 5.3-3

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4D1.6 The authorized works associated with this discharge are the Swift Creek Intake, Kilmarnock Creek Intake, influent and effluent conveyance pipelines, Effluent Retention Structure, Active Water Treatment Plant, Fording River Outfall, Kilmarnock Creek Outfall, low point drains, high point vents, pressure safety valves, rupture discs and related appurtenances approximately located as shown on the Site Plan in Appendix 4D4.

4D1.7 The location of the facilities from which the discharge originates and the location of the point of discharge is District Lot 6637, District Lot 6047, District Lot 6688, Kootenay Land District.

4D2 **OPERATIONAL REQUIREMENTS**

4D2.1 AWTF Discharge Trigger Response Plan

4D2.1.1 The previously submitted FRO-S AWTF Operational Contingency Plan is now referred to as the FRO-S AWTF Discharge Trigger Response Plan (TRP), and the permittee must maintain and update the TRP in accordance with the requirements below.

The purpose of the TRP is to facilitate timely responses to ensure that acute toxicity thresholds are not exceeded.

4D2.1.2 The TRP must include, but not be limited to:
a) An Alarm Table to respond to unforeseen upset conditions and maintain effluent quality below acute toxicity thresholds for the following parameters: BOD (or proxy), ammonia, nitrite, sulphide, dissolved oxygen, and pH.

4D2.1.3 In the event of a Level 3 alarm at E321351, FS_BPO while discharging to the Fording River and/or Kilmarnock Creek the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca. This notification must include the following information:
a) Any supporting data confirming the exceedance of the trigger; and,
b) A summary of the actions taken and/or planned in response to the Level 3 alarm.

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4D2.1.4 The permittee must implement the most recent version of the TRP.

4D2.1.5 The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4D2.1.6 The permittee must update the TRP based on the recommended updates included in the Annual Treatment Performance Report, and submit to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated TRP as part of a cover letter for the updated TRP.

4D2.1.7 The permittee must maintain the most recently updated version of the TRP onsite for inspection by ENV at any time.

4D2.2 FRO-S AWTF Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the AWTF, including but not limited to removal of nitrate and selenium load, and implementation of alarm strategy level 3 responses. The performance metrics must align with the EVWQP goals and environmental management objectives.

i. The performance metrics to be tracked must be submitted to the director 30 days prior to the end of the commissioning period for the FRO-S AWTF.

ii. The permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics.

iii. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

iv. The permittee must include a performance metric to assess performance of the temperature management system in managing temperature downstream of the Fording River Outfall (at FR_SCOUTDS) to within +/- 1 degree Celcius of background (at FR_FR3). The performance metric must consider the influence of

the Swift Creek Sediment Pond discharge and available chiller capacity.

v. The permittee must complete an engineering review of the temperature management system to determine necessary operational changes and process modifications needed to meet the permit limits for temperature in Section 4D1.4, and submit the report to the director by July 31, 2021.

4D2.3 FRO-S AWTF Maintenance of Works, Emergency Procedures and Bypasses

This section refers only to authorized discharges and Authorized Works defined in Section 4D1 and is applicable during the operational phase of this facility. Under normal operations, temporary downtime (i.e., recirculation or shutdown) occurs during routine maintenance, unplanned maintenance, and during unscheduled events such as power fluctuations, alarm level exceedances, etc.

4D2.3.1 The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan. The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

4D2.3.2 In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges.

4D2.3.3 The permittee must submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KFNGs. This information must be submitted with the next quarterly treatment performance report required in Section 4A9 unless otherwise required by the director.

4D2.3.4 The permittee must not allow any discharge of sources authorized in Section 4D1 to bypass the Authorized Works, except with the prior

written approval of the director or as defined in the following circumstances. Section 2 compliance limits at all Compliance Points remain in effect during bypass events.

4D2.3.4.1 Under normal operations during forward flow, when there are water volumes from the sources authorized in 4D1, except non-hazardous leachate from the WLC AWTF residual waste landfill, which exceed the design capacity and/or amounts of these sources cannot be treated by the FRO-S AWTF due to operational constraints, these volumes may bypass the Authorized Works.

4D2.3.4.2 During planned maintenance, unplanned maintenance or other downtime (i.e., recirculation or shutdown with full closure of the intakes) untreated water from the sources authorized in 4D1, except non-hazardous leachate from the WLC AWTF residual waste landfill, may temporarily bypass the AWTF but the permittee must not exceed a total of 144 hours downtime within a 30-day period, calculated as a rolling 30-day cumulative total.

4D2.3.4.2.1 Should the facility remain in recirculation or shutdown for greater than 24 consecutive hours the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca and commence enhanced monitoring. The enhanced monitoring program is daily sampling at FR_FRABCH (E223753) and FR_SCOUTDS (E320695) and submission for total selenium and nitrate analyses. A sample must be collected during each calendar day that enhanced monitoring is required. The requirement for enhanced monitoring ends with the end of the downtime event.

4D2.3.4.3 To prevent freezing, prevent water quality changes within the pipeline (e.g., generation of H_2S), and to control pressure and vacuum the permittee may bypass Authorized Works and discharge from either the influent or effluent pipelines at low point drains, high point vents, pressure safety valves or rupture discs at booster stations. The low point drains, high point vents, pressure safety valves and rupture discs must function as intended and the released water must be controlled via the operation's surface water management system.

4D2.4 Adaptive Management Plan Studies

The permittee must develop and implement the following studies under the Adaptive Management Plan (AMP) to resolve uncertainties regarding operation of the Kilmarnock Clean Water Diversion and the need for additional flow and groundwater information to support water quality management in FRO-S. The study designs must be submitted to the director and KFNGs by April 30, 2021. The permittee must provide quarterly updates to ENV and KFNGs on implementation of the workplans. This enhanced engagement will end when written notice is provided by the director.

i. Uncertainty: Kilmarnock Clean Water Diversion study. The study must resolve uncertainty related to how operation of the Kilmarnock Clean Water Diversion influences the magnitude of mine contact water entering groundwater.

ii. Uncertainty: Kilmarnock Creek Intake groundwater load bypass study. The study must resolve the uncertainty related to the magnitude and seasonal fluctuation of groundwater load bypassing the FRO-S AWTF Kilmarnock Creek Intake.

iii. Uncertainty: Fording River valley groundwater study. The study must resolve the uncertainty related to the parameter of concern groundwater plume and load in the Fording River valley between well FR_GH_WELL4 and FR_FRABCH.

iv. Uncertainty: Swift Creek Sediment Ponds seepage study. The study must resolve the uncertainty related to the magnitude of seepage from the Swift Creek Sediment Ponds and the resulting parameter of concern groundwater plume and load towards the Fording River valley aquifer.

Progress updates and study findings must be reported in the annual AMP report per Section 10.

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4D2.5 Upper Fording River Chronic Toxicity Study

The permittee must submit a study design for an Upper Fording River Chronic Toxicity Study to the director by January 31, 2021, for approval. The study design must be reviewed by the EMC and be designed as a study to evaluate the cause, extent, and magnitude of chronic effects in the upper Fording River. The permittee must provide a summary of EMC advice and how it was considered in the study design. Monitoring results and interpretation must be compiled into a written report and submitted to the director by April 15, 2022. The final report must be to the satisfaction of the director.

4D2.6 Fording River Compliance Point Monitoring Frequency

The permittee must undertake a study to assess the accuracy of monthly average surface water nitrate, selenium and sulphate concentration calculations at FR_FRABCH with the below listed sampling frequencies. Accuracy must be estimated for each parameter for each calendar month for each sampling program. A report on findings must be submitted to the director by May 31, 2022.

i. Weekly sampling March 15 through July 15 and monthly sampling August through February.

ii. Weekly sampling March 15 through July 15 and twice-monthly sampling in August through February.

iii. Weekly sampling year-round.

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4D2.7 FRO-S AWTF Recirculation Event Mass Loading Travel Time Assessment

The permittee must undertake an assessment to determine the appropriate timing for water quality sample collection at FR_FRABCH that is representative of the conditions during FRO-S AWTF recirculation. The FRO Compliance Point is approximately 11.8 km downstream of the Fording River Outfall and the full realization of recirculation on surface water quality is not expected to be instantaneous. The assessment must incorporate both seasonal and temporal aspects to inform the appropriate timing of water quality sample collection during recirculation. A summary report must be submitted to the director by April 30, 2023.

4D2.8 Fording River Outfall Fish Plan

i. The permittee must develop a plan to manage potential residual risks to fish resulting from effluent discharged from the Fording River Outfall. The permittee must prepare the plan in consultation with the Elk Valley Fish and Fish Habitat Committee and/or the Westslope Cutthroat Trout Recovery Working Group and include a summary of advice and how it was incorporated in the plan. The plan must include a trigger response plan and mitigations, or reference previously developed guidance, that can be implemented to prevent fish stranding and reduce the risks of isolation and fish mortality. The scope and scale of the plan is limited to areas of the Fording River that could be directly affected by the FRO-S AWTF operations. The plan must be submitted to the director by 7 days prior to forward flow commissioning of the FRO-S AWTF. The submitted Fording River Outfall Fish Plan must be implemented and any updates to the plan must be submitted to the director within 30 days of adoption. The permittee must submit an annual summary of trigger exceedances and actions taken to the director by June 30th of each year.

ii. The permittee must complete an assessment of modifications required to meet a potential site performance objective for temperature of +/- 1 degree Celcius of background downstream of the Fording River Outfall, or other temperature requirements developed to support the Westslope Cutthroat Trout Recovery Plan. The assessment must be submitted to the director by June 30, 2023.

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4D3 **FRO-S AWTF MONITORING PROGRAM**

	KILMARNOCK CREEK FRO-S AWTF INFLUENT (Influent)	SWIFT-CATARACT CREEKS FRO-S AWTF INFLUENT (Influent)	FRO-S AWTF EFFLUENT RETENTION POND OUTLET (Effluent)	FRO-S AWTF OUTFALL STRUCTURE	FORDING RIVER UPSTREAM OF FRO-S AWTF OUTFALL STRUCTURE (5)	FORDING RIVER ~100 M DOWNSTREAM OF FRO-S AWTF OUTFALL STRUCTURE (5)	FORDING RIVER OPERATIONS COMPLIANCE POINT
Site Identification Number	*E321412*	*E321411*	*E321351*	*E323231*	*E320693*	*E320695*	*E223753*
EVR Station ID	*FS_INF-K*	*FS_INF-S*	*FS_BPO*	*FS_EFF-SC*	*FR_FR3*	*FR_SCOUTDS*	*FR_FRABCH*
PARAMETER							
TSS & Turbidity (field parameters) (3)	-	-	D	-	-	-	-
BOD	-	-	3X/W	-	-	W/M	-
Total Selenium	-	-	3X/W	-	-	-	-
Selenium Speciation (i)	-	-	M	-	-	M	-
Field Parameters (a)	D	D	D	-	-	W/M	W/M
Conventional Parameters (b)	M	M	M	-	-	W/M	W/M
Major Ions (c)	M	M	M	-	-	W/M	W/M
Nutrients (d)	M	M	M	-	-	W/M	W/M
Total Sulphide	-	-	M	-	-	W/M	-
Total and Dissolved Metals Scan (e)	M	M	M	-	-	W/M	W/M
Bromate	-	-	M	-	-	M	-
Flow	C	C	C	-	-	-	-
Temperature	-	-	-	C	C	C	-
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	Q*	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	-	Q*	-	-	-	-
Calcite Precipitation Propensity -Monitoring	-	-	-	-	1X/2W	1X/2W	-
Rock Mass Monitoring (4)	-	-	-	-	1X/6W, as needed	1X/6W, as needed	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) TSS may be determined as per Permit 424, Section 2.3.
4) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.
5) Monitoring location appears in multiple monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in Section 9 and Appendices 4 and 5.

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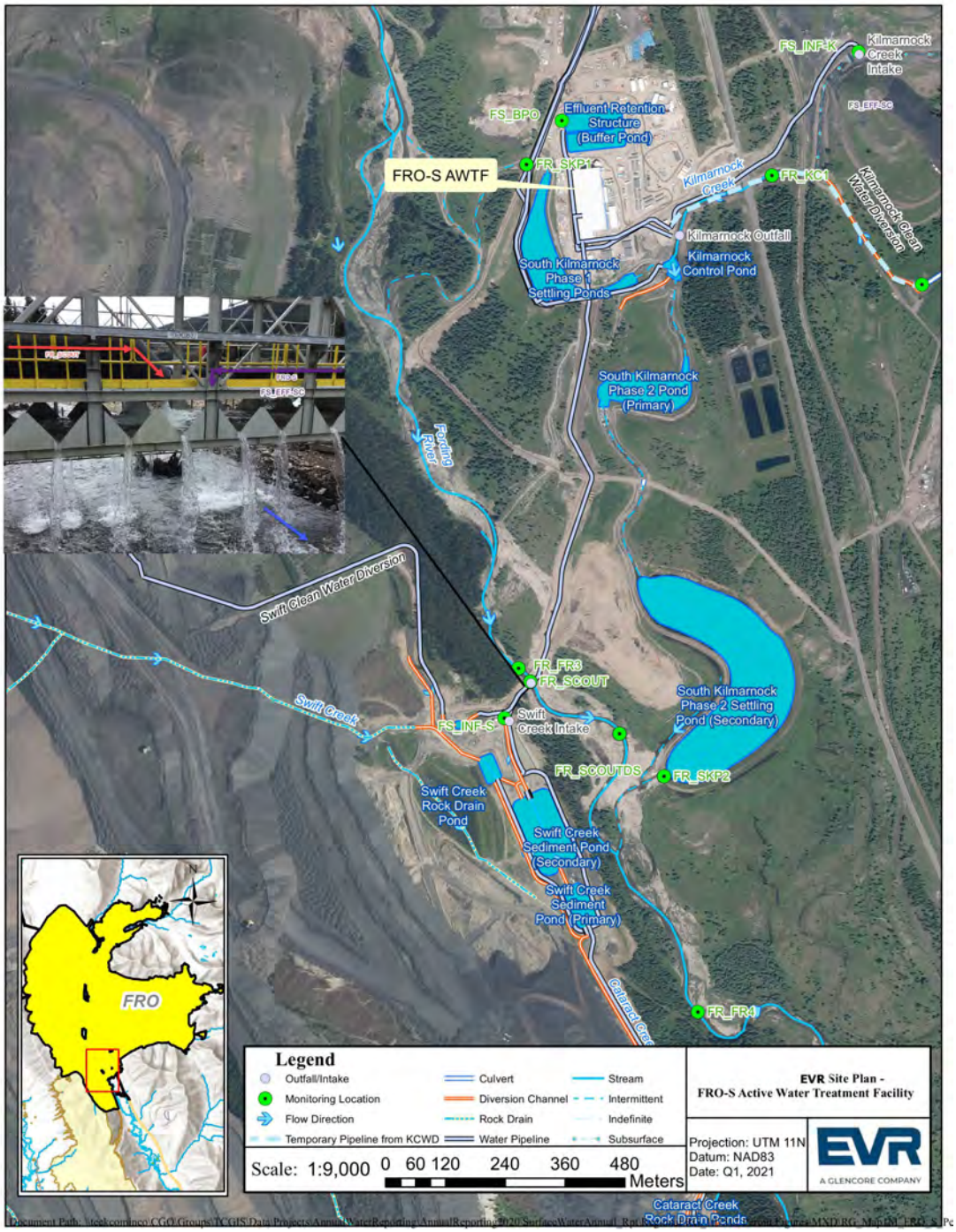
4D4 **FRO-S AWTF SITE PLAN**



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APPENDIX 4E – FORDING RIVER OPERATIONS – NORTH SRF (FRO-N SRF)

Additional requirements are detailed in Appendix 4A.

4E1 AUTHORIZED DISCHARGES

This authorization applies to the discharge of effluent from the Fording River Operations North Saturated Rock Fill Project (FRO-N SRF) which includes the conveyance of treated effluent from the Effluent Retention Pond (E326355, E4_BPO) to the E4 Discharge Injection wells and thence to the Fording River through the Clode Settling Pond decant into Clode Creek.

The sources of water to be treated by the FRO-N SRF include contact water from Clode Creek catchment, Liverpool Sediment Pond, Post Sediment Pond, and supernatant from Turnbull South Pit Tailings Storge Facility.

4E1.1 The effective treatment capacity is to be used to calculate permit fees for effluent discharges. The effective treatment capacity of the FRO-N SRF is 40,000 cubic meters per day (i.e., 95% of the design capacity of 42,105 m^3/day). This flow rate refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4E1.2 The characteristics of the discharge at the Effluent Retention Pond Outlet (E326355, E4_BPO) to the E4 Discharge Injection wells must not exceed:

PARAMETER	LIMIT [a,b,c]			
EFFECTIVE DATE	Jan.1, 2024	Jan.1, 2025	Jan.1, 2026	TBD [d]
Dissolved Nickel (µg/L)	88	74	73	TBD [d]

(a) Discharge characteristics for the listed parameters must be determined by third-party qualified laboratory results.
(b) The limits are expressed as 30-day average concentrations. The 30-day average concentration is defined as the average value of measured concentrations for all samples collected in a rolling 30-day period.
(c) The dissolved nickel limits of 88, 74, and 73 µg/L are equivalent to the normal operations upper bound case effluent projections from FRO-N SRF Phase 2 operations application Table 5.3-4. These concentrations are maximum effluent quality projections after implementation of best management practices and are interim limits while the long-term limit is established.

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(d) The limit for dissolved nickel, the effective date, and the location are to be determined following the process outlined in Section 4E1.8. Establishment of the limit, date and location requires written approval by the director.

4E1.3 The effluent discharged at the Clode Settling Pond Decant must not be acutely toxic, as defined in Section 6.2. The characteristics of the discharge at the Clode Settling Pond Decant (E102481, FR_CC1) must not exceed:

PARAMETER	LIMIT [(a)]
EFFECTIVE DATE	Immediately
Antiscalant	25 mg/L, two-minute time weighted average [(b)]

(a) Discharge characteristics for Antiscalant must be determined by dosing rates.
(b) According to the calculation in the Operations Plan.

4E1.4 Limits for total selenium and nitrate (as N) in effluent discharged from the FRO-N SRF are included in the Fording River Operations compliance limit at the Fording River Operations Compliance Point (Section 2.1).

4E1.5 The permittee must manage the parameters listed in the table below in accordance with the SRF Discharge Trigger Response Plan required in Section 4E2.1. Treated effluent at the Effluent Retention Pond during normal operations was predicted in the FRO-N SRF Phase 3a application to have characteristics as presented in the following table. These maximum concentrations should not be interpreted as compliance limits; however, are to be used to calculate permit fees for effluent discharges:

PARAMETER	MAXIMUM PREDICTED CONCENTRATION [(a)]
Ammonia (as N)	1.2 mg/L
Biological Oxygen Demand	9.7 mg/L
Nitrite (as N)	0.57 mg/L
Total Sulphide	0.056 mg/L
Total Phosphorus	0.081 mg/L
pH	6.5-9.0 pH units, range
Cobalt	0.0073 mg/L
Nickel	0.097 mg/L
Arsenic	0.0033 mg/L

(a) from FRO-N SRF Phase 3a application Table 5.3-4

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4E1.6 The authorized works associated with this discharge are the source pumping wells within the E4 Pit and E6 Pit, E4 and E6 Discharge Injection wells, Post, Liverpool, Clode and Turnbull TSF Intakes, conveyance piping systems, low point drains, high point vents, pressure safety valves, rupture discs, influent break tanks, reagent dosing facilities, aeration tank, injection wells, monitoring wells, extraction wells, Effluent Retention Pond, Antiscalant systems, Outfall into Clode Secondary Pond and related appurtenances approximately located as shown on the Site Plan in Appendix 4E4.

4E1.7 The location of the facilities from with the discharge originates and the location of the point of discharge is District Lot 6700, District Lot 6701, and District Lot 6709, Kootenay Land District.

4E1.8 Dissolved Nickel Limit Development Process

The permittee must develop and propose the dissolved nickel limit, timeframe, and location for effluent discharged to Clode Creek (referenced in Section 4E1.2). The process to develop the dissolved nickel limit, timeframe, and location must include the following requirements:

4E1.8.1 FRO-N Site-Specific Best Achievable Technology Assessment for Nickel Mitigation

The permittee must cause a Qualified Professional to complete a site-specific Best Achievable Technology (BAT) assessment to evaluate technologies to mitigate elevated nickel concentrations in the authorized discharge from the FRO-N SRF, following the steps outlined in the Ministry of Environment and Park's (ENV's) *Best Achievable Technology Assessment to Inform Waste Discharge Standards Handout* and the May 18, 2023 Terms of Reference. The BAT assessment must be submitted to the director by March 31, 2024.

The purpose of the BAT assessment is to (1) identify the potential technologies or options, including combinations of technologies and options, that are feasible and could be implemented to mitigate nickel-related effects from mining effluent discharging to Clode Creek, (2) evaluate each feasible technology or option, including for reliability, control-effectiveness, cost-effectiveness and implementation timeframe, and (3) select the option(s) demonstrated to be best-suited to meet waste discharge standards.

4E1.8.2 FRO-N Nickel Mitigation Plan

The permittee must develop a Nickel Mitigation Plan for FRO-N, and the permittee must submit the Nickel Mitigation Plan to the director by June 30, 2025. The Nickel Mitigation Plan must include, but not necessarily be limited to:

a) the selected BAT;

b) projected water quality in Clode Creek and the Fording River with mitigation measures implemented;

c) information that demonstrates the ability of the mitigation measure(s) to perform under the range of predicted site-specific conditions;

d) a proposed nickel limit, location, and the date when it will be met; and

e) a detailed schedule for implementation of all mitigation measures, which must be as soon as possible.

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4E2 **OPERATIONAL REQUIREMENTS**

4E2.1 SRF Discharge Trigger Response Plan

4E2.1.1 The permittee must maintain a Trigger Response Plan (TRP) for the discharge from the FRO-N SRF.

The purpose of the TRP is to facilitate timely responses to ensure that acute toxicity thresholds are not exceeded and to manage key parameters, indicative of SRF system performance, within the normal operating range.

4E2.1.2 The TRP must include, but not be limited to:

a) An Alarm Table to respond to unforeseen upset conditions and maintain effluent quality below acute toxicity thresholds for the following parameters: BOD (or proxy), ammonia, nitrite, sulphide, dissolved oxygen, and pH; and,

b) A Qualified Professional Guidance Table to foresee potential future upset conditions and respond to bring key parameters, indicative of SRF system performance, back within the normal operating range including at a minimum: nitrite, phosphorus, BOD, organic and reduced forms of selenium, iron, manganese, arsenic, sulphide, ammonia, cobalt, and nickel.

4E2.1.3 In the event of a Level 3 alarm at the Effluent Retention Pond (E326355, E4_BPO) while discharging the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca. This notification must include the following information:

a) Any supporting data confirming the exceedance of the trigger; and,

b) A summary of the actions taken and/or planned in response to the Level 3 alarm.

4E2.1.4 The permittee must implement the most recent version of the TRP.

4E2.1.5 The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be

summarized in the quarterly report for the time period when the minor update was made.

4E2.1.6 The permittee must update the TRP based on the recommended updates included in the Annual Treatment Performance Report, and submit to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated TRP as part of a cover letter for the updated TRP.

4E2.1.7 The permittee must maintain the most recently updated version of the TRP onsite for inspection by ENV at any time.

4E2.2 FRO-N SRF Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the FRO-N SRF compared to the historical performance of the facility and the treatment capacity, including but not limited to:

- removal of nitrate, selenium, and nickel load;
- instream concentrations of parameters with Fording River Operations compliance limits at the Fording River Operations Fording River Compliance Point (Section 2.1);
- nickel concentrations at the Effluent Retention Pond Outlet; and
- implementation of Alarm Table level 3 responses.

i. The performance metrics to be tracked must be submitted to the director by December 31, 2025.

ii. The permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics.

iii. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

4E2.3 FRO-N SRF Maintenance of Works, Emergency Procedures and Bypasses

This section refers only to authorized discharges and Authorized Works defined in Section 4E1 and is applicable during the operational phase of this facility. Under normal operations, temporary downtime (i.e.,

recirculation or shutdown) occurs during routine maintenance, unplanned maintenance, and during unscheduled events such as power fluctuations, alarm level exceedances, etc.

4E2.3.1 The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan. The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

4E2.3.2 In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges.

4E2.3.3 The permittee must submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KFNGs. This information must be submitted with the next quarterly treatment performance report required in Section 4A9 unless otherwise required by the director.

4E2.3.4 The permittee must not allow any discharge of sources authorized in 4E1 to bypass the Authorized Works, except with the prior written approval of the director or in the following circumstances. Section 2 compliance limits at all Compliance Points remain in effect during bypass events.

4E2.3.4.1 Under normal operations during forward flow, when there are water volumes from the sources authorized in 4E1, except supernatant from Turnbull South Pit Tailings Storage Facility, which exceed the SRF design capacity and/or amounts of these sources cannot be treated by the SRF due to other operational constraints, these excess volumes may bypass the Authorized Works.

4E2.3.4.2 During planned maintenance, unplanned maintenance or other downtime (i.e., recirculation or shutdown with full closure of the intakes) untreated water from the sources authorized in 4E1,

except supernatant from Turnbull South Pit Tailings Storage Facility, may temporarily bypass the SRF in June and July, but during the remaining months the downtime must not exceed 10% of hours in each calendar year within the January to May and August to December periods, inclusive. This percentage must be calculated and reported as per the Quarterly and Annual Treatment Performance Report requirements (Sections 4A9 and 4A10), and non-compliances identified in the annual calculation must be reported in accordance with Section 9.2, with the non-compliance notification (Section 9.2.1) to occur the same date that the Annual Treatment Performance Report is required for submission.

4E2.3.4.2.1 Should the facility remain in recirculation or shutdown for greater than 24 consecutive hours the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca and commence enhanced monitoring. The enhanced monitoring program is daily sampling at FR_FRABCH (E223753), FR_FRDSCC1 (E326357), and FR_CC1 (E102481) and submission for total selenium and nitrate analyses. A sample must be collected during each calendar day that enhanced monitoring is required. The requirement for enhanced monitoring ends with the end of the downtime event.

4E2.3.4.3 To prevent freezing, prevent water quality changes within the pipeline (e.g., generation of H_2S), and to control pressure and vacuum the permittee may bypass Authorized Works and discharge from either the influent or effluent pipelines at low point drains, high point vents, pressure safety valves or rupture discs at booster stations. The low point drains, high point vents, pressure safety valves and rupture discs must function as intended and the released water must be controlled via the operation's surface water management system.

4E2.3.4.4 Water from the sources authorized in 4E1 may bypass the Authorized Works if it is used in accordance with a WSA Water License or is conveyed to Turnbull South Tailings Storage Facility in accordance with EMA Permit 424.

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4E2.4 Selenium Bioaccumulation Mitigation Plan

4E2.4.1 The permittee must cause a Qualified Professional to develop a Selenium Bioaccumulation Mitigation Plan for discharge from the FRO-N, and the permittee must submit the Mitigation Plan to the director by December 31, 2025.

The purpose of the Mitigation Plan is to manage organic and reduced forms of selenium and reduce the potential for adverse effects on benthic invertebrates and upper Fording River Westslope Cutthroat Trout in Clode Creek and downstream in the Fording River from the FRO-N SRF.

4E2.4.2 The Mitigation Plan must include, but not be limited to:

a) A flow chart detailing the decision-making process for each stage of the trigger responses; and,

b) A table detailing all actions to be implemented at each trigger level, including responsible parties, and notification to the director via the ENVSECoal@gov.bc.ca email address.

4E2.4.3 The permittee must implement the most recent version of the Mitigation Plan.

4E2.4.4 The permittee must submit any significant updates to the Mitigation Plan to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4E2.4.5 The permittee must maintain the most recent version of the Mitigation Plan onsite for inspection by ENV at any time.

4E2.4.6 The permittee must cause a Qualified Professional to modify or amend the Mitigation Plan as required by the director, and the permittee must within the timeframe specified by the director resubmit to the director the Mitigation Plan with required modifications or amendments.

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4E2.5 FRO-N SRF Phase 2 Ultrafiltration Full Scale Trial

On March 14, 2023, the permittee hosted an EVO Erickson Creek Selenium Bioaccumulation technical workshop where Qualified Professionals presented the current understandings of the ongoing causal investigation. It was reported that there is evidence that selenium bioaccumulation occurring in proximity to the discharge of the EVO SRF is linked to discharge of SRF-derived particles. As a result, under adaptive management the permittee has conducted a filtration pilot at EVO SRF and plans to conduct a full-scale trial using ultrafiltration technology. The causal investigation in Erickson Creek has identified the potential for selenium bioaccumulation in the Clode Creek system that was not identified in the FRO-N SRF Phase 2 commissioning and operations application. As a result, the permittee is planning to commission a full-scale ultrafiltration trial at FRO-N SRF to inform potential permanent mitigation. Once the trial has been authorized and carried out, the permittee must cause a Qualified Professional to prepare and submit a final report evaluating the performance of the ultrafiltration trial at FRO-N SRF and submit it to the director and the Ktunaxa Nation Council within six (6) months of completing the trial.

Updates on the progress and performance of the ultrafiltration trial must be included in the continuous improvement initiatives section of the Annual Treatment Performance Report.

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4E3 FRO-N SRF MONITORING PROGRAM

	FORDING RIVER DOWNSTREAM OF HENRETTA	FORDING RIVER UPSTREAM OF CLODE PONDS DISCHARGE	TURNBULL TSF INTAKE (Influent)	CLODE PRIMARY SETTLING POND (Influent)	POST SEDIMENT POND (Influent)	LIVERPOOL SEDIMENT POND (Influent)	EFFLUENT RETENTION POND OUTLET (Effluent)	CLODE SETTLING POND DECANT (Discharge)	GRASSY CREEK	FORDING RIVER DOWNSTREAM OF CLODE PONDS DISCHARGE	WEST EXFILTRATION DITCH	FORDING RIVER AT NORTH TAILINGS POND	FORDING RIVER UPSTREAM OF KILMARNOCK CREEK	FORDING RIVER OPERATIONS COMPLIANCE POINT
Site Identification Number	*0200251*	*E326352*	*E330612*	*E330611*	*E330971*	*E330972*	*E326355*	*E102481*	*E326356*	*E326357*	*E326358*	*E321273*	*0200201*	*E223753*
EVR Station ID	*FR_FR1*	*FR_FRUSCC1*	*E4_TSF_IN*	*E4_CC_IN*	*E4_PP_IN*	*E4_LP_IN*	*E4_BPO*	*FR_CC1*	*FR_GC1*	*FR_FRDSCC1*	*FR_WED1*	*FR_FRNTP*	*FR_FR2*	*FR_FRABCH*
PARAMETER														
Field parameters[a]	M	-	W	W	W	W	D	W	M	M	M	M	W/M	W/M
BOD	-	-	-	-	-	-	W	W	-	-	-	-	-	-
Chlorophyll-*a*	-	-	-	-	-	-	-	W	-	-	-	-	-	-
Conventional Parameters[b]	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Major Ions [c]	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Nutrients[d]	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Total Sulphide	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Dissolved Metals Scan[e]	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Total Metals Scan[e]	M	-	M	M	M	M	W	W	M	M	M	M	W/M	W/M
Flow	-	-	C	C	C	C	C	C	-	-	-	-	-	-
96 hour Rainbow Trout single concentration toxicity test[g]	-	-	-	-	-	-	-	Q	-	-	-	-	-	-
48 hour Daphnia magna single concentration toxicity test [g]	-	-	-	-	-	-	-	Q	-	-	-	-	-	-
Selenium Speciation[i]	-	-	-	-	-	-	W	W	-	-	-	-	-	-
Calcite Precipitation Propensity Monitoring	-	M	-	-	-	-	-	M	-	M	-	-	-	-

1) Refer to Table 26, Appendix 3, for abbreviation descriptions.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 4.

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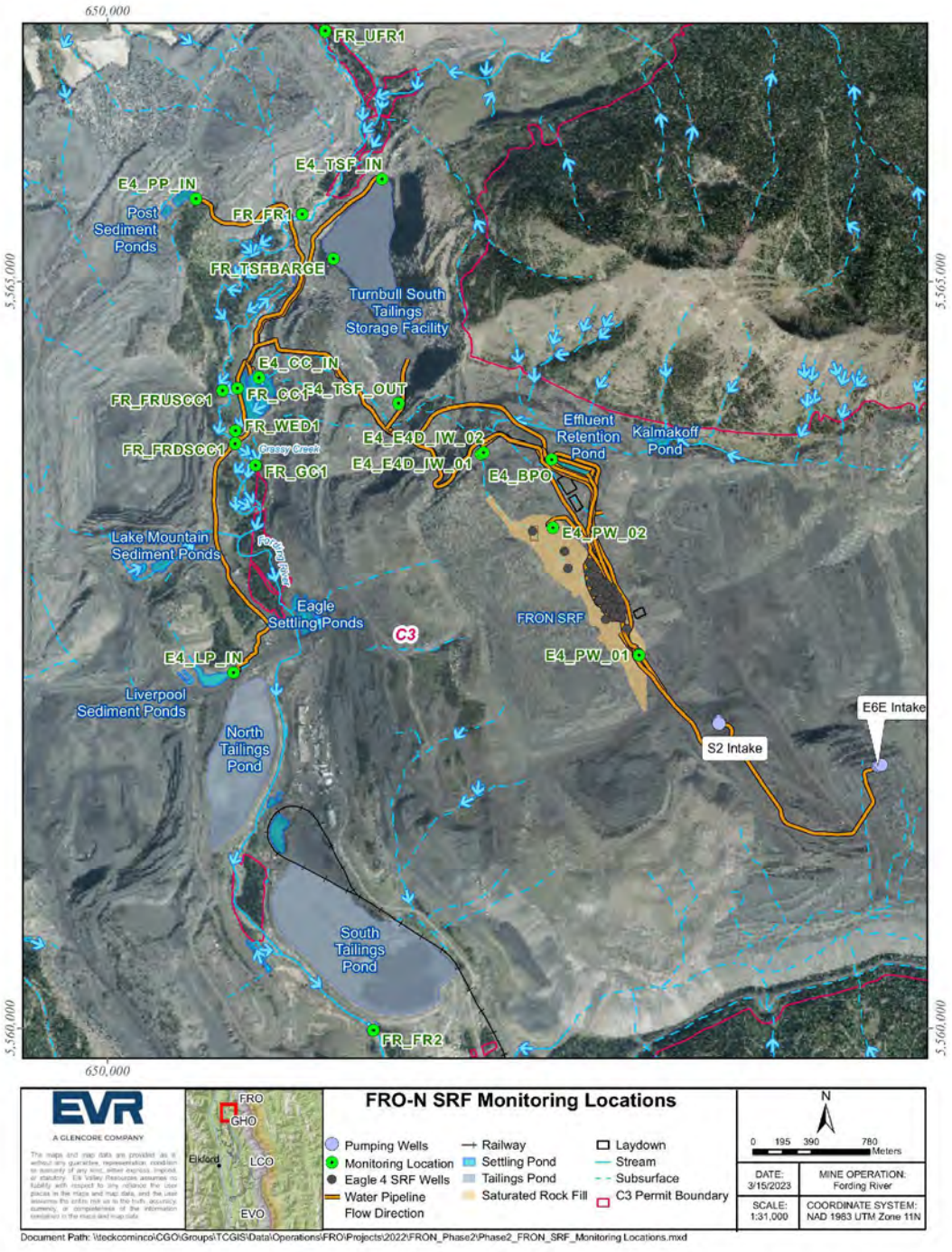
4E4 FRO-N SRF SITE PLAN



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APPENDIX 4F – Line Creek Operations Dry Creek Water Treatment Plant (LCO DC WTP)

Additional requirements are detailed in Appendix 4A.

4F1 AUTHORIZED DISCHARGES

This authorization applies to the discharge of effluent from Phase 1 of the Line Creek Operations (LCO) Dry Creek reverse osmosis high density sludge water treatment facility known as the LCO Dry Creek Water Treatment Plant (LCO DC WTP) to the Dry Creek Sedimentation Pond discharge pipeline and thence to Dry Creek (LC_SPDC, E295211). The site reference number for this discharge is E340344 (DC_EFF) as shown in Appendix 4F4.

The source of water to be treated by the LCO DC WTP is contact water from the Dry Creek Head Pond.

4F1.1 The effective treatment capacity is to be used to calculate permit fees for effluent discharges. The effective treatment capacity through the LCO DC WTP is 10,000 cubic meters per day (i.e., 95% of the design capacity of 10,530 m^3/day). This flow rate refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4F1.2 The characteristics of the discharge at the Effluent Retention Tank outlet (DC_EFF, E340344) must not exceed:

EFFECTIVE DATE	January 1, 2027
PARAMETER	LIMIT [a, b]
Total Selenium	9 µg/L
Dissolved Nickel	9 µg/L
Nitrate as N	5.7 mg/L
Sulphate	150 mg/L
Dissolved Cadmium	0.02 µg/L

(a) Discharge characteristics for the listed parameters must be determined by third-party qualified laboratory results.
(b) The effluent concentrations are expressed as monthly average concentrations, defined as the average value of measured concentrations for all samples collected in a calendar month.

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4F1.3 Limits for selenium concentrations in benthic invertebrate tissue are established in Section 2.8.1 and apply in Dry Creek downstream of the LCO DC WTP and LCO Dry Creek Sedimentation Ponds.

4F1.4 Site Performance Objectives for total selenium, nitrate, and dissolved nickel in Dry Creek downstream of the LCO DC WTP and LCO Dry Creek Sedimentation Ponds are established in Section 3.3.2.

4F1.5 The authorized works associated with this discharge are the diversion structure (including the intake, pumping, and effluent chambers), influent and effluent conveyance pipelines, effluent retention tank, reverse osmosis high density sludge water treatment facility with remineralization system, high point vents, pressure release valves, rupture discs and related appurtenances approximately located as shown on the Site Plan in Appendix 4F4.

4F1.6 The location of the facilities from which the discharge originates and the location of the point of discharge is Lot 1, District Lot 4588, Kootenay District Plan NEP 21818, Kootenay Land District.

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4F2 **OPERATIONAL REQUIREMENTS**

4F2.1 LCO DC WTP Discharge Trigger Response Plan

4F2.1.1 The permittee must develop a Trigger Response Plan (TRP) for the discharge from the LCO DC WTP. The permittee must submit the TRP to the director by December 31, 2026, and must maintain and update the TRP in accordance with the requirements below. The initial submission must be accompanied by a description of how the TRP mitigates the specific risks of hypo-ionic stress and shock resulting from low ionic reverse osmosis permeate.

The purpose of the TRP is to:

- facilitate timely responses to ensure that acute toxicity thresholds are maintained, and
- mitigate the risks of hypo-ionic stress and shock due to low ionic reverse osmosis permeate and manage key parameters within normal operating ranges.

4F2.1.2 The TRP must include, but not be limited to:

a) An Alarm Table to respond to unforeseen upset conditions and maintain effluent quality within acute toxicity thresholds for the following parameters: dissolved oxygen, and pH; and,

b) A Qualified Professional Guidance Table to foresee potential future upset conditions and respond to bring key parameters, indicative of treatment and remineralization system performance, back within the normal operating range including at a minimum: dissolved organic carbon, hardness, alkalinity, and total dissolved solids.

4F2.1.3 In the event of a Level 3 alarm at the Effluent Retention Tank (E340344, DC_EFF) while discharging the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca. This notification must include the following information:

a) Any supporting data confirming the exceedance of the trigger; and,

b) A summary of the actions taken and/or planned in response to the Level 3 alarm.

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4F2.1.4 The permittee must implement the most recent version of the TRP.

4F2.1.5 The permittee must submit any significant updates to the TRP to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4F2.1.6 The permittee must update the TRP based on the recommended updates included in the Annual Treatment Performance Report, and submit the updated TRP to the director, within 30 days of submission of the Annual Treatment Performance Report. The permittee must provide justification where any of the recommended updates have not been included in the updated TRP as part of a cover letter for the updated TRP.

4F2.1.7 The permittee must maintain the most recently updated version of the TRP onsite for inspection by ENV at any time.

4F2.2 LCO DC WTP Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the LCO DC WTP compared to the historical performance of the facility and the treatment capacity, including but not limited to:

- removal of nitrate, selenium, sulphate, cadmium and nickel load;
- influent and effluent concentrations of parameters with limits (Section 4F1.2);
- instream concentrations of parameters with Site Performance Objectives at LC_DCDS in Dry Creek (Section 3.3.2); and
- facility throughput and total available influent.

i. The performance metrics to be tracked must be submitted to the director by December 31, 2026.

ii. The permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics.

iii. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

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4F2.3 LCO DC WTP Maintenance of Works, Emergency Procedures and Bypasses

This section refers only to authorized discharges and Authorized Works defined in Section 4F1 and is applicable during the operational phase of this facility. Under normal operations, temporary downtime (i.e., recirculation or shutdown) occurs during routine maintenance, unplanned maintenance, and during unscheduled events such as power fluctuations, alarm level exceedances, etc.

4F2.3.1 The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan. The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

4F2.3.2 In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges.

4F2.3.3 The permittee must submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KFNGs. This information must be submitted with the next quarterly treatment performance report required in Section 4A9 unless otherwise required by the director.

4F2.3.4 The permittee must not allow any discharge of sources authorized in 4F1 to bypass the Authorized Works, except with the prior written approval of the director or in the following circumstances. Section 2.8 compliance limits and Section 3.3.2 site performance objectives remain in effect during bypass events.

4F2.3.4.1 Under normal operations during forward flow, when there are water volumes from the sources authorized in 4F1 which exceed the design capacity and/or amounts of these sources cannot be treated by the LCO DC WTP due to operational constraints, these volumes may bypass the Authorized Works.

4F2.3.4.2 During planned maintenance, unplanned maintenance or other downtime (i.e., recirculation or shutdown with full closure of the intake) untreated water from the sources authorized in 4F1 may temporarily bypass the LCO DC WTP but the downtime must not exceed 10% of hours in each calendar year. This percentage must be calculated and reported as per the Quarterly and Annual Treatment Performance Report requirements (Sections 4A9 and 4A10), and non-compliance identified in the annual calculation must be reported in accordance with Section 9.2, with the non-compliance notification (Section 9.2.1) to occur the same date that the Annual Treatment Performance Report is required for submission.

4F2.3.4.2.1 Should the facility remain in shutdown or recirculation for greater than 24 consecutive hours the permittee must immediately provide notification to the director via email to ENVSECoal@gov.bc.ca and commence enhanced monitoring. The enhanced monitoring program is daily sampling at LC_DCDS (E295210) and submission for total selenium, nitrate, sulphate, dissolved cadmium and dissolved nickel analyses. A sample must be collected during each calendar day that enhanced monitoring is required. The requirement for enhanced monitoring ends with the end of the downtime event.

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4F2.3.4.3 To prevent freezing, prevent water quality changes within the pipeline (e.g., generation of H_2S), and to control pressure and vacuum the permittee may bypass Authorized Works and discharge from either the influent or effluent pipelines at high point vents, pressure release valves or rupture discs at booster stations. The high point vents, pressure release valves and rupture discs must function as intended and the released water must be controlled via the operation's surface water management system.

4F2.4 Facility Optimization Head Pond Underdrain

The permittee must cause a Qualified Professional to develop a plan for how flows in the Head Pond underdrain system could be captured for treatment at the LCO DC WTP. The plan must be submitted to the director by Dec.1, 2026.

The plan must include, but not necessarily be limited to:

- A description of new infrastructure and how it would be used to collect and direct flows to the treatment facility;
- A project schedule;
- An assessment of the potential environmental and engineering risks associated with capturing this flow; and
- Regulatory approvals required for the project.

4F2.5 Routine Updates

The permittee must provide updates on water quality results and the status of work in Dry Creek related to meeting requirements in Sections 2.8 and 3.2, and Appendix 4F of this permit to the director, KFNGs, and the Ministry of Mining and Critical Minerals monthly. These updates are required until December 31, 2026.

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4F3 **LCO DC WTP MONITORING PROGRAM**

	DRY CREEK WATER TREATMENT PLANT INFLUENT	DRY CREEK WATER TREATMENT PLANT EFFLUENT	DRY CREEK SEDIMENTATION PONDS TO DRY CREEK (3)	LCO DRY CREEK 30 M D/S OF DCWMS DISCHARGE (Downstream in receiving environment) (3)
Site Identification Number	*E340345*	*E340344*	*E295211*	*E295210*
EVR Station ID	*DC_IN*	*DC_EFF*	*LC_SPDC*	*LC_DCDS*
PARAMETER				
Field Parameters (a)	W	D	W	W/M
Conventional Parameters (b)	W	W	M	W/M
Major Ions (c)	W	W	M	W/M
Nutrients (d)	W	W	M	W/M
Total and Dissolved Metals Scan (e)	W	W	M	W/M
Selenium Speciation (i)	-	W	M	W/M
Temperature	-	-	C	C
Flow (f)	-	C	C	-
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	Q	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	-	Q	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Monitoring location appears in multiple monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9, Appendix 4, and Appendix 5.

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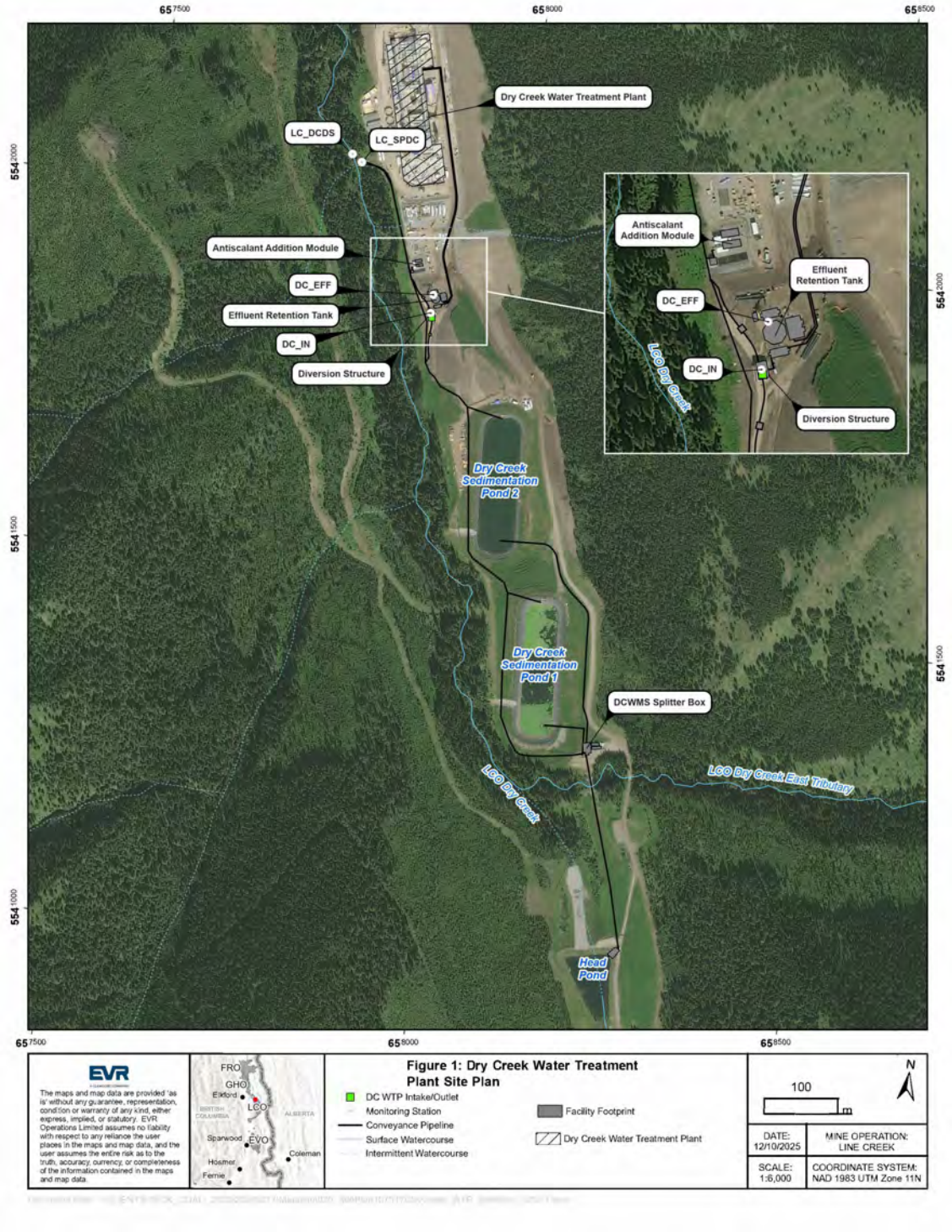
4F4 **LCO WTP SITE PLAN**



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APPENDIX 5: CALCITE TREATMENT FACILITIES

APPENDIX 5A – Calcite Treatment Facility General Operational Requirements

APPENDIX 5B – Upper Greenhills Creek Antiscalant Addition System

APPENDIX 5C – Swift-Cataract Antiscalant Addition System

APPENDIX 5D – Line Creek Operations (LCO) Dry Creek Antiscalant Addition System

APPENDIX 5E – Liverpool Antiscalant Addition System

APPENDIX 5F – Thompson Creek Antiscalant Addition System

APPENDIX 5G – Elkview Operations (EVO) Dry Creek Antiscalant Addition System

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APPENDIX 5A – Calcite Treatment Facility General Operational Requirements

This section includes requirements that apply to all calcite treatment facilities. Subsequent sections include facility-specific requirements.

5A1 COMMISSIONING PLAN

A Commissioning Plan for calcite treatment facilities must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of discharge from the calcite treatment facility. The Commissioning Plan may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit a Commissioning Plan for each facility. The Commissioning Plan must include but is not necessarily limited to operational procedures required to commission the calcite treatment facilities, including any additional monitoring and reporting required to demonstrate that no adverse environmental impacts result from commissioning.

5A2 OPERATIONS PLAN

An Operations Plan for calcite treatment facilities must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of the discharge from the calcite treatment facilities. The Operations Plan may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit an Operations Plan for each facility. The Operations Plan must include all stand-alone calcite treatment systems. Calcite treatment associated with any treatment facility (e.g., WLC AWTF) must be captured in the Operations Plan for that treatment facility.

The Operations Plan must include but is not necessarily limited to:

i. The facility operator's manual, with provision for its continual improvement;

ii. An overview of the planned maintenance program which includes an inventory of facility components and authorized replacement parts, and a detailed description of inspection, repair and replacement frequency for facility components;

iii. Information on reagent usage and storage;

iv. Documentation to verify that the facility is operated at all times within specifications and in a manner to ensure compliance with this authorization and other applicable legislation;

v. Actions to be taken if effluent quality fails to meet the requirements of the permit;

vi. Contingency planning which describes built-in redundancy of the facility and outlines measures to prevent emergency conditions from occurring.

Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the annual report for the time period when the minor update was made.

5A3 CALCITE TREATMENT FACILITY MAINTENANCE OF WORKS, EMERGENCY PROCEDURES AND BYPASSES

This section refers only to authorized discharges and Authorized Works defined within Appendix 5.

The permittee must regularly inspect the Authorized Works and maintain them in good working order, in accordance with the Operations Plan.

The permittee must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the permittee must:

i. take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges; and

ii. submit written documentation of the emergency or other condition and the remedial action that has and will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and the KFNGs. This information must be submitted with the next annual performance report required in Section 5A9 unless otherwise required by the director.

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The permittee must not allow any discharge of influent or effluent authorized in Appendix 5 to bypass the Authorized Works, except with the prior written approval of the director or as defined in Sections 5B1.6, 5C1.5, 5D1.5, 5E1.5, 5F1.5, and 5G1.6.

Normal or effective operation of Calcite Treatment Facilities is defined as follows: Calcite Treatment Facilities are considered to be operating effectively if they are achieving the prevention of calcite formation in the downstream receiving environment that the facility is intended to manage. According to the Commissioning and Operations Plans, under normal operation, temporary downtime may occur during commissioning, trouble shooting, maintenance, unsuitable in-stream flows, power fluctuations or facility alarm exceedances.

5A4 PROCESS MODIFICATIONS

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 from the calcite treatment facilities. Notwithstanding notification under this Section, permitted levels must not be exceeded.

5A5 NEW WORKS

The director may require upgrading of the calcite treatment works based on monitoring results, and/or any other pertinent information. Plans and specifications for new pollution treatment works and upgrades to existing works must be submitted to the director as an amendment application. All new works must be approved before a discharge from the works commences.

5A6 SITE SPECIFIC ENVIRONMENTAL EMERGENCY RESPONSE PLAN

A Site-Specific Environmental Emergency Response Plan must be prepared for all stand-alone calcite treatment systems. The plan must be submitted to the director prior to commencement of the discharge from the calcite treatment facilities. Calcite treatment associated with any treatment facility in Appendix 4 must be captured in the Emergency Response Plan for that treatment facility.

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The plan must include, but is not limited to:

i. A description of measures to mitigate any health or environmental impacts, if emergencies occur;

ii. Specific reference to the Spill Reporting Regulation; and

iii. Instructions for staff in the event of an emergency, including contact information for local authorities (fire, police, public health), Emergency Management BC, and the director.

Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the annual report for the time period when the minor update was made.

5A7 MONITORING

The permittee must conduct monitoring associated with the calcite treatment facilities as defined in subsequent sections in Appendix 5. The discharge and receiving environment water sampling sites are located approximately as shown in subsequent sections in Appendix 5.

5A8 COMMISSIONING REPORT

A commissioning report must be submitted to the director within 60 days of completing commissioning of any new calcite treatment facility. If the commissioning report deadline corresponds with the annual report deadline, one report may be submitted to meet both requirements.

The commissioning report must include, but is not limited to:

i. operating times;

ii. influent flow rates or treated water volume;

iii. antiscalant dosing rates;

iv. calculated in-pipe antiscalant concentrations (where applicable); and

v. monitoring data.

5A9 ANNUAL PERFORMANCE REPORT

An annual performance report must be submitted to the director by March 31 for each year following the data collection calendar year. The report must include, but is not limited to:

i. operating availability of the Authorized Works;

ii. influent flow rates or treated water volume;

iii. quantity of antiscalant used and dosing rates;

iv. calculated in-pipe antiscalant concentrations (where applicable);

v. a description of any incidents including process upsets, spills, issues with and bypasses of the Authorized Works;

vi. monitoring data;

vii. interpretation and analysis of monitoring data;

viii. discussion of results and recommendations for changes to management and/or regulatory controls to improve protection of the environment, as appropriate; and

ix. A summary of non-compliances with the requirements of Appendix 5 for the previous calendar year. This must include interpretation of significance, and the status of corrective actions and/or ongoing investigations.

The report must also include operational performance results of antiscalant addition systems associated with selenium and nitrate treatment facilities, including:

x. quantity of antiscalant used and dosing rates;

xi. rock mass monitoring and calcite precipitation propensity monitoring data;

xii. *Daphnia magna* and rainbow trout acute toxicity results; and

xiii. Calcite Indices.

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

APPENDIX 5B – Upper Greenhills Creek Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5B1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Upper Greenhills Creek (UGHC) Antiscalant Addition System to Greenhills Creek. The UGHC Antiscalant Addition System influent is comprised of diverted mine influenced water from Greenhills Creek. The site reference number for this discharge is E328694 (GH_EFPIPE) as shown in Appendix 5B4.

5B1.1 Treated effluent discharged at E328694 must not be acutely toxic as per Section 6.2.

5B1.2 Treated effluent at E328694 must not exceed an antiscalant concentration of 350 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5B1.3 Antiscalant concentrations in Greenhills Creek at E328695 (GH_HWGH_BRB) must not exceed 15 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5B1.4 Notification of deviation from the identified antiscalant in the EVR application “Greenhills Operations Greenhills Creek Calcite Remediation Field Trial & Antiscalant Addition Project” dated December 11, 2020, must be provided to the director and KFNGs prior to implementation.

5B1.5 The authorized works associated with this discharge are: antiscalant addition module, raw water intake structure, discharge pipeline with diffuser pipe to return water to Greenhills Creek, and related appurtenances approximately located as shown in Appendix 5B4.

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5B1.6 The UGHC Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

5B2 GREENHILLS CREEK DOWNSTREAM MONITORING REVIEW

5B2.1 The permittee must provide an analysis and interpretation of monitoring results from Greenhills Creek downstream monitoring locations during the initial period of 12 months during project commissioning and operations to the director and KFNGs. The report must be submitted within 14 months of the project start date and include a recommendation for ongoing monitoring at these locations.

5B3 UPPER GREENHILLS CREEK ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	GREENHILLS CREEK UPSTREAM OF UGHC SYSTEM (Upstream in receiving environment; Influent)	UGHC ANTISCALANT MODULE (Effluent)	GREENHILLS CREEK ~65 M D/S OF UGHC AAS, D/S OF BRANCH B ROAD CULVERT (Downstream in receiving environment)	GREENHILLS CREEK D/S OF GARDINE CREEK (Downstream in receiving environment)	GREENHILLS CREEK SEDIMENT POND INLET (Downstream in receiving environment)	GREENHILLS CREEK SEDIMENT POND DECANT (Downstream in receiving environment) (4)	GREENHILLS CREEK REACH 1 (Downstream in receiving environment)
Site Identification Number	*E328693*	*E328694*	*E328695*	*E328696*	*E328697*	*E102709*	*E321331*
EVR Station ID	*GH_USAAS*	*GH_EFFPIPE*	*GH_HWGH_BRB*	*GH_DSGC*	*GH_GH1B*	*GH_GH1*	*GH_CA04*
PARAMETER							
Field Parameters (a)	M	M	M	-	M	M	M
Conventional Parameters (b)	M	M	M	-	M	M	M
Major Ions (c)	M	M	M	-	M	M	M
Nutrients (d)	M	M	M	-	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M	-	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	-	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	-	-	-	-	-
Flow (f)	-	-	C	-	C	C	-
Calcite Precipitation Propensity Monitoring	1X/2W	-	1X/2W	1X/2W	1X/2W	1X/2W	1X/2W
Rock Mass Monitoring (5)	1X/6W, as needed	-	1X/6W, as needed	1X/6W, as needed	-	-	1X/6W, as needed

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.
5) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

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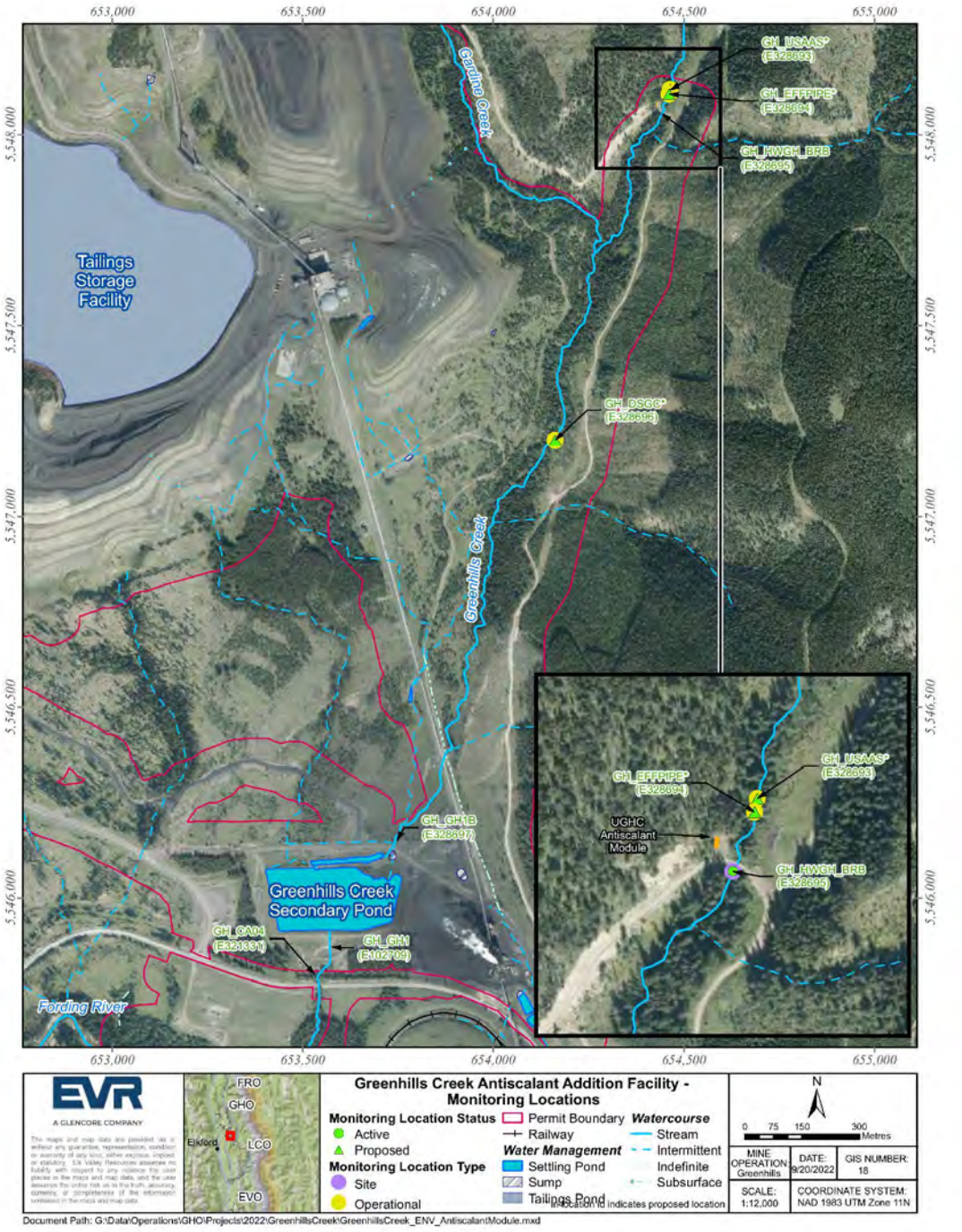
A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5B4 UPPER GREENHILLS CREEK ANTISCALANT ADDITION SYSTEM SITE PLAN



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A.J. Downie, M.Sc., P.Ag.
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Mining Authorizations

APPENDIX 5C – Swift-Cataract Antiscalant Addition System

Additional requirements are detailed in Appendix 5A

5C1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Swift-Cataract Antiscalant Addition System to the Fording River via the Swift Creek Intake structure, FRO-S AWTF bypass pipeline and the Fording River Outfall (i.e., saw-tooth weir on the Fording River Road crossing). The Swift-Cataract Antiscalant Addition System influent is Swift Creek Sediment Ponds effluent comprised of combined flow of Swift Creek and Cataract Creek. The site reference number for this discharge is E320694 (FR_SCOUT) as shown in Appendix 5C3.

5C1.1 Treated effluent discharged at E320694 must not be acutely toxic, as per Section 6.2.

5C1.2 Treated effluent at E320694 must not exceed an antiscalant concentration of 25 mg/L based on a two-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5C1.3 Notification of deviation from the identified antiscalant in the EVR application “Swift Cataract Antiscalant Addition Project” dated August 30, 2019 must be provided to the director and KFNGs prior to implementation.

5C1.4 The authorized works associated with this discharge are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5C3.

5C1.5 The Swift-Cataract Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

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5C2 SWIFT-CATARACT ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	SWIFT-CATARACT SED. POND DOSED WITH ANTISCALANT TO FORDING RIVER (3;4) (Effluent)	FORDING RIVER U/S OF FRO-S AWTF OUTFALL STRUCTURE (Upstream in receiving environment)	FORDING RIVER D/S OF FRO-S AWTF OUTFALL STRUCTURE (Downstream in receiving environment) (4)	SWIFT CREEK SEDIMENT PONDS TO FORDING RIVER
Site Identification Number	*E320694*	*E320693*	*E320695*	*E319331*
EVR Station ID	*FR_SCOUT*	*FR_FR3*	*FR_SCOUTDS*	*FR_SCCAT*
PARAMETER				
Field Parameters (a)	M	-	M	-
Conventional Parameters (b)	M	-	M	-
Major Ions (c)	M	-	M	-
Nutrients (d)	M	-	M	-
Total and Dissolved Metals Scan (e)	M	-	M	-
96 hour Rainbow Trout single concentration toxicity test (g)	Q	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	-	-	-
Flow (f)	-	-	-	C
Calcite Precipitation Propensity Monitoring	1X/2W	1X/2W	1X/2W	-
Rock Mass Monitoring (5)	-	1X/6W, as needed	1X/6W, as needed	-

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Samples are to be collected only when there is discharge via overflow from the FRO-S AWTF Swift Creek Intake. If the discharge is initiated because of a recirculation event at FRO-S AWTF, the monitoring program is not effective during the first four (4) hours of the recirculation event.
4) Monitoring location appears in three monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in Section 9, Appendix 4, and Appendix 5.
5) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

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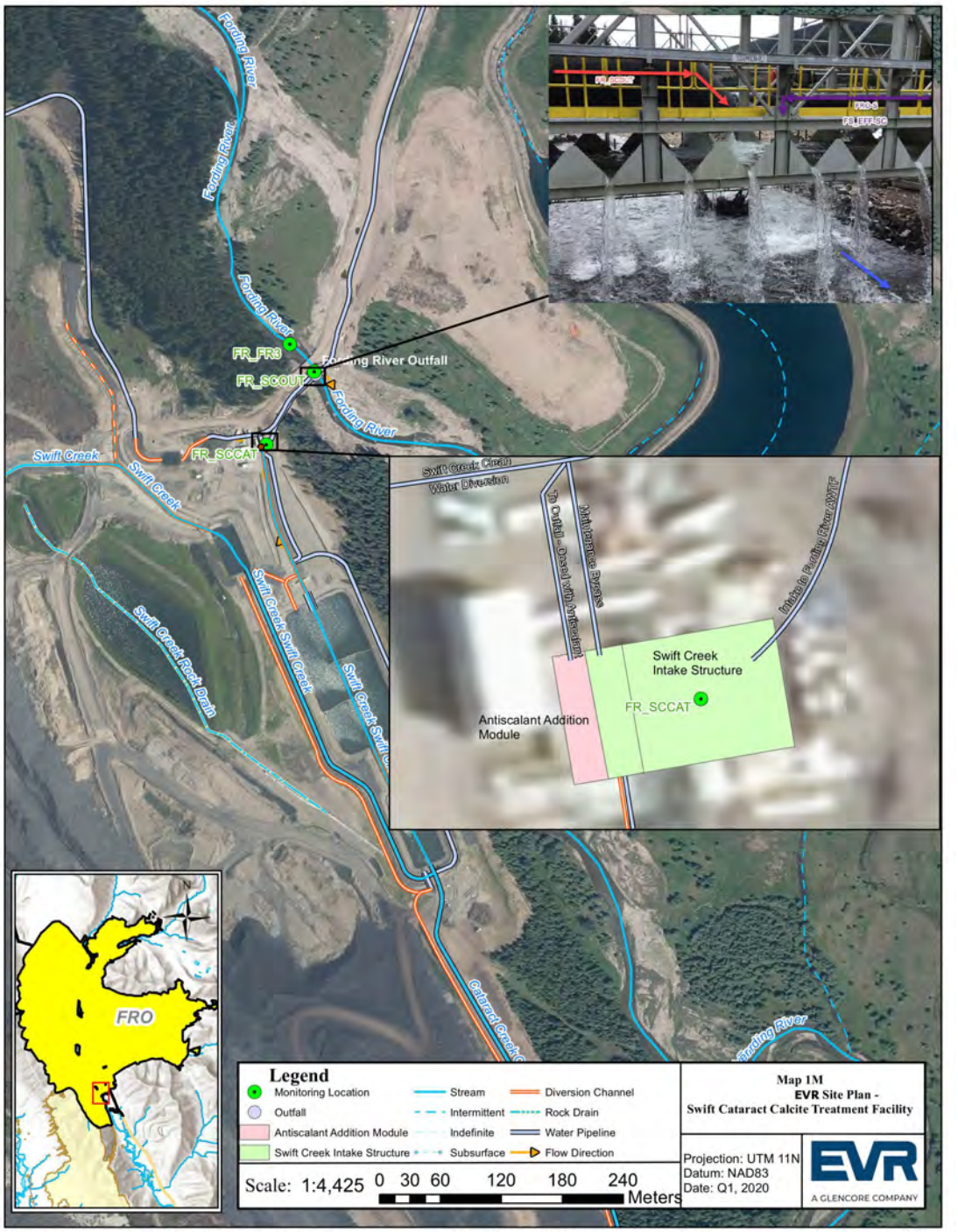
Mining Authorizations

5C3 SWIFT-CATARACT ANTISCALANT ADDITION SYSTEM SITE PLAN



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A.J. Downie, M.Sc., P.Ag.
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APPENDIX 5D – LCO Dry Creek Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5D1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the LCO Dry Creek Antiscalant Addition System to Dry Creek. The LCO Dry Creek Antiscalant Addition System influent is Dry Creek Sediment Pond effluent. The site reference number for this discharge is E295211 (LC_SPDC) as shown in Appendix 5D4.

5D1.1 Treated effluent discharged at E295211 must not be acutely toxic, as per Section 6.2.

5D1.2 Treated effluent at E295211 must not exceed an antiscalant concentration of 25 mg/L based on a two-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5D1.3 Notification of deviation from the identified antiscalant in the EVR application "Line Creek Operations Dry Creek Calcite Management Project" dated May 8, 2020 must be provided to the director and KFNGs prior to implementation.

5D1.4 The authorized works associated with this discharge are: antiscalant addition module, the combined effluent pipeline, and related appurtenances approximately located as shown in Appendix 5D4.

5D1.5 The LCO Dry Creek Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

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Mining Authorizations

5D2 **DRY CREEK DOWNSTREAM MONITORING REVIEW**

5D2.1 The permittee must provide an analysis and interpretation of monitoring results from Dry Creek downstream monitoring locations during the initial period of 12 months during project commissioning and operations to the director and KFNGs. The report must be submitted within 14 months of the project start date and include a recommendation for ongoing monitoring at these locations.

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5D3 LCO DRY CREEK ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	LCO DRY CREEK U/S OF DCWMS HEAD POND	LCO DRY CREEK SEDIMENT POND COMBINED EFFLUENT D/S OF ANTISCALANT ADDITION (Effluent)	LCO DRY CREEK 30 M D/S OF DCWMS DISCHARGE LOCATION IN REACH 4 (Downstream in receiving environment)	LCO DRY CREEK 0.6 KM D/S OF DCWMS IN REACH 3 (Downstream in receiving environment)	LCO DRY CREEK 1.5 KM D/S OF DCWMS IN REACH 3 (Downstream in receiving environment)	LCO DRY CREEK 0.5 KM U/S OF FORDING RIVER IN REACH 1 (Downstream in receiving environment)
Site Identification Number	*E288273*	*E295211*	*E295210*	*E326823*	*E326821*	*E288270*
EVR Station ID	*LC_DC3*	*LC_SPDC*	*LC_DCDS*	*LC_DC2*	*LC_DC4*	*LC_DC1*
PARAMETER						
Field Parameters (a)	M	M	M	-	-	-
Conventional Parameters (b)	M	M	M	-	-	-
Major Ions (c)	M	M	M	-	-	-
Nutrients (d)	M	M	M	-	-	-
Total and Dissolved Metals Scan (e)	M	M	M	-	-	-
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	-	-	-	-
Flow (f)	-	C	-	-	-	-
Calcite Precipitation Propensity Monitoring	M	M	M	M	M	M
Rock Mass Monitoring (4)	1X/6W, as needed	-	1X/6W, as needed	-	-	1X/6W, as needed

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
4) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.
5) If monitoring locations appear in multiple monitoring tables in this permit, monitoring data must be reported according to the requisite reporting requirements in Appendix 5 and the other associated sections.

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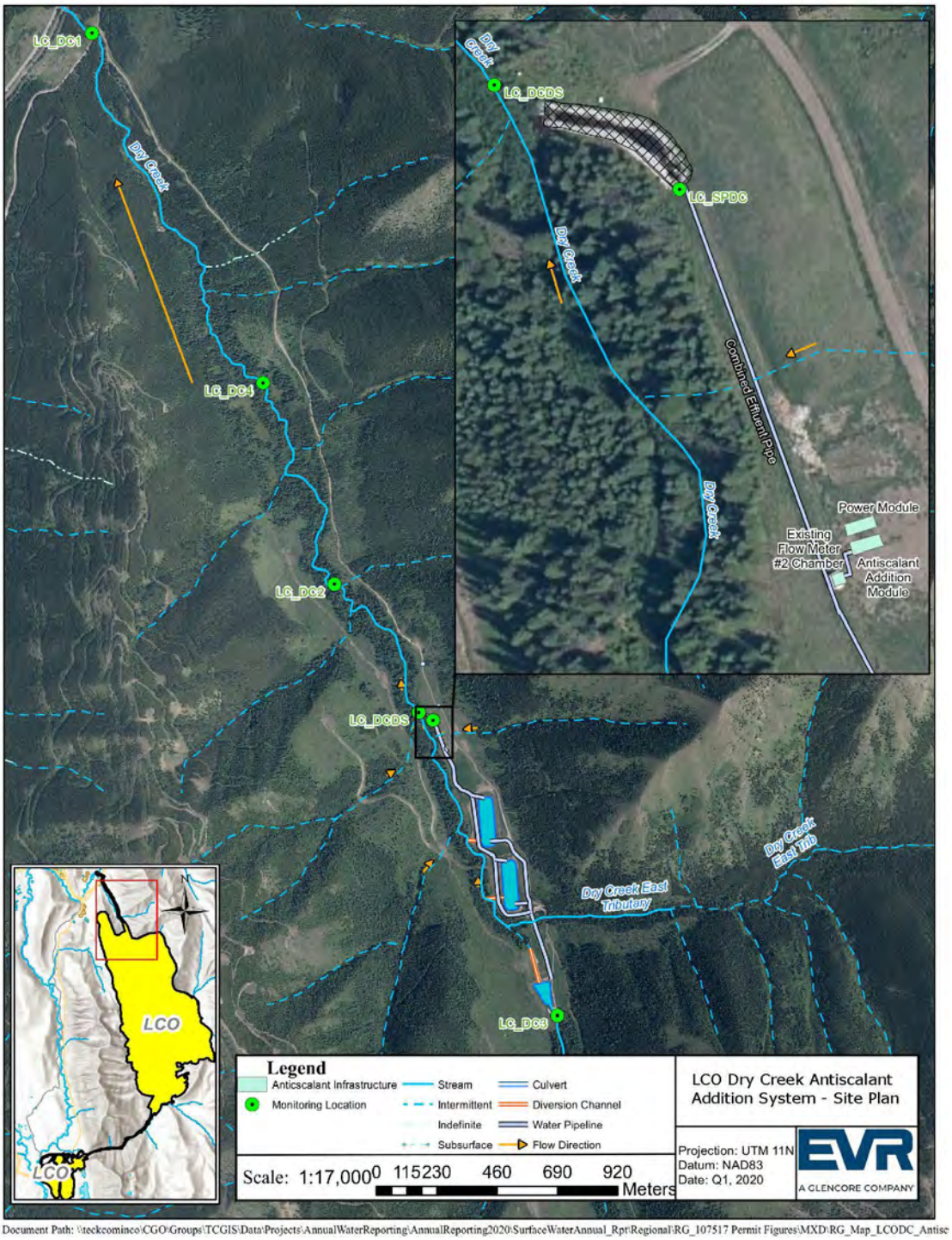
5D4 LCO DRY CREEK ANTISCALANT ADDITION SYSTEM SITE PLAN



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A.J. Downie, M.Sc., P.Ag.
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APPENDIX 5E – Liverpool Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5E1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Liverpool Antiscalant Addition System to the Fording River. The Liverpool Antiscalant Addition System influent is Liverpool Sediment Pond effluent. The site reference number for this discharge is E304835 (FR_LP1) as shown in Appendix 5E3.

5E1.1 Treated effluent discharged at E304835 must not be acutely toxic as per Section 6.2.

5E1.2 Treated effluent at E304835 must not exceed an antiscalant concentration of 25 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5E1.3 Notification of deviation from the identified antiscalant in the EVR application "Liverpool Sediment Ponds Temporary Antiscalant Addition Project: Emergency Authorization Request" dated April 19, 2022, must be provided to the director and KFNGs prior to implementation.

5E1.4 The authorized works associated with this discharge are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5E3.

5E1.5 The Liverpool Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5E2 LIVERPOOL ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	LIVERPOOL SEDIMENT PONDS TO FORDING RIVER (Effluent)(4)	FORDING RIVER U/S OF LIVERPOOL PONDS DISCHARGE CHANNEL (~130 m upstream in receiving environment)	FORDING RIVER D/S OF LIVERPOOL PONDS DISCHARGE CHANNEL (Downstream in receiving environment)
Site Identification Number	*E304835*	*E326860*	*E328692*
EVR Station ID	*FR_LP1*	*FR_MULTIPLATE*	*FR_FRDSLP1*
PARAMETER			
Field Parameters (a)	M	M	M
Conventional Parameters (b)	M	M	M
Major Ions (c)	M	M	M
Nutrients (d)	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	-	-
Flow (f)	C	-	-
Calcite Precipitation Propensity Monitoring	1X/2W	1X/2W	1X/2W
Rock Mass Monitoring (5)	-	1X/6W, as needed	1X/6W, as needed

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.
5) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

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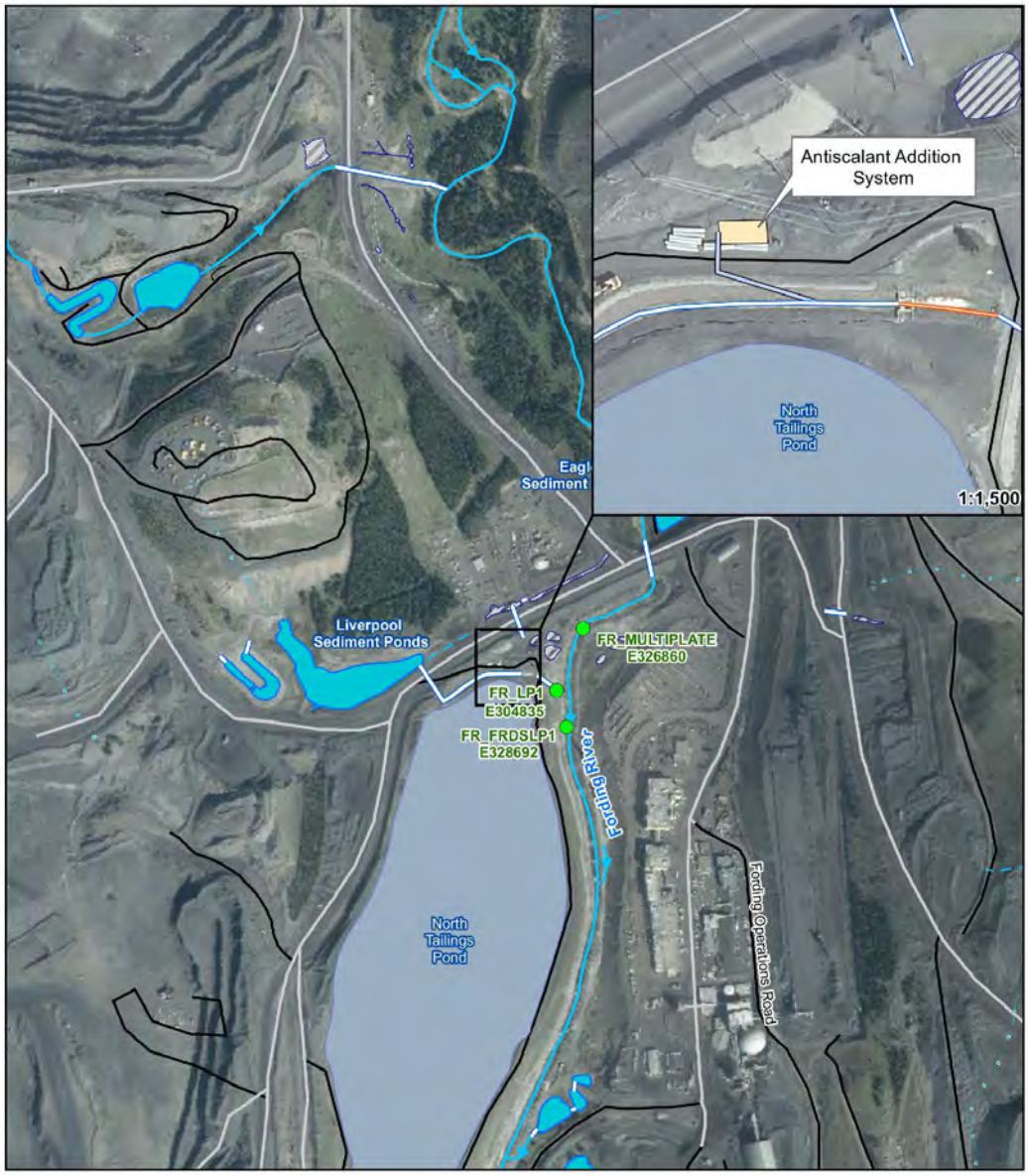
A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5E3 LIVERPOOL ANTISCALANT ADDITION SYSTEM SITE PLAN



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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

APPENDIX 5F – Thompson Creek Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5F1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Thompson Creek Antiscalant Addition System to Thompson Creek. The Thompson Creek Antiscalant Addition System influent is Upper Thompson Creek North water at E336746 (GH_TCUSAAS). The site reference number for this discharge is E336706 (GH_TCEFFPIPE) as shown in Appendix 5F3.

5F1.1 Treated effluent discharged at E336706 (GH_TCEFFPIPE) must not be acutely toxic as per Section 6.2.

5F1.2 Treated effluent at E336706 (GH_TCEFFPIPE) must not exceed an antiscalant concentration of 10 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5F1.3 Notification of deviation from the identified antiscalant in the EVR application "Greenhills Operations Thompson Creek Calcite Management Project" dated May 23, 2024, must be provided to the director and the KFNGs prior to implementation.

5F1.4 The authorized works associated with this discharge are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5E3.

5F1.5 The Thompson Creek Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5F2 THOMPSON CREEK ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	TREATED EFFLUENT DISCHARGE TO UPPER THOMPSON CREEK (Effluent)	THOMPSON CREEK U/S OF THOMPSON CREEK AAF OUTFALL (~100 m upstream in receiving environment)	UPPER THOMPSON CREEK SEDIMENT POND OUTLET TO THOMPSON CREEK (Downstream in receiving environment)	THOMPSON CREEK D/S OF UPPER THOMPSON CREEK SEDIMENT POND OUTLET (Downstream in receiving environment)	LOWER THOMPSON CREEK SEDIMENT POND INLET (Downstream in receiving environment)
Site Identification Number	*E336706*	*E336746*	*E329984*	*E329953*	*E336321*
EVR Station ID	*GH_TCEFFPIPE*	*GH_TCUSAAS*	*GH_UTC1*	*GH_UTSP_DS1*	*GH_TC2A*
PARAMETER					
Field Parameters (a)	M	M	M	-	M
Conventional Parameters (b)	M	M	M	-	M
Major Ions (c)	M	M	M	-	M
Nutrients (d)	M	M	M	-	M
Total and Dissolved Metals Scan (e)	M	M	M	-	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	-	-	-	-
Flow (f)	C	-	-	-	-
Calcite Precipitation Propensity Monitoring	1X/2W	1X/2W	1X/2W	-	M
Rock Mass Monitoring (4)	1X/6W, as needed	1X/6W, as needed	-	1X/6W, as needed	1X/6W, as needed

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
4) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

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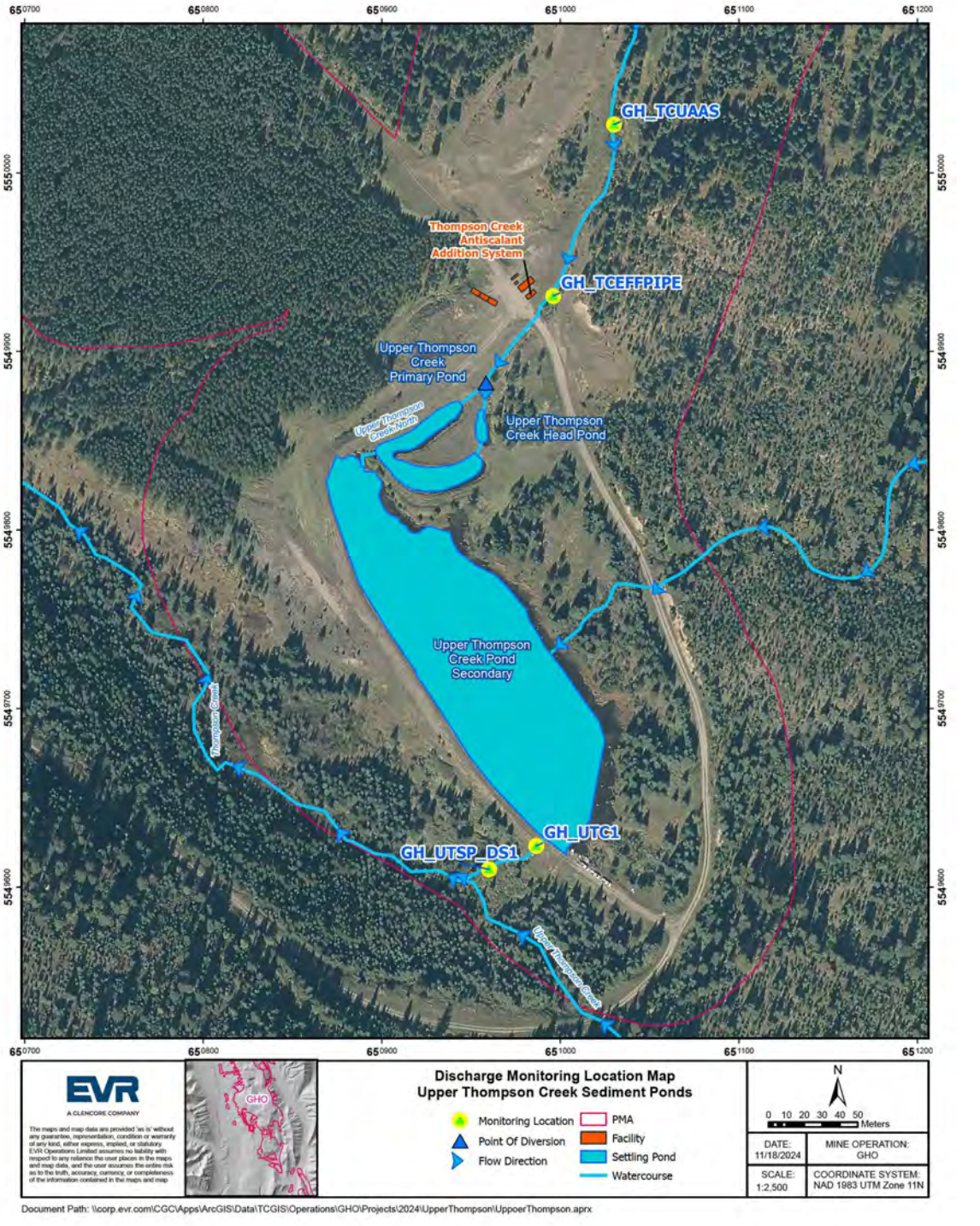
for Director, *Environmental Management Act*
Mining Authorizations

5F3 THOMPSON CREEK ANTISCALANT ADDITION SYSTEM SITE PLAN



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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

APPENDIX 5G – EVO Dry Creek Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5G1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the EVO Dry Creek Antiscalant Addition System to Dry Creek. The EVO Dry Creek Antiscalant Addition System influent is Dry Creek water. The site reference number for this discharge is E338925 (EV_DCEFFPIPE) as shown in Appendix 5G3.

5G1.1 Treated effluent discharged at E338925 (EV_DCEFFPIPE) must not be acutely toxic, as per Section 6.2.

5G1.2 Treated effluent at E338925 (EV_DCEFFPIPE) must not exceed an antiscalant concentration of 400 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5G1.3 Antiscalant concentrations in Dry Creek at E338926 (EV_DCDSAAS) must not exceed 10 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5G1.4 Notification of deviation from the identified antiscalant in the EVR application "Elkview Operations Dry Creek Sedimentation Pond Bypass Project" dated July 16, 2024, must be provided to the director and the KNC prior to implementation.

5G1.5 The authorized works associated with this discharge are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5G3.

5G1.6 The EVO Dry Creek Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5G2 EVO DRY CREEK ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	DRY CREEK U/S OF FACILITY (~30 m upstream of antiscalant addition)	DRY CREEK AAS DISCHARGE (Effluent)	DRY CREEK 170 M D/S OF AAS (Downstream in receiving environment)	DRY CREEK 225 M D/S OF AAS (Downstream in receiving environment)
Site Identification Number	*E338924*	*E338925*	*E338926*	*E330758*
EVR Identifier	*EV_DCUSAAS*	*EV_DCEFFPIPE*	*EV_DCDSAAS*	*EV_DCOUT*
PARAMETER				
Total Suspended Solids and Turbidity	-	-	M	-
Field Parameters (a)	M	M	-	M
Conventional Parameters (b)	M	M	-	M
Major Ions (c)	M	M	-	M
Nutrients (d)	M	M	-	M
Total and Dissolved Metals Scan (e)	M	M	-	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	-	-
Flow (f)	-	-	C	-
Calcite Precipitation Propensity Monitoring (3)	1X/2W	-	-	1X/2W
Rock Mass Monitoring (4)	1X/6W, as needed	-	-	1X/6W, as needed

1) Refer to Table 26, Appendix 3, for abbreviation description.
2) Refer to Table 27, Appendix 3, for explanatory notes.
3) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
4) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

Date issued: November 19, 2014
Date amended: December 19, 2025
(most recent)

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for Director, *Environmental Management Act*
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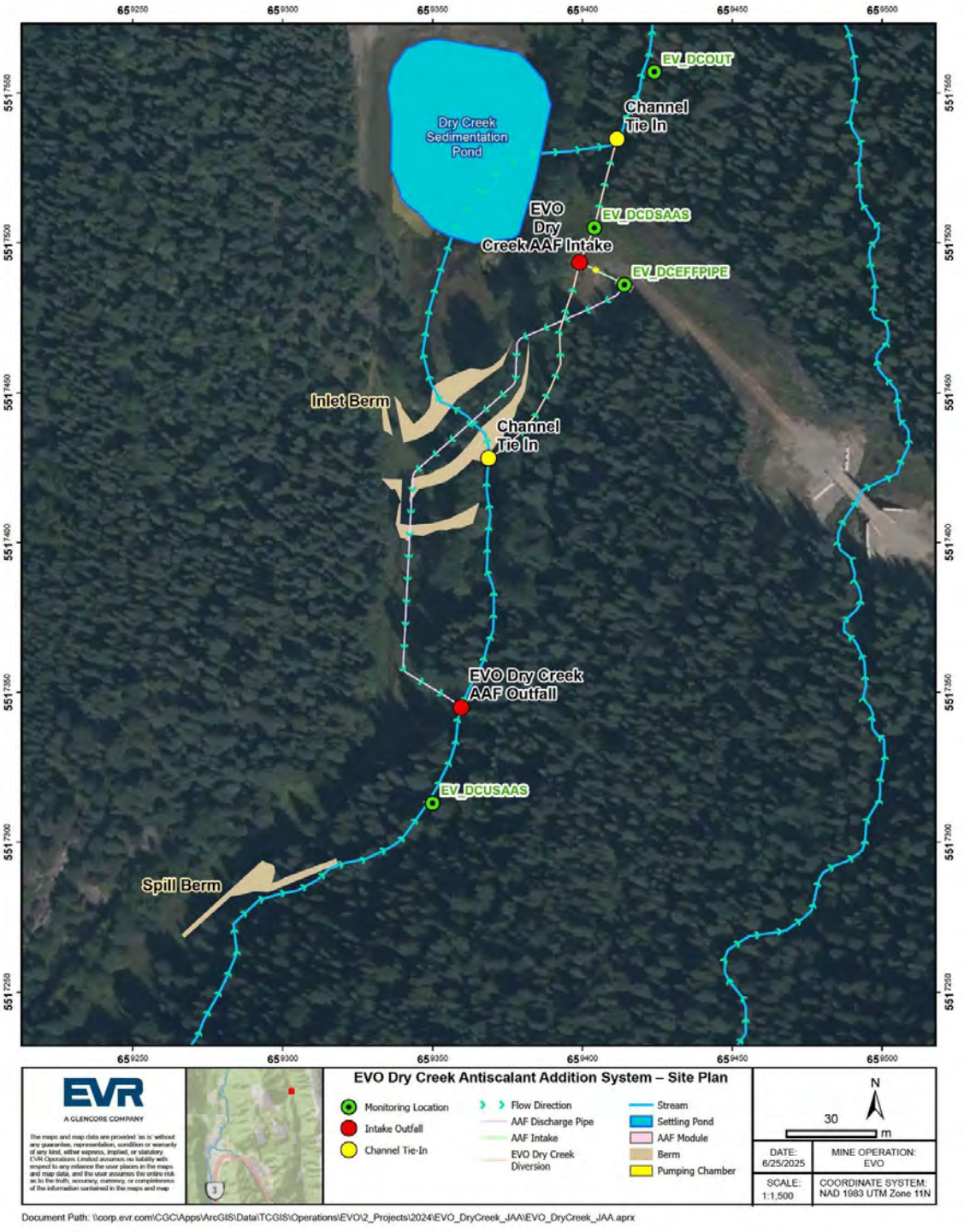
5G3 EVO DRY CREEK ANTISCALANT ADDITION SYSTEM SITE PLAN



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