



PO Box 32, Wekweètì NT X0E 1W0
 Tel: 867-713-2500 Fax: 867-713-2502

#1-4905 48th Street, Yellowknife NT X1A 3S3
 Tel: 867-765-4592 Fax: 867-765-4593
 www.wlwb.ca

Crown-Indigenous Relations and Northern Affairs Canada – Contaminants and Remediation Division

Water Licence W2020L8-0003

Pursuant to the *Mackenzie Valley Resource Management Act* and Mackenzie Valley Federal Areas Waters Regulations, the Wek'èezhii Land and Water Board grants this Water Licence to:

Crown-Indigenous Relations and Northern Affairs Canada - Contaminants and Remediation Division
 (Licensee)
 of P.O. Box 1500 4923-52nd St, Yellowknife, Northwest Territories, X1A 2R3
 (Mailing Address)

hereinafter called the Licensee, to proceed with the following undertaking, subject to the annexed definitions and conditions contained therein:

Location:	Rayrock Remediation Project
Water Management Area:	Great Slave Lake and all waters and river basins draining into Great Slave Lake
Purpose:	Miscellaneous – Remediation
Type:	A
Quantity of Water not to be exceeded:	See Part C, Conditions 1 and 2
Effective Date:	November 18, 2021
Expiry Date:	November 17, 2031

Commented [BS1]: General explanation of changes included in the Draft Licence:

CIRNAC-CARD included a draft Water Licence in its Amendment Application with revisions that CIRNAC-CARD has proposed. CIRNAC-CARD proposed additional revisions in response to Technical Session Information Request (IR) responses. Revisions proposed by CIRNAC-CARD are included as track-changes and highlighted in blue.

Board staff have included proposed changes to reflect recommendations and evidence received throughout the Proceeding. These revisions are included as track-changes and highlighted in yellow. Please note that comment bubbles provide additional context and in some cases, identify specific items that Board staff are seeking input on.

Mason Mantla, Chair
Wek'èezhii Land and Water Board

Witness

Approved by:

Honourable
Minister of Crown-Indigenous Relations and
Northern Affairs Canada

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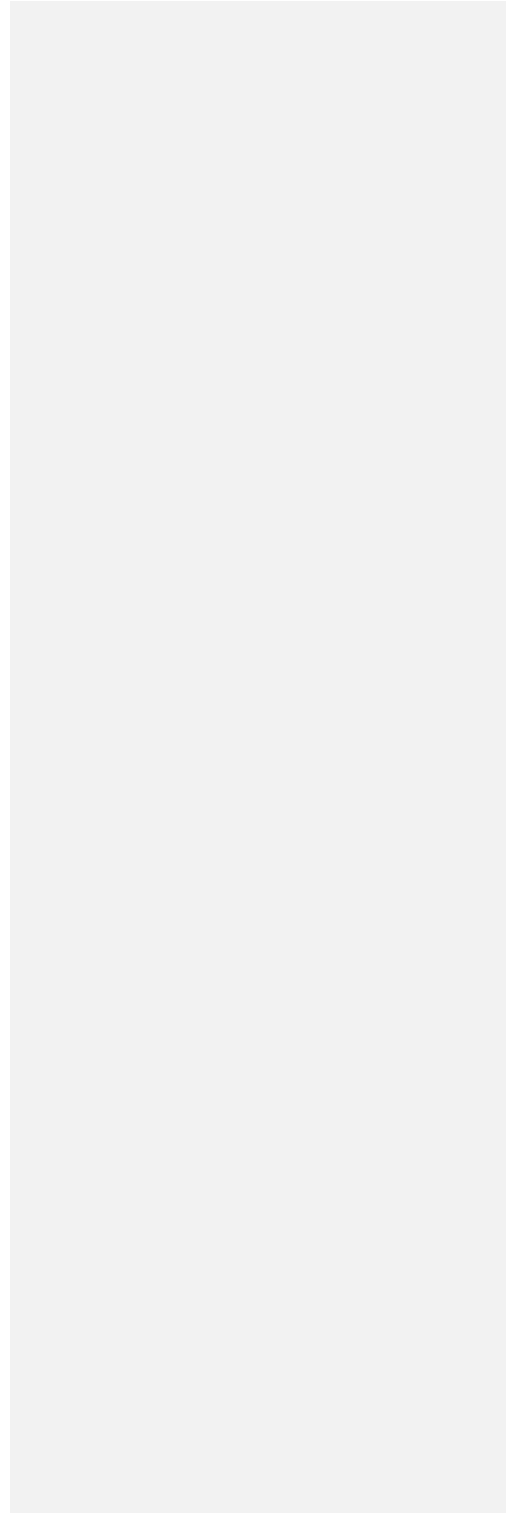


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Part A: Scope and Defined Terms

Scope:

1. This Licence entitles the Licensee to use Water and deposit Waste for remediation activities at the Rayrock Remediation Project in the area as described in the Type A Water Licence Application submitted September 21, 2020. The scope of this Licence includes the following:
 - a) Blasting, quarrying, and drilling activities for remediation activities; removal and shipping or burial of hazardous and non-hazardous waste in the Confined Disposal Facility; maintenance of Tailings Containment Areas and Decommissioned Waste Dump; Sherman Lake dock expansion; repairs to caps for Tailings Containment Areas and decommissioned Waste Dump, incineration or stockpiling for off-site disposal of waste from Camp operations; closure of Rayrock vent raises and Sun Rose mine shaft; capping waste rock and exploration workings at Sun Rose site; backfilling of trenches and blasted areas at Horn Plateau – REX Showing site; capping exploration workings at Horn Plateau – REX Showing site; burial or trucking out of soil with hazardous chemicals from exploration sites; removal of hazardous waste at barge landing and power line sites; removal of non-hazardous waste from exploration sites; storage and use of explosives; excavation and on-site disposal of spilled tailings; brush and vegetation clearing for access roads; access road development and maintenance; camp establishment at Rayrock and Sun Rose sites; use and regrading of quarry areas; fuel storage for operations; use of light and heavy equipment on site; treatment and encapsulation of Mill Lake sediments; encapsulation of soil, tailings, and waste rock in Confined Disposal Facility; burial of radiological-impacted debris in Confined Disposal Facility; off-site disposal of debris and materials within safe shipping limits for Uranium; removal and disposal of concrete foundations; sewage disposal, **including management of all associated infrastructure, facilities and equipment**; and remediation activities as approved in the Remedial Action Plan;
 - b) Withdrawal of Water for use in camp operations, dust control, washing, winter road construction, and remediation activities as approved in the Remedial Action Plan;
 - c) Dewatering of Mill Lake to Waste Water Treatment Facility before deposit in Sherman Lake,
 - d) Depositing of Waste to Confined Disposal Facility and the Camp sump;
 - e) Construction, operation, and maintenance of ice bridges to cross the Emile River or the Marian River;
 - f) Construction, operation and maintenance of culverts to allow winter road passage;
 - g) Construction, operation and maintenance of the Confined Disposal Facility and Sun Main Waste Rock Cover; and

SCOPE

Commented [BS2]: CIRNAC-CARD's proposed wording for the inclusion of the Secondary Containment Structure within the Scope of the Licence. This proposed wording was provided in response to Technical Session IR#3.

h) Closure and Reclamation activities for the remediation and monitoring of the Rayrock project sites.

2. The scope of this Licence is as described in the Preliminary Screening for W2020L3-0008, dated January 14, 2021, ~~and the Preliminary Screening dated April 15, 2021,~~ and the Preliminary Screening dated November 29, 2024.
3. This Licence is issued subject to the conditions contained herein with respect to the use of Water and the deposit of Waste in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Any change made to the Mackenzie Valley Resource Management Act or Waters Act or Mackenzie Valley Federal Areas Waters Regulations or Waters Regulations that affects licence conditions and defined terms will be deemed to have amended this Licence.
4. Compliance with this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, or Tłıchǫ legislation.

**SCOPE –
PRELIMINARY
SCREENING**

Commented [BS3]: Board staff have included this text to reflect the Preliminary Screening that was conducted as part of this Licence Amendment Application proceeding.

**LEGISLATION
SUBJECT TO
CHANGE**

**LEGISLATIVE
COMPLIANCE**

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Defined Terms¹:

Acid Rock Drainage – acidic Water, often with elevated sulphate concentrations, that occurs as a result of oxidation of sulphide minerals contained in rock or other materials that are exposed as a result of natural weathering processes, Construction, or Project activities.

Action Level – a predetermined qualitative or quantitative trigger which, if exceeded, requires the Licensee to take appropriate actions.

Analyst – an Analyst designated by the Minister under subsection 84(2) of the *Mackenzie Valley Resource Management Act*.

Aquatic Effects Monitoring Program (AEMP) – a monitoring program developed for the Project in accordance with this Licence and the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*.

Board – the Wek'èezhìi Land and Water Board established under Part 3 of the *Mackenzie Valley Resource Management Act*.

Closure Criteria - standards that measure the success of selected closure activities in meeting closure objectives. Closure criteria may have a temporal component (e.g., a standard may need to be met for a pre-defined number of years). Closure criteria can be site-specific or adopted from territorial/federal or other standards and can be narrative statements or numerical values.

Closure Objectives - statements that describe what the selected closure activities are aiming to achieve; they are guided by the closure principles. Closure objectives are typically specific to project components, are measurable and achievable, and allow for the development of closure criteria.

Closure and Reclamation – the process and activities that facilitate the return of areas affected by the Project to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities.

Construction – any activities undertaken during any phase of the Project to construct, build, upgrade, or replace any structures, facilities, or components of, or associated with, the Project.

Dewatering – the complete removal of Water from an existing Watercourse, or portion thereof, by pumping or draining.

Discharge – a direct or indirect deposit or release of any Water or Wastewater to Water in the Receiving Environment.

¹ Defined terms are capitalized throughout the Licence, including when used in other definitions.

Effluent – a Wastewater Discharge.

Effluent Quality Criteria (EQC) – numerical or narrative limits on the quality or quantity of the Effluent authorized for deposit to Receiving Water.

Engagement Plan – a document, developed in accordance with the LWB *Engagement and Consultation Policy* and the *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits*, that clearly describes how, when, and which engagement activities will occur with an affected party during the life of the Project.

Engineered Structure – any structure or facility related to Water Use or the deposit of Waste that is designed by a Professional Engineer, including but not limited to the Confined Disposal Facility, Sun Main Waste Rock Cover, Tailings Containment Areas, **Secondary Containment Structure**, and Decommissioned Waste Dump associated with the Project.

Commented [BS4]: CIRNAC-CARD confirmed during the Public Review that the Secondary Containment Structure is an Engineered Structure, so Board staff propose its inclusion here.

Greywater – all liquid Waste from showers, baths, sinks, kitchens, and domestic washing facilities, but does not include Toilet Waste.

Groundwater – as defined in section 2 of the Mackenzie Valley Federal Areas Waters Regulations: all water in a zone of saturation below the land surface, regardless of its origin.

Hazardous Waste - a Waste which, because of its quantity, concentration, or characteristics, may be harmful to human health or the environment when improperly treated, stored, transported, or disposed of.

Inspector – an Inspector designated by the Minister under subsection 84(1) of the *Mackenzie Valley Resource Management Act*.

Licensee – the holder of this Licence.

Mackenzie Valley Federal Areas Waters Regulations – the regulations proclaimed pursuant to section 90.3 of the *Mackenzie Valley Resource Management Act*.

Maximum Grab Concentration – the concentration of a parameter that cannot be exceeded in any one analytical result.

Metal Leaching – the release of metals and metalloids in leachate, Seepage, or drainage from rock or other materials associated with the Project.

Minewater – Groundwater, surface Water, or any Water that is pumped, seeps, or flows out of any underground mine working or open pit.

Minister – the Minister of Northern Affairs.

Ordinary High-Water Mark – the usual or average level to which a Watercourse rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing Watercourses (rivers, streams), this refers to an active channel/bank-full level, which is often the 1:2-year flood flow return level. In inland lakes, wetlands or marine environments, it refers to those parts of the Watercourse bed and banks that are frequently flooded by Water so as to leave a mark on the land and where the natural vegetation changes from predominantly aquatic vegetation to terrestrial vegetation (excepting Water tolerant species). For reservoirs, this refers to normal high operating levels (full supply level).

Potentially Acid Generating Rock – any rock that has the potential to produce Acid Rock Drainage.

Professional Engineer – a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories as per the territorial *Engineering and Geoscience Professions Act* and whose professional field of specialization is appropriate to address the components of the Project at hand.

Professional Geoscientist – a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Geoscientist in the Northwest Territories as per the territorial *Engineering and Geoscience Professions Act* and whose professional field of specialization is appropriate to address the components of the Project at hand.

Project – the undertaking described in Part A, Conditions 1 and 2.

Receiving Environment – the natural environment that, directly or indirectly, receives any Waste from the Project.

Reclamation Research – literature reviews, laboratory or pilot-scale tests, engineering studies, and other methods of resolving uncertainties and answering questions pertaining to environmental risks for the purpose of providing data and information that will reduce uncertainties for closure options, selected closure activities, and/or closure criteria.

Remedial Action Plan (RAP) – a document, developed in accordance with this Licence and the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, that clearly describes the Closure and Reclamation for the Project.

Remediation – the removal, reduction, or neutralization of substances, Wastes, or hazardous materials from a site in order to prevent or minimize any adverse effects on the environment and public safety, now or in the future.

Response Framework – a systematic approach to responding to the results of a monitoring program through adaptive management actions.

Response Plan – a document describing the actions that will be taken by the Licensee in response to an Action Level exceedance.

Runoff – the overland flow of Water or Wastewater that occurs when precipitation, meltwater, or other Water is not absorbed by the land.

Seepage – any Water or Waste that drains, passes through, or escapes from any structure designed to contain, withhold, divert, or retain Water or Waste.

Sewage – all Toilet Wastes and Greywater.

Sewage Disposal Facilities – the area(s) and structures designated to contain and treat Sewage.

Spill Contingency Plan (SCP) – a document developed for the Project in accordance with INAC's *Guidelines for Spill Contingency Planning*.

Sump – a human-made excavation or a natural depression designated for depositing Water and/or Waste.

Surveillance Network Program (SNP) – a monitoring program required by this Licence and detailed in Annex A.

Tailings – the materials rejected from the processing facilities after the recoverable valuable minerals have been extracted.

Tailings Containment Facilities – the area(s) and Engineered Structures designated to contain Tailings.

Temporary Closure – a state of care and maintenance, with the intent of resuming Project activities in the near future.

Toilet Wastes – all human excreta and associated products, not including Greywater.

Traditional Knowledge – the cumulative, collective body of knowledge, experience and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change.

Unauthorized Release – a release to the Receiving Environment of any Water or Waste not authorized under this Licence.

Waste – as defined in section 51 of the *Mackenzie Valley Resource Management Act*:

any substance that would, to an extent that is detrimental to its use by people or by any animal, fish or plant, degrade or alter or form part of a process of degradation or alteration of the quality of any water to which it is added. Alternatively, it means any water that contains a substance in such a quantity or concentration or that has been so treated, processed or changed, by heat or other means, that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that other water to which it is added. It includes:

- a) any substance or water that is deemed, under subsection 2(2) of the *Canada Water Act*, to be waste;
- b) any substance or class of substances prescribed by regulations made under subparagraph 90.3(1)(b)(i);
- c) water that contains any substance or class of substances in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed
- d) in respect of that substance or class of substances by regulations made under subparagraph 90.3(1)(b)(ii); and
- e) water that has been subjected to a treatment, process or change prescribed by regulations made under subparagraph 90.3(1)(b)(iii).

Waste Rock – all rock materials, except ore and Tailings, which are produced as a result of mining and milling operations.

Waste Rock Storage Facilities – the area(s) and Engineered Structures designated for the disposal of Waste Rock.

Wastewater – any Water that is generated by Project activities or originates on-site, and which contains Waste, and may include, but is not limited to, Runoff, Seepage, Sewage, Minewater, and Effluent.

Wastewater Treatment Facilities – the area(s) and structures designated for the treatment of Wastewater.

Water – as defined in section 51 of the *Mackenzie Valley Resource Management Act*: any inland waters, whether in a liquid or frozen state, on or below the surface of land.

Watercourse – as defined in section 2 of the Mackenzie Valley Federal Areas Waters Regulations: a natural watercourse, body of Water or Water supply, whether usually containing Water or not, and includes, but is not limited to, Groundwater, springs, swamps, and gulches.

Water Management Area – a geographical area of the Northwest Territories established by section 3 and Schedule 1 of the Mackenzie Valley Federal Areas Waters Regulations.

Water Supply Facilities – the area(s) and structures designed to collect, treat, and supply Water for the Project.

Water Use – as defined in section 51 of the *Mackenzie Valley Resource Management Act*: a direct or indirect use of any kind other than a use connected with shipping activities that are governed by the *Canada Shipping Act, 2001*, including

- a) any diversion or obstruction of waters;
- b) any alteration of the flow of waters; and
- c) any alteration of the bed or banks of a river, stream, lake or other body of water, whether or not the body of water is seasonal.

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Part B: General Conditions

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| 1. | The Licensee shall ensure a copy of this Licence is maintained on site at all times. | COPY OF LICENCE |
| 2. | The Licensee shall take every reasonable precaution to protect the environment. | PRECAUTION TO PROTECT ENVIRONMENT |
| 3. | In conducting its activities under this Licence, the Licensee shall make every reasonable effort to consider and incorporate any scientific information and Traditional Knowledge that is made available to the Licensee. | INCORPORATE SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE |
| 4. | In each submission required by this Licence or by any directive from the Board, the Licensee shall identify all recommendations based on Traditional Knowledge received, describe how the recommendations were incorporated into the submission, and provide justification for any recommendation not adopted. | IDENTIFY TRADITIONAL KNOWLEDGE |
| 5. | All references to policies, guidelines, codes of practice, statutes, regulations, or other authorities shall be read as a reference to the most recent versions, unless otherwise noted. | REFERENCES |
| 6. | The Licensee shall ensure all submissions to the Board:
a) Are in accordance with the MVLWB Document Submission Standards;
b) Include a conformity statement or table which identifies where the requirements of this Licence, or other directives from the Board, are addressed; and
c) Include any additional information requested by the Board. | SUBMISSION FORMAT |
| 7. | The Licensee shall ensure management plans are submitted to the Board in a format consistent with the LWB <i>Standard Outline for Management Plans</i> , unless otherwise specified. | MANAGEMENT PLAN FORMAT |
| 8. | The Licensee shall comply with all plans and designs, including revisions, approved pursuant to the conditions of this Licence. | COMPLY WITH SUBMISSIONS AND REVISIONS |
| 9. | The Licensee shall conduct an annual review of all plans and make any revisions necessary to reflect changes in operations, contact information, or | ANNUAL REVIEW |

other details. No later than May 31 each year, the Licensee shall send a notification letter to the Board, listing the documents that have been reviewed and do not require revision.

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| 10. | The Licensee may propose changes at any time by submitting revised plans or designs to the Board, for approval, a minimum of 90 days prior to the proposed implementation date for the changes. The Licensee shall not implement the changes until approved by the Board. | REVISIONS |
| 11. | The Licensee shall revise any submission and submit it as per the Board's directive. | REVISE AND SUBMIT |
| 12. | If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day. | SUBMISSION DATE |
| 13. | The Licensee shall comply with the Schedules , which are annexed to and form part of this Licence, and any updates to the Schedules as may be made by the Board. | COMPLY WITH SCHEDULE(S) |
| 14. | The Licensee shall comply with the Surveillance Network Program , which is annexed to and forms part of this Licence, and any updates to the Surveillance Network Program as may be made by the Board. | COMPLY WITH SURVEILLANCE NETWORK PROGRAM |
| 15. | The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be updated at the discretion of the Board. | UPDATES TO COMPLIANCE DATE(S) |
| 16. | The Licensee shall comply with all directives issued by the Board in respect of the implementation of the conditions of this Licence. | COMPLY WITH BOARD DIRECTIVES |
| 17. | The Licensee shall ensure signs are posted for all active Surveillance Network Program stations. All sign(s) shall be located and maintained to the satisfaction of an Inspector. | POST SURVEILLANCE NETWORK PROGRAM SIGNS |
| 18. | The Licensee shall install, operate, and maintain meters, devices, or other such methods for measuring the volumes of Water used and Waste discharged to the satisfaction of an Inspector. | MEASURE WATER USE AND WASTE DISCHARGED |
| 19. | Beginning May 31, 2022, and no later than every May 31 thereafter, the Licensee shall submit an Annual Water Licence Report to the Board and an Inspector. The Report shall be in accordance with the requirements of Schedule 1, Condition 1. | ANNUAL WATER LICENCE REPORT |
| 20. | The Licensee shall comply with the approved Engagement Plan . | ENGAGEMENT PLAN |

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|-----|--|---|
| 21. | Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Engagement Plan. The updated version shall be developed in accordance with the MVLWB Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits and the detailed requirements of Schedule 2. | ENGAGEMENT PLAN
– REVISED |
| 22. | A minimum of ten days prior to the initial commencement of Project activities, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the commencement date, and the name and contact information for the individual responsible for overseeing the Project. Written notification shall be provided to the Board and an Inspector if any changes occur. | NOTIFICATION –
COMMENCEMENT |
| 23. | A minimum of ten days prior to re-commencement of Project activities following a temporary shut-down period, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the commencement date, and the name and contact information for the individual responsible for overseeing the Project. Written notification shall be provided to the Board and an Inspector if any changes occur. | NOTIFICATION – RE-
COMMENCEMENT |
| 24. | The Licensee shall immediately provide written notification to the Board and an Inspector of any non-compliance with the conditions of this Licence. | NOTIFICATION –
NON- COMPLIANCE
WITH
CONDITIONS |
| 25. | The Licensee shall immediately provide written notification to the Board of any non-compliance with a Board directive issued in respect of the implementation of the conditions of this Licence. | NOTIFICATION –
NON- COMPLIANCE
WITH
DIRECTIVES |
| 26. | The Licensee shall ensure that a copy of any written authorization issued to the Licensee by an Inspector is provided to the Board. | COPY – WRITTEN
AUTHORIZATION |
| 27. | The Licensee shall submit a current Project schedule to the Board and an Inspector upon request. | SUBMIT CURRENT
PROJECT SCHEDULE |

Part C: Water Use

- The Licence shall only obtain Water for the Project as set out in the following table.

WATER SOURCE AND MAXIMUM VOLUME

Water Source Name	Location and Coordinates	Type of Watercourse	Purpose of Water Use	Maximum Quantity (m ³ per day or year)
Sherman Lake Water Body (Sherman Lake A and Alpha Bay)	West North-shore near camp 63° 26' 48" 63° 26' 25.14" -116° 32' 24.03" 49"	Lake	Camp Operations, washing/dust control, remediation activities as approved through Remedial Action Plan; and Winter Road Construction	25,000 per year
Mill Lake	Mid-lake 63° 27' 10" -116° 32' 42"	Lake	Contaminated Water Treatment	Entire volume of >85,000 m3 plus precipitation
Chico Lake	Northwestern Shore 63° 07' 10" -116° 19' 41"	Lake	Camp Operations/ Washing/dust control/ Winter Road Construction, Sun Rose spur	<27,000 per year
Emile River	Deepest Available Point 63° 20' 20.7" -116° 31' 08.5"	River	Winter Road Construction	Based on instantaneous flow: maximum of 10% of instantaneous flow volume per day

Commented [BS5]: Revisions proposed by CIRNAC-CARD in the Draft Water Licence submitted with the Application.

Commented [BS6]: In its Amendment Application, CIRNAC-CARD requested the addition of winter road construction to Sherman Lake water uses. No changes to the previously approved volume for this source were proposed.

Lake B	Western Shore 63° 25' 28" -116° 32' 20.6"	Lake	Winter Road Construction, Rayrock spurs	<33,000 per year
Tumi Lake	Northeast section of Lake 63° 27' 16" -116° 46' 09"	Lake	Winter Road Construction, Rayrock north spur	<465,000 per year
Marian River	Deepest Available Point 63° 27' 05.6" -116° 43' 29"	River	Winter Road Construction	Based on instantaneous flow: maximum of 10% of instantaneous flow volume per day
Lake on North	Mid-waterbody 63° 26' 13" -116° 35' 15.6"	Lake	Winter Road Construction, Rayrock north spur	<2,020 per year
WhA#1	Northern shore 63° 10' 30" -117° 02' 10"	Lake	Winter Road Construction	<11,700 per year
WhA#2	Northern shore 63° 13' 54" -116° 52' 48"	Lake	Winter Road Construction	<23,700 per year
WhA#3	Lake crossing 63° 15' 53" -116° 41' 42"	Lake	Winter Road Construction	<3,300 per year

WhA#4	Lake crossing 63° 16' 06" -116° 40' 50"	Lake	Winter Road Construction	<3,600 per year
WhA#5	Lake crossing 63° 16' 09" -116° 40' 03"	Lake	Winter Road Construction	<2,900 per year
WhA#6	Mid-river (9 m at crossing) 63° 16' 40" -116° 37' 50"	River	Winter Road Construction	Based on instantaneous flow: maximum of 10% of instantaneous flow volume per day
GA#1	North lake crossing 63° 17' 38" -116° 38' 09"	Lake	Winter Road Construction	<43,700 per year
GA#2	Mid-lake crossing 63° 17' 56" -116° 38' 40"	Lake	Winter Road Construction	<22,900 per year
GA#3	Mid-lake crossing 63° 18' 56" -116° 39' 43"	Lake	Winter Road Construction	<263,500 per year
GA#4	Western shore 63° 22' 38" -116° 42' 49"	Lake	Winter Road Construction	<98,700 per year

GA#5	Eastern shore 63° 24' 53" -116° 46' 13"	Lake	Winter Road Construction	<5,900 per year
CA#1	Mid-lake crossing 63° 16' 27" -116° 36' 10"	Lake	Winter Road Construction	<36,900 per year
CA#2	Mid-lake crossing 63° 16' 20" -116° 33' 50"	Lake	Winter Road Construction	<3,300 per year
WeA#1	Mid-lake crossing 63° 16' 44" -116° 29' 34"	Lake	Winter Road Construction	<1,200 per year
WeA#2	Western shore 63° 17' 55" -116° 30' 45"	Lake	Winter Road Construction	<9,500 per year
SR#1 – Tayonton Lake	Eastern shore 63° 13' 57" -116° 30' 32"	Lake	Winter Road Construction	<48,600 per year
SR#2 – Tsaekwoo ti Lake	Mid-lake crossing 63° 11' 49" -116° 28' 02"	Lake	Winter Road Construction	<211,400 per year

SR#3	Eastern shore 63° 10' 23" -116° 26' 17"	Lake	Winter Road Construction	<4,100 per year
SR#4	Western shore 63° 09' 16" -116° 24' 38"	Pond	Winter Road Construction	<700 per year
SR#5	Eastern shore 63° 09' 00" -116° 24' 16"	Pond	Winter Road Construction	<600 per year
SR#6	Eastern shore 63° 06' 23" -116° 20' 09"	Pond	Winter Road Construction	<900 per year
SR#7	Northern shore 63° 05' 04" -116° 19' 18"	Lake	Winter Road Construction	<4,100 per year
SR#8	Eastern shore 63° 04' 50" -116° 19' 04"	Pond	Winter Road Construction	<600 per year
SR#9	Mid-lake crossing 63° 04' 05" -116° 18' 35"	Lake	Winter Road Construction	<16,300 per year
SR#10- Marian Lake	Lake crossing	Lake	Winter Road Construction	<16,600,000 per year

- The Licensee may use Wastewater from the Mill Lake Water Treatment Facility for washing and dust control only if that Wastewater meets the Effluent Quality Criteria established in Part E, Condition 17 of this Licence, or as otherwise approved by the Board.

WASTEWATER USE

3. The Licensee shall only withdraw Water using the Water Supply Facilities, unless otherwise authorized temporarily in writing by an Inspector.

WATER
WITHDRAWAL –
FACILITIES

4. Prior to withdrawing Water from an approved Water source, the Licensee shall post sign(s) to identify the intake for the Water Supply Facilities. All sign(s) shall be located and maintained to the satisfaction of an Inspector.

POST WATER
INTAKE SIGN(S)

5. The Licensee shall construct and maintain the Water intake(s) with a screen designed to prevent impingement or entrainment of fish. The screen shall be in accordance with the best practices outlined in Fisheries and Oceans Canada's *Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater* and *Fish Screen Design Criteria for Flood and Water Truck Pumps*.

WATER INTAKE
SCREEN

6. Prior to locating a Water intake in a fish-bearing Watercourse, the Licensee shall obtain written authorization for the location from an Inspector.

WATER INTAKE
LOCATION –
AUTHORIZATION

Part D: Construction

1. The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Waste are designed, constructed, and maintained to minimize the escape of Waste to the Receiving Environment.

OBJECTIVE –
CONSTRUCTION

2. The Licensee shall ensure that all Engineered Structures are constructed and maintained in accordance with the recommendations of the Professional Engineer responsible for the design, including, but not limited to, recommendations regarding field supervision and inspection requirements.

ENGINEERED
STRUCTURES

3. The Licensee shall ensure that all material used in Construction of the Project meets the geochemical criteria specified in the approved Quarry Management Plan referred to in Part E, Condition 7.

GENERAL
CONSTRUCTION MATERIAL –
GEOCHEMICAL
CRITERIA

4. The Licensee shall maintain records of Construction materials for all structures and make them available at the request of the Board or an Inspector.

CONSTRUCTION
RECORDS

5. The Licensee shall maintain geochemical records of Construction materials for all structures and make them available at the request of the Board or an Inspector.

GEOCHEMICAL
RECORDS

6. A minimum of 90 days prior to the commencement of Construction of the Engineered Structure, the Licensee shall submit to the Board, for approval, the **Confined Disposal Facility Design Plan**. The Plan shall be in accordance

DESIGN PLAN –
CONFINED DISPOSAL
FACILITY

with the requirements of Schedule 3. The Licensee shall not commence Construction of the Engineered Structure prior to Board approval of the Plan.

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| 7. | A minimum of 45 days prior to the commencement of construction of the Confined Disposal Facility, the Licensee shall submit to the Board, the Confined Disposal Facility Construction Plan . The Plan shall be in accordance with the requirements of Schedule 3, Condition 2. | CONSTRUCTION
PLAN – CONFINED
DISPOSAL FACILITY |
| 8. | A minimum of 90 days prior to the commencement of Construction of the Engineered Structure, the Licensee shall submit to the Board, for approval, the Sun Main Waste Rock Cover Design Plan . The Plan shall be in accordance with the requirements of Schedule 3, Condition 3. The Licensee shall not commence Construction of the Engineered Structure prior to Board approval of the Plan. | DESIGN PLAN – SUN
MAIN WASTE
ROCK
COVER |
| 9. | A minimum of 45 days prior to the commencement of construction of the Sun Main Waste Rock Cover, the Licensee shall submit to the Board, the Sun Main Waste Rock Cover Construction Plan . The Plan shall be in accordance with the requirements of Schedule 3, Condition 4. | CONSTRUCTIO
N PLAN – SUN
MAIN
WASTE ROCK COVER |
| 10. | A minimum of 90 days prior to the commencement of Construction of the Engineered Structure, the Licensee shall submit to the Board, for approval, the Mill Lake Water Treatment Facility Design and Construction Plan . The Plan shall be in accordance with the requirements of Schedule 3, Condition 5. The Licensee shall not commence Construction of the Engineered Structure prior to Board approval of the Plan. | DESIGN AND
CONSTRUCTION
PLAN – MILL LAKE
WATER
TREATMENT
FACILITY |
| 11. | A minimum of 90 days prior to the commencement of Construction for the Tailings Containment Areas or Decommissioned Waste Dump, the Licensee shall submit to the Board, Repair Design Drawings stamped and signed by a Professional Engineer. A minimum of 90 days prior to implementing any proposed changes to the Design Drawings, the Licensee shall submit revised Design Drawings to the Board. | DESIGN DRAWINGS
– TAILINGS
CONTAINMENT
AREAS, AND
DECOMMISSIONED
WASTE DUMP |
| 12. | A minimum of ten days prior to the commencement of Construction of any Engineered Structure(s), the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the Construction commencement date, and the name and contact information for the individual responsible for overseeing Construction. Written notification shall be provided to the Board and an Inspector if any changes occur. | NOTIFICATION –
CONSTRUCTION –
ENGINEERED
STRUCTURES |

13. The Licensee shall ensure that all Engineered Structures are constructed in accordance with the **Repair Design Drawings**, the approved **Design Plans** and **Submitted Construction Plans**, or the submitted Construction, Maintenance, and Decommissioning Plan.

**CONSTRUCT AS
DESIGNED –
ENGINEERED
STRUCTURE(S)**

14. Within 90 days of the completion of the Construction of each Engineered Structure, the Licensee shall submit to the Board, an **As-Built Report** stamped and signed by a Professional Engineer, which shall include, but not be limited to, the following information:

**AS-BUILT REPORT –
ENGINEERED
STRUCTURES**

- a) final as-built drawings of the Engineered Structure(s), stamped and signed by a Professional Engineer;
- b) documentation, with rationale, of field decisions that deviate from the **Design and Construction Plans**, and/or **Repair Design Drawings**;
- c) any data used to support these decisions.

Commented [BS7]: CIRNAC-CARD submitted this document with the Amendment Application for the Secondary Containment Structure. During the proceeding, CIRNAC-CARD clarified that this document is equivalent to 'Design and Construction Plans' referenced in the Licence for other Engineered Structures and that this condition would apply to the Secondary Containment Structure. Thus, Board staff propose the inclusion of the document here.

Commented [BS8]: Board staff have not included the Construction, Maintenance, and Decommissioning Document for the Secondary Containment Structure under item (b) of this Condition because the document was submitted post-construction with no previously submitted Design and/or Construction Plan and therefore there was no information for comparison with field decisions.

CIRNAC-CARD submitted As-Built drawings as part of the Construction, Maintenance, and Decommissioning Document for the Secondary Containment Structure.

Part E: Waste and Water Management

1. The Licensee shall manage Waste and Water with the objective of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment through the use of appropriate mitigation measures, monitoring, and follow-up actions.

**OBJECTIVE – WASTE
AND WATER
MANAGEMENT**

2. The Licensee shall minimize erosion by implementing suitable erosion control measures that shall be located and maintained to the satisfaction of an Inspector.

EROSION CONTROL

Management and Monitoring Plans

3. The Licensee shall comply with the approved Waste Management Plan.

**WASTE
MANAGEMENT
PLAN**

4. A minimum of 90 days prior to commencement of activities, the Licensee shall submit to the Board, for approval, a revised Waste Management Plan. The Plan shall be in accordance with the MVLWB Guidelines for Developing a Waste Management Plan and the requirements of Schedule 4, Condition 1. The Licensee shall not commence activities described in the Plan prior to Board approval of the Plan.

**WASTE
MANAGEMENT
PLAN – REVISED**

5. The Licensee shall comply with the approved **Sediment and Erosion Control Plan**.
6. A minimum of 90 days prior to the commencement of Construction activities (with the exception of winter road Construction), the Licensee shall submit to the Board for approval, a revised Sediment and Erosion Control Plan. The Plan shall be in accordance with Schedule 4, Condition 2. The Licensee shall not commence activities described in the Plan prior to Board approval of the Plan.
7. The Licensee shall comply with the Quarry Management Plan, once approved.
8. A minimum of 90 days prior to the commencement of quarrying activities, the Licensee shall submit to the Board for approval, a Quarry Management Plan. The Plan shall be in accordance with Schedule 4, Condition 3. The Licensee shall not commence quarrying activities prior to Board approval of the Plan.
9. The Licensee shall comply with the Mill Lake Water Treatment Facility Operation and Maintenance Plan, once approved.
10. A minimum of 90 days prior to the commencement of facility use, the Licensee shall submit to the Board, for approval, the Mill Lake Water Treatment Facility Operation and Maintenance Plan. The Plan shall be in accordance with the requirements of Schedule 4, Condition 4. The Licensee shall not commence operation of the Engineered Structure prior to Board approval of the Plan.

**SEDIMENT AND
EROSION CONTROL
PLAN**

**SEDIMENT AND
EROSION CONTROL
PLAN - REVISED**

**QUARRY
MANGEMENT PLAN**

**QUARR
Y MANGEMENT
PLAN
- SUBMISSION**

**MILL LAKE WATER
TREATMENT
FACILITY OPERATION
AND MAINTENANCE
PLAN**

**MILL LAKE WATER
TREATMENT
FACILITY OPERATION
AND MAINTENANCE
PLAN - SUBMISSION**

Operation of Structures and Facilities

11. The Licensee shall construct, operate, and maintain all Engineered Structures to the design specifications and engineering standards, such that:
 - a) The specifications described in the applicable approved Design Plans ~~and~~, submitted Construction Plans and Design Drawings and/or As-Built Drawings, and submitted Construction, Maintenance, and Decommissioning Plan referred to are maintained at all times;
 - b) Any Seepage from the Confined Disposal Facility to the Receiving Environment that does not meet Effluent Quality Criteria, as specified

**ENGINEERED
STRUCTURES**

Commented [BS11]: During the Technical Session CIRNAC-CARD indicated that the Construction, Maintenance, and Decommissioning Plan fulfills the requirements of Part E, Condition 11, except for Condition 11(b) (rationale provided below).

Commented [BS9]: CIRNAC-CARD clarified that this document is equivalent to 'Design and/or Construction Plans' referenced in the Licence for other Engineered Structures and that this condition would apply to the Secondary Containment Structure. Thus, Board staff propose the inclusion of the document here.

- in Part E, Condition 17 shall be collected and returned to the facility;
- c) Any deterioration or erosion of constructed structures/facilities shall be reported immediately to an Inspector;
- d) Any deterioration or erosion of constructed structures/facilities that requires repair shall be reported to an Inspector and the Board, and repaired immediately; and
- e) Monitoring of the facility is sufficient to ensure that:
 - i. Performance design criteria, as described in **Confined Disposal Facility Design Plan, Sun Main Waste Rock Cover Design Plan, and Mill Lake Water Treatment Facility Design and Construction Plan** referred to in Part D, Conditions 6, 8, and 10 are being met; and
 - ii. **The Secondary Containment Structure is operating as intended and as outlined in the Construction, Maintenance, and Decommissioning Plan; and**
 - iii. Necessary changes in operation of the facility, including any additional mitigations, are identified.

Commented [BS10]: During the Public Review, CIRNAC-CARD has indicated that monitoring of the Secondary Containment Structure should be performed as described in this Plan. Board staff propose this be reflected here.

Inspection of Structures and Facilities

- 12. The Licensee shall conduct inspections of the Engineered Structures at a frequency outlined in approved applicable **Design Plans, submitted Construction, Maintenance and Decommissioning Plan,** or as otherwise directed by an Inspector or the Board. Records of these inspections shall be made available to the Board or an Inspector upon request.
- 13. The Licensee shall conduct daily erosion inspections of Discharge locations during periods of Discharge, or more frequently as directed by an Inspector. Records of these inspections shall be made available to the Board or an Inspector upon request.
- 14. The Licensee shall ensure that geotechnical inspections of the Confined Disposal Facility, Sun Main Waste Rock Cover, Tailings Containment Areas, Decommissioned Waste Dump, Rayrock Mine Vents, and Sun Main Mine Shaft are conducted annually for the first five years after construction, and every five years thereafter, and following any events that exceed design criteria, by a Professional Engineer. The Licensee shall:
 - a) A minimum of two weeks prior to the inspection, and when events that exceed design criteria occur, provide written notification to an Inspector; and
 - b) Within 90 days of completing the inspection, submit the Professional Engineer’s full **Geotechnical Inspection Report** to the Board and an Inspector. The Report shall include:

**INSPECTION OF
ENGINEERED
STRUCTURES**

Commented [BS12]: CIRNAC-CARD clarified that this document is equivalent to ‘Design and/or Construction Plans’ referenced in the Licence for other Engineered Structures and that this condition would apply to the Secondary Containment Structure. Thus, Board staff propose the inclusion of the document here.

**DAILY
INSPECTIONS OF
DISCHARGE
LOCATIONS**

**ANNUAL
GEOTECHNICAL
INSPECTION**

- i. a covering letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Professional Engineer, including rationale for any decisions that deviate from the Professional Engineer’s recommendations; and
- ii. a summary of any actions taken by the Licensee to address the recommendations made following the previous inspection.

Discharge and Disposal Locations and Rates

15. The Licensee shall dispose of all Sewage as described in the approved **Waste Management Plan**.

**EFFLUENT
DISCHARGE – CAMP
WASTE WATER**

16. The Licensee shall discharge all Effluent from the Mill Lake Water Treatment Facility to Sherman Lake as described in the approved **Mill Lake Water Treatment Operation and Maintenance Plan**.

**EFFLUENT
DISCHARGE – MILL
LAKE
WATER
TREATMEN
T
FACILITY**

Effluent Quality Criteria

17. The Licensee shall ensure that Effluent from Mill Lake Water Treatment Facility at Surveillance Network Program station 1663-7 has a pH value between 6 and 9 and meets the following Effluent Quality Criteria (EQC):

**EFFLUENT QUALITY
CRITERIA**

Commented [BS13]: Board staff are seeking comments and reasons for the selection or rejection of each of the options for regulating TSS in the discharge from the Mill Lake Water Treatment Facility:

- a) Amended EQC (see Part F, Condition 17). Note that staff have included options proposed by CIRNAC-CARD and the GNWT-ECC. More Information related to the proposed EQCs included as options is provided in the footnotes.

AND/OR

- b) Additional SNP station(s) in Sherman Lake (see Annex A)

AND/OR

- a) Daily temporal restriction (either as a licence condition (see proposed Part E, Condition 22) or through the Mill Lake Water Treatment Operation and Maintenance Plan.

Parameter	EQC	
	Maximum Average Concentration (MAC) ²	Maximum Grab Concentration (MGC)
Ammonia (total)	n/a	499 µg/L
Fluoride	n/a	120 µg/L
Nitrate (as NO ₃) ³	n/a	13,000 µg/L
Nitrite (as NO ₂)	n/a	197 µg/L
Copper (total)	n/a	2.8 µg/L
Iron (total)	n/a	300 µg/L
Nickel (total)	n/a	25 µg/L
Uranium (total)	n/a	15 µg/L
Zinc (total)	n/a	23 µg/L
Total Suspended Solids	n/a	15 mg/L ⁴
	OR	
	n/a	25 mg/L ⁵
	OR	
	15 mg/L	25 mg/L ⁶
	OR	
	22.50 mg/L	30 mg/L ^{7,8}
Total Petroleum Hydrocarbons	n/a	5 mg/L

² The Board did not set MAC EQC in the original Licence issuance; therefore, these are indicated as “n/a” or “not applicable”.

³ Added as clarified during the Technical Session.

⁴ No change from the currently approved Licence.

⁵ CIRNAC-CARD has proposed to increase the TSS MGC EQC from 15 mg/L to 25 mg/L; no MAC EQC proposed. See WLWB Online Review System for [Rayrock \(Kwetjpaà\) Remediation Project Type A Water Licence Amendment](#).

⁶ GNWT-ECC has proposed a MAC EQC of 15 mg/L and MGC EQC of 25 mg/L for TSS in their Intervention. See WLWB Online Registry for [Rayrock - WL Amendment Application - GNWT-ECC Intervention - Nov 26 24.pdf](#).

⁷ In its Response to Intervention, CIRNAC-CARD has proposed an alternative option of adopting values from the MDMER (i.e., “a MAC in a composite sample of 22.50 mg/L TSS and a MGC of 30 mg/L TSS”). See WLWB Online Registry for [Rayrock - WL Amendment Application - Intervention Response - Dec 3 24.pdf](#); p. 3.

⁸ Board staff requested additional information from CIRNAC-CARD to better understand this option. See WLWB Online Registry [Rayrock – Licence Amendment – Response to IR – Dec 12 24](#) for CIRNAC-CARD’s response.

18. The Licensee shall ensure that Effluent from the Camp Wastewater at Surveillance Network Program station 1663-11 has a pH value between 6 and 9 and meets the following Effluent Quality Criteria (EQC):

**EFFLUENT QUALITY
CRITERIA –CAMP
WASTEWATER**

Parameter	EQC
	Maximum Grab Concentration
Mineral Oil and Grease	5 mg/L; non-visible
Total Suspended Solids	100 mg/L
Biological Oxygen Demand	120 mg/L
Fecal Coliforms	10,000 CFU/dL
Residual Chlorine	0.1 mg/L

19. The Licensee shall ensure that Discharge to Sherman Lake shall not be acutely toxic to aquatic life as determined at SNP station 1663-7 by the test methods referenced in Part A of the Surveillance Network Program.

**EFFLUENT
QUALITY –
TOXICITY – MILL
LAKE WATER
TREATMENT
FACILITY**

20. The Licensee shall submit Water quality data for samples collected from Surveillance Network Program station 1663-7 (Mill Lake Water Treatment Facility) and Surveillance Network Program station 1663-11 (Camp Wastewater) to the Board and an Inspector as follows:

**TESTING
BEFORE
DISCHARGE –
MILL LAKE
WATER
TREATMENT
FACILITY AND
CAMP
WASTEWATER
SUMP**

- a) A minimum of five days prior to commencing or resuming Discharge of Effluent to Sherman Lake and/or Camp Wastewater sump; and
- b) A minimum of five days prior to commencing or resuming Discharge of Effluent to Sherman Lake and/or Camp Wastewater sump following an exceedance of the EQC specified in Part F, Condition 17 or 18 as applicable.

The Licensee shall not commence or resume the Discharge until the EQC are met and an Inspector has provided written authorization.

21. If Water quality data from any sample collected at Surveillance Network Program stations 1663-7 or 1663-11 exceeds the EQC specified in Part E, Condition 17 or 18, respectively, or is determined to be acutely toxic as per Part E, Condition 19, the Licensee shall:

**EFFLUENT QUALITY
CRITERIA –
EXCEEDANCE – MILL
LAKE WATER**

- a) Cease the Discharge;
- b) Notify the Board and an Inspector immediately;
- c) Report the spill immediately in accordance with the **Spill Contingency Plan** referred to in Part G, Condition 2; and
- d) Comply with the approved **Waste Management Plan** if applicable, as referred to in Part E, Condition 3; and
- e) Within 30 days of initially reporting the incident, or within a timeframe authorized by an Inspector, submit a detailed report on the occurrence, including a summary of corrective actions taken, to the Board and an Inspector.

TREATMENT FACILITY
AND CAMP
WASTEWATER
SUMP

22. The Licencee shall not exceed X hours of continuous discharge within a 24-hour period.

TEMPORAL DISCHARGE
LIMIT – MILL LAKE
WATER TREATMENT
FACILITY

Commented [BS14]: Board staff are seeking input on setting a daily temporal limit either as a licence condition or within the Mill Lake Water Treatment Operation and Maintenance Plan.

Part F: Aquatic Effects Monitoring

1. The Licensee shall design and implement an Aquatic Effects Monitoring Program (AEMP) in accordance with the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*.
2. Within 90 days of the effective date of this Licence, the Licensee shall submit to the Board, for approval, an **AEMP Design Plan**. The Plan shall be in accordance with the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*.
3. Three years following implementation of the **AEMP Design Plan**, and every three years thereafter, or as directed by the Board, the Licensee shall submit to the Board, for approval, an **AEMP Re-Evaluation Report**. The Report shall be in accordance with the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs* and shall evaluate the overall effectiveness of the AEMP to date.
4. Every three years following implementation of the **AEMP Design Plan**, or as directed by the Board, the Licensee shall submit to the Board, for approval, a revised **AEMP Design Plan**. The revised Plan shall be in accordance with the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs*.
5. Beginning May 31, 2023, and no later than May 31 of each year thereafter, the Licensee shall submit to the Board, for approval, an **AEMP Annual Report**. The Report shall be in accordance with the MVLWB/GNWT *Guidelines for Aquatic Effects Monitoring Programs* and the requirements of Schedule 5, Condition 1.
6. If any low Action Level established in the approved **AEMP Design Plan** is exceeded, the Licensee shall, at a minimum, implement the response actions

OBJECTIVE – AEMP

AEMP DESIGN PLAN

AEMP RE-EVALUATION REPORT

AEMP DESIGN PLAN – REVISED

AEMP ANNUAL REPORT

LOW ACTION LEVEL EXCEEDANCE

described in the approved **AEMP Design Plan**, and report the exceedance in the **AEMP Annual Report**.

7. If any moderate or high Action Level established in the approved **AEMP Design Plan** is exceeded, the Licensee shall:
- a) Within the timeframe identified in the approved **AEMP Design Plan**, notify the Board and an Inspector; and
 - b) Within the timeframe identified in the approved **AEMP Design Plan**, or as otherwise directed by the Board, submit an **AEMP Response Plan** to the Board for approval. The Response Plan shall be in accordance with the *MVLWB/GNWT Guidelines for Aquatic Effects Monitoring Programs*.

**MODERATE OR HIGH
ACTION LEVEL
EXCEEDANCE**

Part G: Spill Contingency Planning

1. The Licensee shall ensure that Unauthorized Releases associated with the Project do not enter any Water.
2. The Licensee shall comply with the **Spill Contingency Plan**, once approved.
3. A minimum of 90 days prior to the commencement of Construction activities (with the exception of winter road Construction), the Licensee shall submit to the Board, for approval, a revised **Spill Contingency Plan**, in accordance with Schedule 6, Condition 1 and CIRNAC's *Guidelines for Spill Contingency Planning*. The Licensee shall not commence Construction activities prior to Board approval of the revised Plan.
4. If a spill or an Unauthorized Release occurs or is foreseeable, the Licensee shall:
- a) Implement the approved **Spill Contingency Plan** referred to in Part G, Condition 2;
 - b) Report it immediately using the NU-NT Spill Report Form by one of the following methods:
 - Telephone: (867) 920-8130
 - Fax: (867) 873-6924
 - E-mail: spills@gov.nt.ca
 - Online: Spill Reporting and Tracking Database
 - c) Notify the Board and an Inspector immediately; and
 - d) Within 30 days of initially reporting the incident, or within a timeframe authorized by an Inspector, submit a detailed report to the Board and an Inspector, including descriptions of causes, response actions, and any

**OBJECTIVE – PREVENT
WASTE INTO WATER**

**SPILL CONTINGENCY
PLAN**

**SPILL CONTINGENCY
PLAN – REVISED**

REPORT SPILLS

changes to procedures to prevent similar occurrences in the future. Written notification shall be provided to the Board and an Inspector if any changes occur.

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|----|--|--|
| 5. | The Licensee shall ensure that spill prevention infrastructure and spill response equipment is in place prior to commencement of the Project. | SPILL PREVENTION AND RESPONSE EQUIPMENT |
| 6. | The Licensee shall restore all areas affected by spills and Unauthorized Releases to the satisfaction of an Inspector. | CLEAN UP SPILLS |
| 7. | The Licensee shall not establish any fuel storage facilities or refueling stations, or store chemicals or Wastes within 100 metres of the Ordinary High-Water Mark of any Watercourse. | MATERIAL STORAGE – ORDINARY HIGH-WATER MARK |

Part H: Closure and Reclamation

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|----|--|---|
| 1. | The Licensee shall comply with the approved Remedial Action Plan . | REMEDIAL ACTION PLAN |
| 2. | The Licensee shall co-host a Closure Objectives and Criteria Workshop within 120 days of the effective date of the Licence. The Licensee shall provide and prepare materials two weeks in advance of the scheduled workshop in accordance with Schedule 7, Condition 1 | CLOSURE OBJECTIVES AND CRITERIA WORKSHOP |
| 3. | Within nine months following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Remedial Action Plan . The Plan shall be in accordance with the requirements of Schedule 7, Condition 2. | REMEDIAL ACTION PLAN - REVISED |
| 4. | Within one year of completing Closure and Reclamation of the Project, the Licensee shall submit to the Board a Closure and Reclamation Completion Report . The Report shall be in accordance with the MVLWB/AANDC <i>Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories</i> . | CLOSURE AND RECLAMATION COMPLETION REPORT |
| 5. | Within 90 days of completing Closure and Reclamation of the Project, or as otherwise directed by the Board, the Licensee shall submit to the Board for approval, a Post-Closure Monitoring and Maintenance Plan . The Plan shall be in accordance with the requirements of Schedule 7, Condition 3. | POST-CLOSURE MONITORING AND MAINTENANCE PLAN |
| 6. | The Licensee shall submit to the Board for approval, a Performance Assessment Report , in accordance with Schedule 7, Condition 3(a). The Report shall be in accordance with the MVLWB/AANDC <i>Guidelines for the Closure and Reclamation</i> | PERFORMANCE ASSESSMENT REPORT – COMPONENT- |

of Advanced Mineral Exploration and Mine Sites in the Northwest Territories. The Licensee shall submit subsequent Reports as directed by the Board.

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Schedule 1: Annual Water Licence Report

1. The **Annual Water Licence Report** referred to in Part B, Condition 19 of this Licence shall include, but not be limited to, the following information about activities conducted during the previous calendar year:
 - a) A brief summary of Project activities;
 - b) An updated Project schedule;
 - c) The monthly and annual quantities in cubic metres of fresh Water obtained from all sources, as required in Part B, Condition 18 of this Licence;
 - d) A summary of the calibration and status of the meters and devices referred to in Part B, Condition 18 of this Licence;
 - e) A summary of engagement activities conducted in accordance with the approved **Engagement Plan**, referred to in Part B, Condition 20 of this Licence;
 - f) A summary of how Traditional Knowledge was incorporated into decision making;
 - g) A summary of Construction activities conducted in accordance with Part D of this Licence;
 - h) A summary of major maintenance activities conducted in accordance with this Licence;
 - i) A summary of activities conducted in accordance with the approved **Confined Disposal Facility Design Plan, Waste Management Plan, and Quarry Management Plan** referred to in Part D Condition 6, and Part E, Conditions 3 and 7, respectively, of this Licence, including:
 - i) A summary of approved updates or changes to the process or facilities required for the management of Mill Lake water and all materials reporting to the Mill Lake CDF;
 - ii) Monthly and annual quantities/volumes by location of all materials reporting to the Mill Lake CDF managed under the plan;
 - iii) A summary and interpretation of any monitoring results;
 - iv) A list of any Action Level exceedances; and
 - v) A description of actions taken in response to any Action level exceedances.
 - j) A summary of activities conducted in accordance with the approved **Mill Lake Water Treatment Facility Operation and Maintenance Plan**, referred to in Part E, Condition 9 of this Licence and water use as per Part C, Conditions 1 and 2, including:
 - i) A summary of approved updates or changes to the process or facilities required for the management of Water and Wastewater
 - ii) Monthly and annual quantities, in cubic metres, of Water obtained from each approved source;
 - iii) Monthly and annual quantities, in cubic metres, of recycled Water, identifying both the source and use;
 - iv) Monthly and annual quantities of Water, in cubic metres, used for dust control;
 - v) Upon completion of remediation activities, monthly and annual quantities, in cubic metres, of treated Wastewater from the Confined Disposal Facility;
 - vi) Monthly and annual quantities, in cubic metres, of treated Wastewater from Mill Lake drainage basin;
 - vii) Monthly and annual quantities, in cubic metres, of all Discharges, identified by Discharge location;
 - viii) Monthly elevations, in metres, of Water in Beta Lake, Gamma Lake, Lake A, New Control Lake, and Sherman Lake;
 - ix) Monthly and annual flow volume, in cubic metres, at SNP 1663-7 (treated effluent discharge from Mill Lake Water Treatment Facility to Sherman Lake);

- x) Monthly and annual estimates and/or measurements of precipitation and Runoff;
 - xi) A comparison of Water and Wastewater quantities measured in the year to the Water balances predicted for that year in the approved Plan, and an explanation of any significant differences between predictions and actual measurements;
 - xii) An updated Water balance if required as per the approved Plan;
 - xiii) A summary and interpretation of monitoring results, including any Action Level exceedances; and
 - xiv) A description of actions taken in response to any Action Level exceedances.
- k) A summary of activities conducted in accordance with the approved **Waste Management Plan**, referred to in Part E, Condition 3 of this Licence, including:
- i) A summary of approved updates or changes to the process or facilities required for the management of Sewage;
 - ii) Monthly and annual quantities, in cubic metres, of sewage discharged, by location; and
 - iii) A map depicting the location of the Sump.
- l) A summary of activities conducted in accordance with the approved **Confined Disposal Facility Construction Plan and Sun Main Waste Rock Cover Construction Plan**, referred to in Part D, Conditions 7 and 9, respectively, of this Licence, including:
- i) A summary of approved updates or changes to the process or facilities required for the management of Waste Rock;
 - ii) Monthly and annual quantities, in cubic metres and tonnes, of each type of Waste Rock placed in Confined Disposal Facility and Sun Main Waste Rock Pile including a map or diagram of the locations and types of Waste Rock deposited;
 - iii) The height and area of the Confined Disposal Facility and Sun Main Waste Rock Pile;
 - iv) A summary and interpretation of monitoring results, including any Action Level exceedances; and
 - v) A description of actions taken in response to any Action Level exceedances.
- m) A summary of activities conducted in accordance with the approved **Quarry Management Plan**, referred to in Part E, Condition 7, including:
- i) A summary of approved updates or changes to the processes for characterizing and managing Acid Rock Drainage and Metal Leaching;
 - ii) A comparison of the annual quantities of each type of Waste Rock generated to the quantities predicted in the approved **Quarry Management Plan**;
 - iii) A summary and interpretation results from the geochemical monitoring performed under the approved **Quarry Management Plan**; and
 - iv) A summary of results from investigations or activities related to field test cells.
- n) A summary of activities conducted in accordance with the approved **Sediment and Erosion Control Plan**, referred to in Part E, Condition 5 of this Licence, including:
- i) A summary of approved updates or changes to the process or facilities required for the management of erosion and sedimentation;
 - ii) A description of any erosion susceptible areas encountered;
 - iii) A summary of activities undertaken to prevent or mitigate erosion;
 - iv) A report of the performance of mitigations applied to each area;
 - v) A summary and interpretation of monitoring results, including any Action Level exceedances; and
 - vi) A description of actions taken in response to any Action Level exceedances.

- o) A summary of activities conducted in accordance with the approved Spill Contingency Plan, required in Part G, Condition 2 of this Licence, including:
 - i) A list and description for all Unauthorized Discharges, including the date, NWT spill number, volume, location, summary of the circumstances and follow-up actions taken, and status (i.e. open or closed), in accordance with the reporting requirements in Part G, Condition 4 of this Licence; and
 - ii) An outline of any spill training carried out.
- p) A summary of activities conducted in accordance with the **Remedial Action Plan**, referred to in Part H, Condition 1 of this Licence, including:
 - i) Details of any Remediation undertaken;
 - ii) A discussion on whether planning and implementation remains on schedule, and a summary of any new scheduling setbacks; and
 - iii) A summary of engagement conducted regarding Closure and Reclamation.
- q) Tabular summaries of all data and information generated under the SNP annexed to this Licence, in Excel format.
- r) A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this Licence;
- s) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector; and
- t) Any other details requested by the Board by January 1st of the year being reported.

Schedule 2: Engagement Plan (Part B)

1. The revised **Engagement Plan** referred to in Part B, Condition 21 shall include, but not be limited to, the following:
 - a) Update to include commitment to consult with Tłıçhǫ Government on the revegetation strategy for the Project;
 - b) Update to include commitment to further discuss tailings clean up with Tłıçhǫ Government;
 - c) Update to include commitment to form an aquatic effects monitoring working group with the Tłıçhǫ Government;
 - d) Update to include commitment to have site visits from Tłıçhǫ Government and Elders at least twice a year;
 - e) Update to include commitment to provide funding for additional monitoring by the Tłıçhǫ Government as related to the Rayrock Project;
 - f) Update to include commitment to assist with financial and in-kind support to the Tłıçhǫ Government for a risk communication program during remediation activities and at least five years after remediation activities; and
 - g) Update to include commitment to notify Tłıçhǫ Government in the event of an archaeological find.

Schedule 3: Requirements for the Confined Disposal Facility Design and Construction (Part D)

1. The **Confined Disposal Facility Design Plan** referred to in Part D, Condition 6, shall include, but not be limited to, the following information:
 - a) Detailed design description of the facilities to be constructed including location;
 - b) Activity-specific monitoring description for post-construction phase;
 - c) Relevant background information, including the data from geotechnical and geochemical investigations, the results of programs to characterize soil, rock, Groundwater, ground ice, and ground temperature conditions to the depth expected to be affected by the proposed facility, beneath the footprint of all containment and runoff control structures, as deemed adequate by the Professional Engineer responsible for the design;
 - d) Quantities and the physical and geochemical characteristics of materials required for Construction;
 - e) Design drawings and specifications of Engineered Structures, stamped by a Professional Engineer;
 - f) Stability analyses;
 - g) Operations and maintenance requirements;
 - h) Mitigation details for post-construction phase;
 - i) Description of contingency activities if not meeting closure criteria;
 - j) Description of monitoring of engineered structure, including frequency;
 - k) A description of the geotechnical stability of the structure from a global (i.e., slope stability), as well as an internal component-to-component (i.e., internal failure modes) perspective;
 - l) Description of the selection criteria for any geosynthetic liner and how it achieves the service design life for the CDF;
 - m) Description of seepage management from the Confined Disposal Facility;
 - n) A description of routine and potential non-routine maintenance;
 - o) An estimate of the approximate design life of the CDF geomembranes, CDF liners, and any other structures that have limited life spans;
 - p) A summary description of how CDF geomembranes, CDF liners, and any other materials that have limited life spans would be managed; and
 - q) Description of how adit drainage and run-off has been incorporated into the CDF design.
2. The **Confined Disposal Facility Construction Plan** referred to in Part D, Condition 7, shall include, but not be limited to, the following information:
 - a) Contacts responsible for overseeing construction activities; and
 - b) Detailed design description including timing, sequencing, schedule, construction schedule, operational constraints, activity-specific monitoring, mitigation details for the construction period, and a Quality control details including plan for a Professional Engineer to supervise and field check Construction activities.
3. The **Sun Main Waste Rock Cover Design Plan** referred to in Part D, Condition 8, shall include but not be limited to, the following information:
 - a) Detailed design description;
 - b) Activity-specific monitoring and mitigation details for the post-construction phase;
 - c) Description of contingency activities if not meeting closure criteria; and
 - d) Description of monitoring of engineered structure, including frequency.

4. The **Sun Main Waste Rock Cover Construction Plan** referred to in Part D, Condition 9, shall include but not be limited to, the following information:
- a) Contacts responsible for overseeing construction activities;
 - b) Detailed design description including timing, sequencing, schedule, construction schedule, operational constraints, activity-specific monitoring, and mitigation details for the construction period; and
 - c) A Quality Control Plan stamped by a Professional Engineer, a component of which includes a plan for a Professional Engineer to supervise and field check Construction activities.
5. The **Mill Lake Water Treatment Facility Design and Construction Plan** referred to in Part D, Condition 10, shall include but not be limited to, the following information:
- a) Detailed design description for Mill Lake Water Treatment Facility; and
 - b) Description of Mill Lake Treatment Facility operation and decommissioning details.

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Schedule 4: Waste and Water Management (Part E)

1. The **Waste Management Plan** referred to in Part E, Condition 4, shall include, but not be limited to, the
 - a) Description of waste types and properties;
 - b) Description of waste types and properties;
 - c) Details of operations through construction, disposal, and closure;
 - d) Details of waste volume balance and sump sizing;
 - e) Details of monitoring of sump and local environment, and explanation of how environmental monitoring will be linked to any management response;
 - f) The proposed location for the structures;
 - g) Camp wastewater treatment details;
 - h) On-site waste sump details;
 - i) Off-site waste disposal facilities agreements;
 - j) Incinerator details including rationale for which technology was chosen, a residue management
 - k) Addresses all form of petroleum, oil, and liquid wastes, and describes waste container types and sizes.

2. The **Sediment and Erosion Control Plan** referred to in Part E, Condition 6, shall include, but not be limited to, the following information:
 - a) Description of frequency of inspections for dusty conditions;
 - b) Description of dust monitoring action levels and responses;
 - c) Description of wind speed threshold levels and provide absolute values;
 - d) Description of predictive and preventative approaches in addressing dust generation;
 - e) Description of monitoring of down gradient locations for Sediment and Erosion Control measures effectiveness;
 - f) Description of work planning and scheduling based on conditions on-site;
 - g) Mitigations and control measures that will be implemented in the event of delays with construction of the Confined Disposal Facility following the dewatering and treatment of Mill Lake water;
 - h) Description of SEC supplies and equipment on site;
 - i) Inspection sheet that includes dust monitoring;
 - j) General response framework for action level exceedances for sedimentation events;
 - k) Contingency option(s) for measuring TSS if TSS field meter malfunctions or is unreliable;
 - l) Description of dust suppression products to be used;
 - m) Description of potential impacts of the dock expansion and associated mitigations; and
 - n) Description of how site drainage monitoring during freshet and during/following precipitation has been considered and rationale for any monitoring.

3. The **Quarry Management Plan** referred to in Part E, Condition 8, shall include, but not be limited to, the following information:
 - a) Description of borrow source locations;
 - b) Description of explosives storage locations;
 - c) Description of explosives management including:
 - i) Description of process; and
 - ii) Description of facilities used to transport, store, and implement the use of explosives.

- d) Description of maintenance or contingency activities that will be undertaken if monitoring results show borrow and explosive management activities are not meeting criteria, including:
 - i) Description of risks;
 - ii) Thresholds/action levels; and
 - iii) Description of responses to threshold/action level exceedances.
- e) Description of geochemical characterization and testing including geochemical criteria for defining Potential Acid Generating material and metal leaching; and
- f) Description of bedrock geochemistry monitoring plan including timing and frequency.

4. The **Mill Lake Water Treatment Facility Operation and Maintenance Plan** referred to in Part E, Condition 10, shall contain but not be limited to the following information:

- a) Detailed design description for discharge to Sherman Lake including discharge rate, discharge method, discharge timing;
- b) Description of water treatment process;
- c) Description of water treatment waste production;
- d) Description of water treatment facility operation and maintenance details;
- e) Description of operational monitoring program for the treatment facility;
- f) Description of maintenance and/or contingency activities if monitoring results are not meeting criteria; and
- g) Detailed risks, threshold and action levels, and responses for monitoring of wastewater.

Schedule 5: Aquatic Effects Monitoring Program (Part F)

1. The **AEMP Annual Report** referred to in Part F, Condition 5 of this Licence shall include, but not be limited to, the following:
 - a) A plain language summary and interpretation of the major results obtained in the preceding calendar year;
 - b) A summary of activities conducted under the AEMP;
 - c) A summary of any spills, activities, or other considerations within the report time frame that could influence the results of the AEMP;
 - d) Tabular summaries of all data and information generated under the AEMP, in Excel format;
 - e) An interpretation of the results, including an evaluation of any identified environmental effects that occurred as a result of the Project;
 - f) A comparison of predicted mixing and dilution of Effluent in Sherman Lake in comparison to monitoring data;
 - g) An analysis that integrates the results of individual monitoring components collected in a calendar year and describes the ecological significance of the results;
 - h) A comparison of monitoring results to Action Levels as defined in the approved **AEMP Design Plan**;
 - i) For any low Action Level exceedances, a summary of the nature and extent of the exceedance, as well as a description of actions taken in response to the exceedance;
 - j) An evaluation of any adaptive management response actions implemented;
 - k) Recommendations, with rationale, for changes to any aspect of the **AEMP Design Plan**; and
 - l) Any other information specified in the approved **AEMP Design Plan**.

Schedule 6: Spill Contingency Plan (Part G)

1. The Spill Contingency Plan referred to in Part G, Condition 3, shall include, but not be limited to, the following information:
 - h) An update to include description of wooden crates of legacy hazardous waste materials;
 - i) An update to refer to “blast pits” as “exploration workings”;
 - j) Addresses all forms of petroleum, oil, and liquid wastes;
 - k) A description of how waste oily water will be addressed on site;
 - l) A description of protective measures for fuel storage areas; and
 - m) A description of options for on and/or off-site disposal of PHC-impacted soils.

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Schedule 7: Closure and Reclamation (Part H)

1. Materials for the **Closure Objectives and Criteria Workshop** shall include, but not be limited to, the following information:
 - a) Proposed Closure Objectives and proposed Closure Criteria; and
 - b) Demonstrate how Closure Objectives align with future land use of area, as a result of engagement with the appropriate Parties.

2. The **Remedial Action Plan** referred to in Part H, Condition 3 of this Licence shall include, but not be limited to the following information:
 - a) A plain language summary of the Plan;
 - b) A description of the overall goals for Closure and Reclamation of the Project, including expected future land use;
 - c) A description of the Closure and Reclamation planning team;
 - d) A description of engagement related to Closure and Reclamation planning, including a summary of completed and planned engagement, and links to the **Engagement Plan** referred to in Part B, Condition 20 for the Project;
 - e) A list of any other regulatory authorizations required for Closure and Reclamation of the Project;
 - f) A description of the pre-existing and current Project environment, including, but not limited to:
 - i) climatic conditions;
 - ii) physical conditions;
 - iii) chemical conditions;
 - iv) biological conditions;
 - v) legacy radiological conditions;
 - vi) any physical or chemical assessments of soil, water, and permafrost; and
 - vii) traditional uses.
 - g) A description of the Project, including, but not limited to:
 - i) site history;
 - ii) Project development;
 - iii) current status of the Project;
 - iv) maps delineating all disturbed areas, borrow material location, site facilities, hydrological features, and elevation contours; and
 - v) photographs.
 - h) A description of each Project component, including, but not limited to:
 - i) Rayrock Mine Openings; former Mine Camp and Mill Areas; Mill Pad and Mine Building Concrete; soils around Mill; North and South Tailings Containment Areas; spilled tailings; Waste Dump; Borrow Areas; Mill Lake; Mill Creek; Sun Rose mine shaft; Sun Rose Waste Rock piles; Sun Rose exploration workings; Sun Rose soils; Horn Plateau – REX showing exploration workings; exploration areas MK, GS, and TED; barge landing; Rayrock power line; new Camp infrastructure; site roads; road constructions; sumps, pits, and culverts; and water treatment facilities;
 - ii) Areas affected by spills of Unauthorized Discharges; and
 - iii) Other areas affected by Project activities.
 - i) For each Project component identified in condition (h) above, a description of Closure and Reclamation plans, including, but not limited to:
 - i) Closure Objectives and Criteria;

- ii) Preferred Closure and Reclamation option and method;
- iii) Water management and restoration of natural drainage;
- iv) predicted environmental effects during and after Closure and Reclamation activities;
- v) post-closure monitoring, maintenance, and reporting;
- vi) uncertainties and contingencies;
- vii) Climate Change considerations; and
- viii) Closure and Reclamation Research plans.
- j) An implementation schedule that includes final Closure and Reclamation activities;
- k) Consideration of Closure and Reclamation options for activities related to operational activities at site; and
- l) Updated project uncertainties.

3. The **Post-Closure Monitoring and Maintenance Plan** referred to in Part H, Condition 5 of this Licence shall include, but not be limited to, the following information:

- a) Proposed scope and schedule for completion and submission of Performance Assessment Reports for each specific component of the Project;
- b) Indication of how the following have been considered and rationale for:
 - i) Inclusion of Traditional Knowledge monitoring and Elders' site visits;
 - ii) Site drainage monitoring during freshet and during/following precipitation;
 - iii) Airborne dust monitoring;
 - iv) Radon monitoring;
 - v) Receptor monitoring for vegetation, insects, and animals;
 - vi) Uranium decay radionuclide analysis in water; and
 - vii) Consultation with Th̄çh̄q Government for sampling sites.
- c) Description of:
 - i) Site history and history of site remediation;
 - ii) Drivers for site monitoring;
 - iii) Expected outcomes;
 - iv) How progress toward achieving closure criteria will be monitored;
 - v) Residual liabilities;
 - vi) Aquatic Monitoring Program for hydrology, Surveillance Network Program, Sediment Monitoring, Benthic Monitoring, Fish monitoring;
 - vii) Terrestrial monitoring program for geotechnical monitoring, revegetation monitoring, and terrestrial animal monitoring;
 - viii) Sediment and erosion control measures for suspended sediment post-remediation;
 - ix) Monitoring schedule;
 - x) How Th̄çh̄q Government and Th̄çh̄q Citizens will be involved in the monitoring program;
 - xi) Routine and potential non-routine maintenance for each component of the site;
 - xii) An estimate of the approximate design life of the CDF geomembranes, CDF liners, and any other structures that have limited life spans; and
 - xiii) A summary description of how CDF geomembranes, CDF liners, and any other structures that have limited life spans would be managed.

ANNEX A: Surveillance Network Program

LICENSEE: CIRNAC-CARD

LICENCE NUMBER: W2020L8-0003

EFFECTIVE DATE OF LICENCE: November 18, 2021

EFFECTIVE DATE OF SURVEILLANCE NETWORK PROGRAM: November 18, 2021

Part A – Surveillance Network Program Description and Monitoring Requirements

1. The location of sampling site and specific monitoring requirements area as follows:

Surveillance Network Program (SNP) Station 1663-1

Description:	Sherman Lake B
Location:	UTM 11V (NAD 83) 7035566N, 522833E
Sampling Frequency:	Monthly during open water and Construction activities Bi-weekly* during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	Represents a location part way between work being performed at the North TCA and the location of water discharge from the Mill Lake water treatment, allowing trend analysis of effects from either 1663-4 or 1663-8.
Status:	Active

SNP Station 1663-2

Description:	Gamma Drainage Route A
Location:	UTM 11V (NAD 83) 7034745N, 522195E
Sampling Frequency:	Monthly during open water and Construction activities Bi-weekly during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	Tests for the effects of run off from the South Tailings cap repair. The South TCA and Gamma Lake is the only affected section of the Rayrock site to not drain through Lake A. This change reflects the fact that Gamma Lake is monitored but is not a Point of Compliance with associated EQCs.

Status:	Active
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SNP Station 1663-3

Description:	Beta Lake B
Location:	UTM 11V (NAD 83) 7035430N, 522440E
Sampling Frequency:	Monthly during open water and Construction activities Bi-weekly during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	Tests for the effects of run off from the North Tailings cap repair
Status:	Active

SNP Station 1663-4

Description:	Alpha Lake B
Location:	UTM 11V (NAD 83) 7035524N, 522561E
Sampling Frequency:	Monthly during open water and Construction activities Bi-weekly during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	Tests for the effects of run off from the North Tailings cap repair
Status:	Active

SNP Station 1663-5

Description:	Sherman Lake Water Intake
Location:	UTM 11V (NAD 83) 7034732.2N, 522948.8E
Sampling Frequency:	Monthly during camp operation Bi-weekly during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)

Rationale:	To test water for use in the camp.
Status:	Active

SNP Station 1663-6

Description:	Lake A-G
Location:	UTM 11V (NAD 83) 7034281N 523544E
Sampling Frequency:	Monthly during open water Bi-weekly during immediately upstream Construction activities
Sampling Parameters:	Bi-weekly and Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test water quality leaving the Rayrock site.
Status:	Active

SNP Station 1663-7

Description:	Treated Effluent Discharge from Mill Lake Water Treatment Facility to Sherman Lake
Location:	Outfall location is approximately 70 metres northeast of Sherman Lake L and northeast of Sherman Lake L and approximately 150 meters from the Sherman Lake shoreline.
Sampling Frequency:	Prior to Discharge; Weekly during Discharge; monthly for acute toxicity
Sampling Parameters:	Weekly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g) Monthly: Acute toxicity ^(h)
Rationale:	To verify the efficacy of the Mill Lake water treatment process and represents the Mill Lake SNP Point of Compliance. Sampling only to occur during periods of discharge.
Status:	Active

SNP Station 1663-8

Description:	Sherman Lake L
Location:	UTM 11V (NAD 83) 7035950N, 523320E
Sampling Frequency:	Monthly during open water
Sampling Parameters:	Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test the water quality of Sherman Lake near the location of the Mill Lake water discharge to Sherman Lake.
Status:	Active

SNP Station 1663-9

Description:	New Control Lake A
Location:	UTM 11V (NAD 83) 7038516, 519063E
Sampling Frequency:	Monthly during open water
Sampling Parameters:	Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test the background water quality for regional trends.
Status:	Active

SNP Station 1663-10

Description:	Sherman Lake K
Location:	UTM 11V (NAD 83) 7036101N, 523218E
Sampling Frequency:	Monthly during open water
Sampling Parameters:	Monthly: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test the water quality of Sherman Lake near the location of the Mill Lake water discharge to Sherman Lake and at the principal benthic sampling area.
Status:	Active

SNP Station 1663-11

Description:	Camp wastewater
Location:	UTM 11V (NAD 83) 7035065N, 522675.9E
Sampling Frequency:	Prior to commencement of discharge. Weekly during discharge
Sampling Parameters:	Weekly: pH, mineral oil and grease, Total Suspended Solids, Biological Oxygen Demand, fecal coliforms, residual chlorine
Rationale:	To verify efficacy of the camp water treatment process and represents the camp SNP Point of compliance. Sampling only to occur during periods of discharge.
Status:	Active

SNP Station 1663-12

Description:	Mill Creek Inlet
Location:	TBD with Inspector approval – within ponded area of former Mill Lake and prior to flow to Mill Creek.
Sampling Frequency:	Monthly during open water if flow is detected
Sampling Parameters:	If flow detected: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test the water quality leaving former Mill Lake before entry to Mill Creek.
Status:	Inactive – to be activated post-remediation of Mill Lake.

SNP Station 1663-13

Description:	Mill Creek Outlet
Location:	TBD with Inspector approval – south outlet from Mill Creek to Sherman Lake
Sampling Frequency:	Monthly if flow is detected
Sampling Parameters:	If flow detected: In situ ecological ^(a) , major ions ^(b) , nutrients ^(c) , solids ^(d) , standard lab parameters ^(e) , total metals ^(f) , total radionuclides ^(g)
Rationale:	To test the water quality leaving Mill Creek before entry to Sherman Lake.

Status:	Inactive – to be activated post-remediation of Mill Lake.
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SNP Station 1663-14

Description:	Discharge of treated Effluent from Mill Lake Water Treatment Facility into Sherman Lake
Location:	X metres from outfall location (point of discharge).
Sampling Frequency:	Weekly during Discharge
Sampling Parameters:	TSS, turbidity
Rationale:	Monitoring to verify the effectiveness of the TSS EQC. Sampling should only occur during periods of Discharge.
Status:	Active

Commented [BS15]: Board staff are seeking input on the following:

- a) The need for additional SNP station(s) for monitoring in Sherman Lake during periods of Discharge.
- b) If SNP station(s) should be established at 100 m, 250 m, or both 100 and 250 m from the Discharge point.
- c) Whether the SNP station(s) should also be included as AEMP station(s).

Notes:

*Bi-weekly: every two weeks

- a) *In situ Ecological parameters on weekly basis shall include field multi-probe tests for temperature, conductivity, pH, redox potential, and dissolved oxygen;*
- b) *Major ions shall include alkalinity, calcium, chloride, fluoride, hardness, magnesium, potassium, sodium, and sulphate;*
- c) *Nutrients shall include total ammonia, total nitrate and nitrite, total phosphorus, and total organic carbon;*
- d) *Solids shall include Total Suspended Solids (TSS) and Total Dissolved Solids (TDS);*
- e) *Standard parameters measured at the lab shall include pH, temperature, and conductivity;*
- f) *Total metals shall include at a minimum total elemental analysis (the concentration of a metal in an unfiltered sample that is digested in strong nitric acid) for aluminum, arsenic, boron, barium, cadmium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc;*
- g) *Total radionuclides shall include at a minimum total elemental analysis for lead-210, polonium- 210, radium-226, thorium-230, and uranium-238;*
- h) *Acute toxicity analysis (multi-concentration) – Rainbow Trout and Daphnia*

magna; as described in Reference Method EPS 1/RM/13 – Biological Test Method: Reference method for Determining Acute Lethality of Effluents to Rainbow Trout and EPS 1/RM/14 – Biological Test Method: Reference for Determining Acute Lethality of Effluents to Daphnia magna.

2. The location of sampling sites is subject to approval of the Inspector.
3. More frequent sample collection may be required at the request of an Inspector.
4. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the edition of American Public Health Association's (APHA) Standard Methods for the Examination of Water and Wastewater current at the time of analysis, or by such other methods approved by an Analyst.
5. All analyses shall be performed in a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) for the specific analyses to be performed or as approved by an Analyst.
6. The Licensee shall comply with the approved Water Quality Monitoring Program Protocols and Quality Assurance/Quality Control Plan.
7. The Licensee shall annually review the approved Quality Assurance and Quality Control Plan and make any necessary revisions to reflect changes in operations or as directed by the Board. Revisions to the Plan shall be submitted to the Board for notification and to an Analyst for approval.
8. The Quality Assurance and Quality Control Plan shall be implemented as approved by an Analyst.
9. The Quality Assurance and Quality Control Plan shall first be submitted to an Analyst. If the Plan is not approved by an Analyst, the Licensee shall revise the Plan according to the Analyst's direction and re-submit it to the Analyst for further review. The Licensee shall provide a copy of the Analyst's decision or recommendation(s) to the Board.

Part B – Flow and Volume Measurements

1. The Licensee shall record the following information for inclusion into the monthly Surveillance Network Program report referred to in Part C, Item 2 of this Annex:
 - a. Weekly quantities, in cubic metres, of Water obtained from each approved source;
 - b. Weekly quantities, in cubic metres, of recycled Water, identifying both the source; and use;
 - c. Weekly quantities of Water, in cubic metres, used for dust control;
 - d. Weekly quantities, in cubic metres, of treated Lake water from the Mill Lake Water Treatment Facility;
 - e. Weekly quantities, in cubic metres, of all Discharges, identified by Discharge location;
 - f. The operational status of the Water Treatment Facility; and
 - g. Observations from inspections or sampling of importance to the SNP.

Part C – Reporting Requirements

1. The effective date of this Surveillance Network Program (SNP) is April 2022.
2. Beginning May 2022, and for every month thereafter during open water, the Licensee shall, within 60 days following the month being reported, submit to the Board and an Inspector, a Surveillance Network Program Report, which shall include, but not be limited to the following:
 - a. Electronic and tabular summaries of all data and information generated under Parts B and C of this Annex for the month being reported, including rationale for SNP stations where samples were not collected and results and interpretation of quality assurance/quality control procedures;
 - b. Graphical summaries and interpretation of the analytical results from the SNP samples collected at the points of compliance (SNP stations 1663-7, Mill Lake Water Discharge and 1663-11, Camp Wastewater) compared to the Effluent Quality Criteria under Part F of this Licence, for up to the previous two (2) consecutive years;
 - c. An explanation of any actions taken in response to any exceedances of the effluent quality criteria;
 - d. Information regarding the calibration and status of the meters and devices referred to in Part B, item 18 of this Licence; and
 - e. The coordinates of all SNP stations which were established within the month being reported, including an updated map identifying the locations of all the SNP stations; f) A tabular summary of cumulative water use.
3. The Licensee shall submit a scaled map of all Surveillance Network Program stations, including UTM Coordinates, 60 days after the issuance of this Licence and when revisions are made to the Surveillance Network Program stations

ANNEX B: Concordance Table of Items Requiring Submission

This table summarizes the information the Licensee is required to submit as per the Water Licence conditions.

Part of Licence	Item	Date
Part B, Condition 9	Notification Letter of review documents that don't require revisions	No later than May 31 each year
Part B, Condition 10	Revised plans or designs	A minimum of 90 days prior to proposed implementation date for changes.
Part B, Condition 19	Annual Water Licence Report	Annually, beginning May 31, 2022, and no later than May 31 thereafter.
Part B, Condition 21	Revised Engagement Plan	Within 90 days following effective date of Licence.
Part D, Condition 6	Confined Disposal Facility Design Plan	A minimum of 90 days prior to the commencement of Construction of the Engineered Structure
Part D, Condition 7	Confined Disposal Facility Construction Plan	Minimum 45 days prior to construction of Confined Disposal Facility
Part D, Condition 8	Sun Main Waste Rock Cover Design Plan	A minimum of 90 days prior to the commencement of Construction of the Engineered Structure
Part D, Condition 9	Sun Main Waste Rock Cover Construction Plan	Minimum 45 days prior to commencement of construction of Sun Main Waste Rock Cover
Part D, Condition 10	Mill Lake Water Treatment Facility Design and Construction Plan	A minimum of 90 days prior to the commencement of Construction of the Engineered Structure
Part D, Condition 11	Repair Design Drawings	Minimum 90 days prior to commencement of Construction for the Tailings Containment Areas or Decommissioned Waste Dump
Part D, Condition 14	As-Built Report	Within 90 days of completion of Construction of each Engineered Structure
Part E, Condition 4	Revised Waste Management Plan	A minimum of 90 days prior to commencement of Construction activities (with

		the exception of winter road Construction)
Part E, Condition 6	Revised Sediment and Erosion Control Plan	A minimum of 90 days prior to commencement of Construction activities (with the exception of winter road Construction)
Part E, Condition 8	Quarry Management Plan	Minimum 90 days prior to commencement of quarrying activities
Part E, Condition 10	Mill Lake Water Treatment Facility Operation and Maintenance Plan	Minimum 90 days prior to commencement of facility use
Part E, Condition 14	Geotechnical Inspection Report	Within 90 days of completion of geotechnical inspections
Part E, Condition 20	Water quality data for SNP Stations 1663-7 and 1663-11	A minimum of five days prior to commencing or resuming Discharge of Effluent.
Part F, Condition 2	AEMP Design Plan	Within 90 days of effective date of Licence
Part F, Condition 3	AEMP Re-Evaluation Report	Three years following implementation of AEMP Design Plan, and every three years thereafter, or as directed by the Board
Part F, Condition 4	Revised AEMP Design Plan	Every three years following implementation of the AEMP Design Plan, or as directed by the Board
Part F, Condition 5	AEMP Annual Report	Beginning May 31, 2023 and no later than May 31 of each year thereafter
Part F, Condition 7	Moderate or high Action Level exceedance	As per approved AEMP Design Plan timeframe
Part F, Condition 7	AEMP Response Plan	As per approved AEMP Design Plan, or as directed by the Board
Part G, Condition 3	Revised Spill Contingency Plan	A minimum of 90 days prior to the commencement of Construction activities (with the exception of winter road Construction)
Part G, Condition 4 (c)	Spill Notification	Immediately
Part G, Condition 4 (d)	Detailed Spill Report	Within 30 days of initially reporting the incident
Part H, Condition 2	Closure Objectives and Criteria Workshop materials	Two weeks in advance of scheduled workshop

Part H, Condition 3	Revised Remedial Action Plan	Within nine months of effective date of Licence
Part H, Condition 4	Closure and Reclamation Report	Within one year of completing Closure and Reclamation of the Project
Part H, Condition 5	Post-Closure Monitoring and Maintenance Plan	Within 90 days of completing Closure and Reclamation of the Project, or as directed by the Board
Part H, Condition 6	Performance Assessment Report	In accordance with Schedule 7, Condition 3(a)

ANNEX C – Revision History Table

The table below summarizes revisions made to the Licence since its effective date (as set out on the Cover Page).

Date	Location of Change	Description of Change
January 30, 2023	Part D, Conditions 6, 8, and 10	Update to submission timeline
October 13, 2023	Part A, Defined Terms; Part C, Condition 6	Rectification of clerical errors as described in email .
December 14, 2023	Annex A	SNP Update based on CIRNAC-CARD's SNP Update Request