



Box 32, Wekweètì, NT X0E 1W0  
Tel: 867-713-2500 Fax: 867-713-2502  
#1-4905 48<sup>th</sup> Street, Yellowknife, NT X1A 3S3  
Tel: 867-765-4592 Fax: 867-765-4593  
www.wlwb.ca

Pursuant to the *Mackenzie Valley Resource Management Act* and Regulations, the Wek'èezhii Land and Water Board, hereinafter referred to as the Board, hereby grants to:

**Arctic Canadian Diamond Company Ltd.**

**(Licensee)**

of **900-606 4 Street SW, Calgary, Alberta, T2P 1T1**

**(Mailing Address)**

Hereinafter called the Licensee, the right to alter, divert or otherwise use water subject to the provisions contained in the *Waters Act* and Regulations made thereunder and subject to and in accordance with the terms and conditions specified in this Licence.

Licence Number: W2020L2-0004 (Formerly W2012L2-0001)

Licence Type: A

Water Management Area: NORTHWEST TERRITORIES 07

Location: LAC DE GRAS, NT

Purpose: WATER USE AND WASTE DISPOSAL

Description: DIAMOND MINING AND MILLING

Quantity of water not to be exceeded: SEE PART D, CONDITIONS 2 AND 3

Effective Date of Licence: 19-AUG-2021

Expiry Date of Licence: OCTOBER 18, 2023

This Licence issued and recorded at Yellowknife, NT includes and is subject to the annexed conditions.

**Wek'èezhii Land and Water Board:**

A handwritten signature in blue ink, appearing to be "Michael", written over a horizontal line.

**Witness**

A handwritten signature in blue ink, appearing to be "J. Maleski", written over a horizontal line.

**Chair**

**APPROVED BY:**

A handwritten signature in blue ink, appearing to be "B. J.", written over a horizontal line.

**Minister of Environment and Natural Resources**

## **TABLE OF CONTENTS**

Part A: Scope and Definitions

Part B: General Conditions

Annual Report – Schedule 1

Part C: Conditions Applying to Security Deposits

Security Requirements – Schedule 2

Part D: Conditions Applying to Water Use

Department of Fisheries and Oceans’ Guidelines and Protocols – Schedule 3

Part E: Conditions Applying to Dewatering and Drawdown

Dewatering Plan or Drawdown Plan – Schedule 4, Condition 1

Lynx Lake Dewatering Plan – Schedule 4, Condition 2

Jay Dyke and North Dyke Dewatering Plan – Schedule 4, Condition 3

Summary Reports – Schedule 4, Condition 4

Part F: Conditions Applying to Construction

Construction Plan – Schedule 5, Condition 1

Waste Rock Storage Area Design Report – Schedule 5, Condition 2

Jay Dyke and North Dyke Design Report – Schedule 5, Condition 3

Part G: Conditions Applying to Modifications

Part H: Conditions Applying to Waste Disposal

Wastewater and Kimberlite Processed Management Plan – Schedule 6, Condition 1

Waste Rock and Ore Storage Management Plan – Schedule 6, Condition 2

Jay Waste Rock Co-placement Study Design – Schedule 6, Condition 3

Seepage Surveys – Schedule 6, Condition 4

Misery Pit Water Quality Report – Schedule 6, Condition 5

Two Rock Outfall Report – Schedule 6, Condition 6

Misery Plume Delineation Report – Schedule 6, Condition 7

Tables for Hardness-Related EQC – Schedule 6, Condition 8

Part I: Conditions Applying to Contingency Planning

Hydrocarbon-Contaminated Materials Management Plan – Schedule 7

Part J: Conditions Applying to Aquatic Effects Monitoring

AEMP Design Plan – Schedule 8, Condition 1

Aquatic Effects Re-Evaluation Report – Schedule 8, Condition 2

AEMP Annual Report – Schedule 8, Condition 3

Response Plan – Schedule 8, Condition 4

Nitrogen Response Plan – Schedule 8, Condition 5

Part K: Conditions Applying to Closure and Reclamation

Interim Closure and Reclamation Plan – Schedule 9

Annex A: Schedules

Annex B: Surveillance Network Program

Annex C: Water Licence Revision History



## Part A: Scope and Definitions

### 1. Scope

- a) Subject to the terms and conditions of this Licence, the Licensee may divert water from Upper Panda Lake to Kodiak Lake, and use water and dispose of Waste for the purpose of mining the Panda, Koala, Koala North, Misery, Fox, and Jay kimberlite pipes, for operating the processing facilities and related infrastructure, and carrying out Reclamation associated with diamond mining within the Koala, Misery, King-Cujo, Desperation-Carrie, and Lac du Sauvage Watersheds of the Lac de Gras basin, Northwest Territories.

This Licence entitles the Licensee to use water, Dewater Sable, Pigeon, and Beartooth Lakes for the purpose of mining, to Drawdown Two Rock Lake, divert Pigeon Stream around the Pigeon pit, pipe water from Bearclaw Lake outflow around Beartooth pit, and deposit Processed Kimberlite into a Processed Kimberlite Containment Area for the purpose of creating a pit lake. The Licensee may also dispose of Waste for industrial undertakings in diamond mining and processing, production, Reclamation and associated uses in the Koala, Pigeon, and Sable watersheds, Northwest Territories as shown on Figure 6, 8, & 10 of the Class A Water Licence and Land Use Permits supporting documents, submitted August 21, 2001.

This Licence entitles the Licensee to Dewater Lynx Lake, use water, dispose of Waste, and divert runoff around the Lynx pit, for the purposes of mining the Lynx kimberlite pipe and carrying out Reclamation of the Lynx Development.

This Licence also entitles the Licensee to Dewater a portion of Lac du Sauvage, use water, dispose of Waste, and divert streams B0 and Ac35 around the perimeter of the Dewatered area, for the purposes of mining the Jay kimberlite pipe and carrying out Reclamation of the Jay Development, as shown in Map 3.1-3 of the Updated Project Description submitted June 7, 2016.

This Licence also entitles the Licensee to use water, dispose of Waste, and divert Groundwater inflows for the purposes of underground mining of the Misery kimberlite pipe and carrying out Reclamation of the Misery Underground Development, as described in the Application submitted August 15, 2017 and the additional information submitted during the regulatory process.

The activities listed above are to be conducted as described in the Environmental Impact Assessments.

- b) This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of Waste of any type in any waters or in any place under any conditions where such Waste or any other Waste that results from the deposit of such Waste may enter any waters.
- c) Compliance with the terms and conditions of this Licence does not excuse the Licensee from its obligation to comply with the requirements of any applicable Federal, Territorial, Tłı̨chǫ, or Municipal laws.



## 2. Definitions

**"Acid/Alkaline Rock Drainage (ARD)"** means the production of acidic or alkaline leachate, Seepage or drainage from underground workings, ore piles, Waste Rock, Processed Kimberlite, and overburden that can lead to the release of metals to Groundwater or surface water during the life of the mine and after mine closure.

**"Act"** means the *Waters Act*.

**"Action Level"** means a predetermined change, to a monitored parameter or other qualitative or quantitative measure, that requires the Licensee to take appropriate actions that may include, but that are not limited to: further investigations, changes to operations, or enhanced mitigation measures.

**"Analyst"** means an Analyst designated by the Minister under subsection 65(1) of the Act.

**"Aquatic Effects Monitoring Program"** means a monitoring program designed to determine the short- and long-term effects in the Receiving Environment resulting from the Project; to evaluate the accuracy of impact predictions; to assess the effectiveness of planned impact mitigation measures; and to identify additional impact mitigation measures to reduce or eliminate environmental effects.

**"Back-flooding"** means the diversion of water into open pits or into the area enclosed by the Jay and North dykes, for Reclamation purposes.

**"Board"** means the Wek'èezhii Land and Water Board established under section 57.1 of the *Mackenzie Valley Resource Management Act*.

**"Coarse Processed Kimberlite"** means coarse material, as defined in the approved **Wastewater and Processed Kimberlite Management Plan**, rejected from the process plant after the recoverable diamonds have been extracted.

**"Collection and Settling Ponds"** are containment structures used to collect water and/or Waste or to settle solids suspended in Minewater. This definition does not include Sumps and Collection and Settling Ponds that are adjacent to active mining areas or within an open pit such that all Seepage or overflow would flow into the pit.

**"Contaminated Snow Containment Facility"** is the lined area set aside within the Waste Rock Storage Areas for the containment of snow and ice contaminated by hydrocarbons and other products as approved of in the **Hydrocarbon-Contaminated Materials Management Plan**.

**"Construction"** means any activities undertaken to construct or build any components of, or associated with, the development of the Project.

**"Dam"** means an Engineered Structure that meets the definition of a dam under the *Dam Safety Guidelines* and is intended to contain, withhold, divert, or retain water or Waste. This includes the Jay Dyke and North Dyke.

**"Dam Safety Guidelines"** means the Canadian Dam Association's (CDA) *Dam Safety Guidelines*, 2007 or subsequent editions. The scope and applicability of the *Dam Safety Guidelines* referred to in this Licence, is presented in section 1 of the DSG.

**"Dewatering"** means the removal of all water from a natural water body or the portion of a natural waterbody enclosed by Engineered Structures.

**"Discharge"** means the direct or indirect release of any water or Waste to the Receiving Environment.



**"Drawdown"** means the partial removal of water from a natural water body or the portion of a natural waterbody enclosed by Engineered Structures.

**"Dredging"** means excavating and moving lake-bottom sediments and glacial till from below the ordinary high water mark and from the bottom of Lac du Sauvage in the area of the footprints of the dykes.

**"Engineered Structure"** means any structure or facility designed and approved by a Professional Engineer.

**"Environmental Impact Assessments"** means one or all of the 1995 Environmental Impact Assessment of the 1994 NWT Diamonds Project Description conducted under the EARP Guidelines Order, or the Environmental Assessment of Licence application N7L2-1736 conducted under Part 5 of the *Mackenzie Valley Resource Management Act*, or EA 13-14-01 conducted under Part 5 of the *Mackenzie Valley Resource Management Act* or all of them as the context requires.

**"Fine Processed Kimberlite"** means fine material, as defined in the approved **Wastewater and Processed Kimberlite Management Plan**, rejected from the process plant after the recoverable diamonds have been extracted.

**"Freeboard"** means the vertical distance between the water line and the effective water containment crest on the upstream slope of a dam or dyke.

**"Frozen Core"** means a permafrost core comprised of frozen ice-saturated aggregate material which functions as an impervious barrier to water, Waste, or Processed Kimberlite.

**"Geochemistry Baseline Report"** means the report titled "Annex VIII: Geochemistry Baseline Report for the Jay Project" submitted to the Mackenzie Valley Environmental Impact Review Board as part of the Jay Project Developer's Assessment Report (September 2014) for EA 1314-01.

**"Groundwater"** means all water below the ground surface.

**"Inspector"** means an Inspector designated by the Minister under subsection 65(1) of the Act.

**"Jay Development"** means all of the activities and facilities associated with the Construction, operation, and Reclamation of the Jay pit.

**"Jay Dyke"** means the horseshoe-shaped water-retaining Engineered Structure which is intended to isolate the portion of Lac du Sauvage containing the Jay kimberlite pipe, so that Dewatering and open-pit mining of kimberlite can occur.

**"Jay Dyke Review Panel"** means the expert panel established by the Licensee in accordance with Jay Report of Environmental Assessment Measure 4-4.

**"Jay Report of Environmental Assessment"** means the Report of Environmental Assessment and Reasons for Decision for EA 1314-01, dated February 1, 2016.

**"King Pond Settling Facility (KPSF)"** comprises the basin and associated containment structures as generally described in the application for renewal of Water Licence N7L2-1616 filed on December 12, 2003 and given file number MV2003L2-0013 [see Figure 1.6c in the Mining Industry Questionnaire] or as modified in subsequent plans and/or drawings as approved by the Board.



**"Land Farm"** comprises the lined, engineered facility designed to contain and treat, using bioremediation, hydrocarbon contaminated sediments and soil with an average diameter less than 4 cm.

**"Letter of Acceptance"** means a letter signed by the Jay Dyke Review Panel members that states the Panel's opinion that reviewed plans and materials meet good engineering standards and practice and should prevent significant adverse effects to the environment.

**"Licensee"** means the holder of this Licence.

**"Long Lake Containment Facility"** comprises the basin and containment structures that are designed to contain Processed Kimberlite and other Waste as described in the application for renewal of Water Licence N7L2-1616 filed on December 12, 2003 and given file number MV2003L2-0013 [as shown in Figure 5.2a in the Mining Industry Questionnaire] or as modified in subsequent plans and/or drawings as approved by the Board.

**"Lynx Development"** means all of the activities and facilities associated with the Construction, operation, and Reclamation of the Lynx pit.

**"Management Plans"** means the specific plans required by the Board under this Water Licence.

**"Maximum Average Concentration"** means the running average of any four (4) consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the "Surveillance Network Program".

**"Mine Plan"** means the life of mine plan as updated by the Licensee from time to time for sequencing of the development of the Project.

**"Minewater"** includes runoff from facilities associated with the Project and all water or Waste pumped or flowing out of any open pit or underground mine.

**"Minister"** means a duly appointed member of the Executive Council who is responsible for the Act or the department responsible for administering that Act.

**"Misery Development"** means all of the activities and facilities associated with the Construction, operation, and Reclamation of the Misery pit.

**"Misery Pit Minewater Management Facility"** means the mined-out Misery pit which will be used for storage of Minewater related to the Misery Underground Development and during the Jay pit Dewatering phase and during mine operations, as described in the approved **Wastewater and Processed Kimberlite Management Plan**.

**"Misery Underground Development"** means all of the activities and facilities associated with the Construction, operation and Reclamation of the underground mine at Misery Pit.

**"Modification"** in respect of a structure, means a change, other than an expansion, that does not alter the purpose or function of a structure.

**"North Dyke"** means a small water-retaining dyke constructed near the north abutment of the Jay Dyke, forming a portion of the structures that will isolate the Jay kimberlite pipe from Lac du Sauvage.

**"Phase I Tailings Containment Area"** comprises the containment basin and the Engineered Structures designed to contain Processed Kimberlite as described in Drawing Number 11522-1, Sheets 1 and 2, titled "BHP Minerals



Canada Ltd. – NWT Diamonds - Phase I Tailings Dam, As Built Plan and As Built Cross Sections" scale 1:100, date stamped on July 28, 1994.

**"Pigeon Development"** means all of the activities and facilities associated with the Construction, operation, and Reclamation of the Pigeon pit.

**"Processed Kimberlite"** means material rejected from the process plant after the recoverable diamonds have been extracted.

**"Processed Kimberlite Containment Area"** means those locations at which the Licensee may deposit Processed Kimberlite, as approved by the Board.

**"Professional Engineer"** means a person who is registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists in accordance with the *Engineering and Geoscience Professions Act*. S.N.W.T. 2006, V.16, or subsequent editions, as a Professional Engineer, and whose principal field of specialization is appropriate to address the components of the Project at hand.

**"Project"** means the EKATI Diamond Mine operation in its entirety and associated activities as described in Part A, Condition 1 (a) of this licence.

**"Racetrack"** means the designated area used for the disposal of the decanted water or Waste from the Land Farm and the Contaminated Snow Containment Facility, or other sources of Minewater, as described in the approved **Waste Rock and Ore Storage Management Plan**.

**"Receiving Environment"** means, for the purpose of this Licence, the natural aquatic environment that receives any deposit or Discharge of Waste, including Seepage or Minewater, from the Project.

**"Reclamation"** means activities which facilitate the return of affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and the surrounding environment.

**"Regulations"** are those Regulations promulgated pursuant to section 63 of the Act.

**"Response Framework"** is a systematic approach to responding when the results of a monitoring program indicate that an Action Level has been reached.

**"Response Plan"** is a part of the Response Framework that describes the specific actions to be taken by the Licensee in response to reaching or exceeding an Action Level.

**"Sable Development"** means all of the activities and facilities associated with the Construction, operation, and Reclamation of the Sable pit.

**"Sable, Pigeon, and Beartooth Development"** means all of the activities and facilities associated with the Construction, operation and Reclamation of the Sable, Pigeon, and Beartooth pits.

**"Seepage"** includes water or Waste that drains through or escapes from any structure designed to contain, withhold, divert or retain water or Waste, including Waste Rock Storage Areas.

**"Sewage"** means all toilet Waste and greywater.

**"Sewage Treatment Facilities"** means the facilities that are designed to contain and treat Sewage.



**"Significance Threshold"** means a level of environmental change in any monitored parameter which, if reached, would result in a significant adverse effect.

**"Sump"** is a storage facility constructed to temporarily collect, hold, or transfer water and/or Waste within the Project.

**"Traditional Knowledge Management Framework"** is a document that describes protocols for collecting, storing, managing, and using Traditional Knowledge and will apply to the lifetime of the Jay Project (Construction, operations and closure phases), as described in Measure 7-1 of the Jay Report of Environmental Assessment and required by Land Use Permit W2013D0007.

**"Two Rock Sedimentation Pond"** means the containment structure that is designed to contain the Minewater from the Sable pit during operation, drainage from the Waste Rock Storage Area, and the turbid water and solids fraction of the lake sediments after lake Dewatering and stripping as described in the document titled "Preliminary Design of Water Control Structures for Sable, Pigeon and Beartooth Pit Developments" prepared by EBA Engineering Consultants Ltd., April, 2000.

**"Unauthorized Discharge"** is a release or Discharge of any water or Waste not authorized under this Licence.

**"Waste"** means any substance defined as Waste by section 1 of the Act.

**"Waste Rock"** means all unprocessed rock materials that are produced as a result of mining operations.

**"Waste Rock Storage Area"** means the facilities where Waste Rock, Coarse Processed Kimberlite, and other materials as approved by the Board are deposited in accordance with this Licence.

**"Water Supply Facilities - Grizzly Lake"** comprises the area and associated intake infrastructure at Grizzly Lake as identified in Drawing Number D-U150-51-9-0009 titled, "H.A. Simons Ltd., NWT Diamonds Project, Water System, Fresh Water Supply - Plans and Sections", dated July 29, 1996.

**"Water Supply Facilities - Little Lake"** comprises the area and associated intake infrastructure at Little Lake.

**"Water Supply Facilities - Thinner Lake Misery Camp"** comprises the area and associated intake infrastructure at Thinner Lake Misery Camp as identified in Drawing Number 230320-73-210-07, revision A, scale 1:500, titled "Potable Water Pumphouse Layout", dated October 26, 1995.

**"Zone S"** means the area within the Waste Rock Storage Areas designated for containment of Sewage solids and rock/sediments with an average diameter greater than 4 cm that have been contaminated by hydrocarbons.

**"Zone of Influence"** means an area within which there are positive or negative effects as a result of the Project.





## Part B: General Conditions

1. The Licensee shall ensure a copy of this Licence is maintained on site at all times.
2. The water use fee shall be paid annually by July 30<sup>th</sup> each year in advance of any water use, per subsection 8(1) of the Waters Regulations. In a cover letter accompanying this payment, the Licensee shall indicate which water sources, as outlined in Part D, Conditions 2 and 3, will be used, in the upcoming year.
3. The Licensee shall operate in accordance with any plans approved pursuant to the conditions of this Licence and with any revisions to the plans as may be made from time to time pursuant to the conditions of this Licence and as approved by the Board. If any plan is not approved by the Board, the Licensee shall revise the plan according to the Board's direction and re-submit it to the Board for approval.
4. The Licensee shall annually review the plans referred to in Part B, Condition 11; Part H, Conditions 1, 2, and 3; and Part I, Conditions 1 and 4; and shall revise the plans as necessary to reflect changes in operations or technology, or as requested by the Board. All revised plans shall be submitted to the Board for approval.
5. 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.
6. 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, pursuant to the conditions of this Licence.
7. The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be updated at the discretion of the Board.
8. Meters, devices, or other such methods used for measuring the volumes of water used and Waste Discharged shall be installed, operated, and maintained by the Licensee to the satisfaction of an Inspector.
9. The Licensee shall post and maintain signs necessary to identify the stations of the Surveillance Network Program to the satisfaction of an Inspector.
10. The Licensee shall file an **Annual Report** with the Board no later than April 30<sup>th</sup> of the year following the calendar year reported. The report shall contain the information set out in Schedule 1, Condition 1.
11. Within 90 days following the effective date of Amendment #4, the Licensee shall submit a revised **Engagement Plan**, in accordance with the Mackenzie Valley Land and Water Board's *Engagement Guidelines for Applicants and Holders of Land Use Permits and Water Licences*, June 2013, to the Board for approval.
12. Any revised Plan submitted to the Board under this Licence shall include a list of notable revisions to the Plan.
13. The Plans referred to in: Part E, Conditions 1, 2, and 3; Part F, Condition 2; Part H, Conditions 2, and 3; Part I, Condition 1 and 4; and Part K, Condition 8, shall be presented in a format consistent with the Mackenzie Valley Land and Water Boards' *Standard Outline for Management Plans*, unless otherwise approved by the Board.
14. Any reference to an Act, Regulation, Plan, or Guideline in this Licence is a reference to the most current version unless otherwise explicitly stated.



15. In conducting its activities under this Licence, the Licensee shall make best efforts to consider and incorporate any scientific information and Traditional Knowledge that is made available to the Licensee.
16. In each submission required by the Licence or a directive from the Board, the Licensee is to 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.
17. The Licensee shall operate in accordance with the **Traditional Knowledge Management Framework** that describes protocols for collecting, storing, managing, and using Traditional Knowledge, consistent with the Jay Report of Environmental Assessment Measure 7-1.
18. The Licensee shall notify the Inspector and the Board immediately of any non-compliance with the conditions of this Licence or any direction provided by the Board.



### **Part C: Conditions Applying to Security Deposits**

1. The Licensee shall post and maintain security deposits in accordance with Schedule 2.
2. Upon request of the Board, the Licensee shall submit an updated mine Reclamation liability estimate utilizing the current version of RECLAIM or another method acceptable to the Board.
3. The amount of the security deposit required by Part C, Condition 1 and Schedule 2 may be adjusted by the Board based on estimates of the current mine Reclamation liability referred to in Part C, Condition 2 of this Licence or based on such other information as may be available to the Board.
4. If the amount of the security deposit is adjusted by the Board as described under Part C, Condition 3, the Licensee shall post the revised amount with the Minister within 90 days of the Board giving notice of the revised amount.



**Part D: Conditions Applying to Water Use**

1. The Licensee may only obtain water for domestic purposes, processing, road watering, and associated uses from Long Lake Containment Facility, Koala South and East Sumps, Desperation Pond, King Pond Settling Facility, Two Rock Lake, Two Rock Sedimentation Pond, Falcon Lake, Lac de Gras, Lac du Sauvage, Grizzly Lake, Little Lake, and Thinner Lake (Misery Camp), unless otherwise approved by the Board. Water will be withdrawn using the Water Supply Facilities, unless otherwise authorized in writing by an Inspector.
2. The annual quantity of fresh water withdrawn for any purpose excluding those one-time uses described in Part D, Condition 3, shall not exceed the limits set out below (in cubic metres):

<b>Water Source</b>	<b>Timing of Use (where applicable)</b>	<b>Maximum Quantity of Water Use (m<sup>3</sup>)</b>
<b>Two Rock Lake</b>		466,000
<b>Grizzly Lake</b>		200,000
<b>Little Lake</b>		400,000
<b>Thinner Lake</b>		15,000
<b>Falcon Lake</b>		100,000
<b>Lac de Gras</b>		100,000
<b>Lac du Sauvage</b>	construction phase	500,000
	operations phase	100,000

3. Fresh water withdrawn for a one-time water use, shall not exceed the limits set out below:

<b>Water Source</b>	<b>Timing of Use (where applicable)</b>	<b>Maximum Quantity of Water Use (m<sup>3</sup>)</b>
<b>Sable Lake</b>	Dewatering	560,400
<b>Pigeon Pond</b>	Dewatering	18,500
<b>Lac du Sauvage</b> (area enclosed by Jay Dyke and North Dyke)	Dredging	1,000,000
	Dewatering	32,000,000

A one-time water use fee is to be paid prior to the commencement of each one-time water use.

4. The Licensee may obtain water for road watering and associated uses from the Long Lake Containment Facility only if the water meets the effluent quality criteria established in Part H, Condition 21(a) of this Water Licence, or as otherwise approved by the Board.
5. The Licensee may obtain water for road watering and associated uses from the King Pond Settling Facility and Desperation Pond only if the water meets the effluent quality criteria established in Part H, Condition 21(b) or Part H, Condition 21(c) (respectively) of this Water Licence, or as otherwise approved by the Board.



6. The Licensee may obtain water for road watering and associated uses from Two Rock Sedimentation Pond only if the water meets the effluent quality criteria established in Part H, Condition 21(d) of this Water Licence, or as otherwise approved by the Board.
7. The Drawdown of Little Lake, Grizzly Lake, Thinner Lake, and Falcon Lake shall not exceed one metre from the following water levels:
  - a) Little Lake: 449.15 m;
  - b) Thinner Lake: 451.74 m;
  - c) Grizzly Lake: 468.05 m; and
  - d) Falcon Lake: 469.5 m;

Prior to withdrawing any water from these lakes, the Licensee shall clearly mark these elevations at each lake.

8. The Licensee shall construct and maintain the water intake(s) with a fish screen designed to prevent impingement and/or entrainment of fish. The fish screen shall be in accordance with the detailed guidance referred to in Schedule 3, Condition 1.
9. In one ice-covered season, total water withdrawal from a single waterbody shall not exceed 10% of the available water volume calculated using the appropriate maximum expected ice thickness in accordance with the detailed guidance referred to in Schedule 3, Condition 2.



## PART E: Conditions Applying to Dewatering and Drawdown

1. Prior to the commencement of Dewatering or Drawdown, excluding Grizzly Lake, Little Lake, Thinner Lake, Falcon Lake, Lynx Lake and the area enclosed by the Jay Dyke and North Dyke, the Licensee shall submit a **Dewatering Plan** or **Drawdown Plan** for each lake in accordance with Schedule 4, Condition 1 to the Board for approval.
2. At least 90 days prior to the commencement of Dewatering of Lynx Lake, the Licensee shall submit a **Lynx Lake Dewatering Plan** in accordance with Schedule 4, Condition 2 to the Board for approval. Dewatering of Lynx Lake shall not commence until the Plan is approved by the Board.
3. At least 90 days prior to the commencement of Dewatering of the area enclosed by the Jay Dyke and North Dyke, the Licensee shall submit a **Jay Dyke and North Dyke Dewatering Plan** in accordance with Schedule 4, Condition 3 to the Board for approval. Dewatering of the area enclosed by the Jay Dyke and North Dyke shall not commence until the Plan is approved by the Board.
4. All Discharge outflow structures shall be located so as to minimize erosion.
5. During the Dewatering or Drawdown of any lake, daily erosion inspections of the Discharge points shall be carried out and records of these inspections shall be kept for review upon the request of an Inspector. If any erosion is observed, the Licensee shall notify an Inspector and take the necessary corrective action to mitigate the erosion problem to the satisfaction of an Inspector.
6. The Licensee shall ensure that Drawdown rates from pumps do not exceed 2.55 m<sup>3</sup>/sec during May to July, inclusive, and 0.52 m<sup>3</sup>/sec during the remaining months.
7. Within 60 days of the completion of Dewatering or Drawdown of any water source, excluding Grizzly Lake, Little Lake, and Thinner Lake, the Licensee shall submit a **Summary Report** in accordance with Schedule 4, Condition 4 to the Board and an Inspector.



## Part F: Conditions Applying to Construction

1. At least ten days prior to Construction of any Engineered Structures related to water use or Waste disposal for the Project, excluding Sumps, that are included in an approved Management Plan, the Licensee shall submit the following items to the Board: design drawings stamped by a Professional Engineer, a Construction schedule, and any information required under Part F, Condition 2 of this Licence that was not included in an approved Management Plan.
2. At least 90 days prior to the start of Construction, of any facilities related to water use or Waste disposal for the Project, excluding Sumps, that are not part of a Board-approved management plan, the Licensee shall submit a **Construction Plan** in accordance with Schedule 5, Condition 1 to the Board for approval.
3. The Licensee shall annually review the **Construction Plan** described in Part F, Condition 2 for the Jay Dyke and North Dyke and shall submit updates to the Board for approval, at the following times:
  - a) a minimum of 90 days prior to any proposed changes to the requirements in the approved Plan;
  - b) a minimum of 90 days prior to Dredging for the Jay Dyke and/or North Dyke, if required; and
  - c) upon request of the Board.
4. At least 90 days prior to the commencement of Construction of any Waste Rock Storage Area, the Licensee shall submit a final **Waste Rock Storage Area Design Report** to the Board for approval. This Report shall be developed in accordance with Schedule 5, Condition 2 and the **Waste Rock and Ore Storage Management Plan** as described in Part H, Condition 3. Construction of the Waste Rock Storage Area shall not commence until the final **Waste Rock Storage Area Design Report** is approved by the Board.
5. At least 90 days prior to Construction of a quarry within the footprint of the Jay Waste Rock Storage Area, the Licensee shall submit an **updated stability analysis** stamped by a Professional Engineer, that reflects the quarry, to the Board for approval.
6. Prior to the start of Construction along the centerline of all containment structures and diversion channels related to the Sable, Pigeon, Beartooth, Lynx, and Jay Development, the Licensee shall undertake a comprehensive delineation program to identify soil, rock, and ground ice conditions and shall submit the results of the program to the Board.
7. A minimum of ten days prior to commencement of Construction at each of the Sable, Pigeon, Beartooth, Lynx, Jay, and Misery Underground Developments, the Licensee shall provide written notification to an Inspector.
8. The Licensee shall ensure that Construction of Engineered Structures is supervised by a Professional Engineer.
9. The Licensee shall ensure that each Waste Rock Storage Area is constructed in accordance with the approved final **Waste Rock Storage Design Report**.
10. Within 90 days of completion of the Construction of Engineered Structures related to water use and Waste disposal for the Project, excluding the Construction of Sumps, the Licensee shall submit an **As-built Report** to the Board. The Report shall be prepared by a Professional Engineer and shall include: as-built drawings,



documentation of field decisions that deviate from original plans, and any data used to support these decisions.

11. At least 60 days prior to Construction of either the Jay Dyke or North Dyke, the Licensee shall submit the final **Jay Dyke or North Dyke Design Report** in accordance with Schedule 5, Condition 3, stamped by a Professional Engineer, to the Board.
12. At least 60 days prior to Construction of either the Jay Dyke or North Dyke, the Licensee shall submit a **Letter of Acceptance** from the Jay Dyke Review Panel that indicates their review and acceptance of the final **Jay Dyke and North Dyke Design Report** referred to in Part F, Condition 11.
13. The Licensee shall construct the Jay Dyke and North Dyke according to the final **Jay Dyke and North Dyke Design Report** referred to in Part F, Condition 11.
14. The Licensee shall ensure that a Professional Engineer is retained as the Engineer of Record as described by the *Dam Safety Guidelines* for the Jay Dyke and North Dyke.
15. The Licensee shall consult with the Board, Government of the Northwest Territories, and the Independent Environmental Monitoring Agency in advance before any changes are made to the Jay Dyke Review Panel's composition and role or responsibilities.
16. Within 60 days of the effective date of Amendment #4, the Licensee shall submit the final **Terms of Reference** for the Jay Dyke Review Panel to the Board. The Licensee shall submit a revised **Terms of Reference** prior to implementation of any changes to the Panel's **Terms of Reference**.





## PART G: Conditions Applying to Modifications

1. The Licensee may, without written approval from the Board, carry out Modifications to Engineered Structures related to water use or Waste disposal provided the following requirements are met:
  - a) The Licensee has notified the Board and Inspector in writing of such proposed Modifications at least 45 days prior to beginning the Modifications;
  - b) The Modifications do not place the Licensee in contravention of either the Licence or the Act;
  - c) The Board has not, during the 45 days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than 45 days;
  - d) The Board has not rejected the proposed Modifications; and
  - e) An Inspector has authorized the proposed Modifications and provided a letter of notification to the Board.
2. Modifications for which all of the conditions referred to in Part G, Condition 1, have not been met, may be carried out only with written approval from the Board.
3. Within 90 days of the completion of Modifications referred to in Part G, Conditions 1 and 2 of this Licence, the Licensee shall provide as-built drawings stamped by a Professional Engineer to the Board.
4. Prior to carrying out Modifications to the Waste Rock Storage Areas, the Licensee shall submit an updated **Design Report** to the Board for approval.
5. Prior to carrying out Modifications to the Jay Dyke and/or North Dyke, the Licensee shall submit to the Board, an updated **Jay Dyke and North Dyke Design Report** and a **Letter of Acceptance** from the Jay Dyke Review Panel that indicates their review and acceptance of any Modifications proposed by the Licensee. The Licensee shall not carry out Modifications to the Jay Dyke or North Dyke until this is received by the Board.



## Part H: Conditions Applying to Waste Disposal

1. Prior to January 31<sup>st</sup>, 2014, the Licensee shall submit a **Waste Management Plan** in accordance with the Mackenzie Valley Land and Water Board's *Guidelines for the Development of a Waste Management Plan*, March 2011, or subsequent editions, to the Board for approval. The Plan shall describe how all Waste streams associated with the Project are managed, including references to other plans as necessary.
2. The Licensee shall submit a revised **Wastewater and Processed Kimberlite Management Plan**, in accordance with the detailed guidance set out in Schedule 6, Condition 1, to the Board for approval, at the following times:
  - a) A minimum of 60 days prior to the Construction of each of the Sable, Pigeon, and Lynx pits;
  - b) A minimum of 90 days prior to commencement of Dewatering of the area enclosed by the Jay Dyke and North Dyke to provide specific details related the scenarios (i.e., conditions and timing) under which the potential water-management contingency strategies for the Jay Development will be implemented;
  - c) A minimum of 90 days prior to the deposition of Processed Kimberlite into Panda and Koala pits to incorporate results of the freshwater cap optimization study required by Schedule 9, Condition 1(a);
  - d) Prior to the Misery pit reaching 40 percent of its storage capacity to include objectives, criteria, preliminary designs, triggers and Action Levels for potential operational water adaptive management strategies, based on operational monitoring data; and
  - e) As directed by the Board.
3. The Licensee shall submit a revised **Waste Rock and Ore Storage Management Plan** in accordance with the detailed guidance referred to in Schedule 6, Condition 2, to the Board for approval, at the following times:
  - a) A minimum of 90 days prior to the Construction of the Sable, Pigeon, Lynx, and Jay pits; and
  - b) As directed by the Board.
4. Within 90 days of the effective date of Amendment #4, the Licensee is to submit to the Board for approval a **Jay Waste Rock Co-placement Study Design** to optimize the co-placement strategy, determine the target NP/AP ratio, and identify the scale of mixing that will prevent Acid Rock Drainage from the Jay Waste Rock Storage Area. This Design is to be in accordance with Schedule 6, Condition 3.
5. During the term of this Licence, the Licensee shall conduct a Seepage survey of all constructed ore stockpiles and Waste Rock Storage Areas in accordance with Schedule 6, Condition 4.
6. Seepage water is to be collected and managed in accordance with the approved **Waste Rock and Ore Storage Management Plan** referred to in Part H, Condition 3.
7. All Dams, dykes, and other structures designed and constructed to contain, withhold, divert, or retain water or Wastes must comply with the *Dam Safety Guidelines*.
8. Two Rock Sedimentation Pond
  - a) The Licensee shall construct, operate, and maintain Two Rock Sedimentation Pond to engineering standards such that:



- i. a minimum Freeboard limit of 1.0 metre, or other Freeboard limit as recommended by a Professional Engineer, shall be maintained at all times;
  - ii. Seepage from the Two Rock Sedimentation Pond outlet dam is minimized at all times;
  - iii. any Seepage from the Two Rock Sedimentation Pond that occurs and does not meet effluent quality requirements, as specified in Part H, Condition 21(d), shall be collected and immediately returned to the Two Rock Sedimentation Pond;
  - iv. any constructed facilities that are eroded are repaired immediately; and
  - v. when not used for Reclamation material, the solids fraction of the Sable Lake sediments and the solids fraction of the Wastes deposited, shall be permanently contained within the Two Rock Sedimentation Pond.
- b) Inspections of Two Rock Sedimentation Pond, pipeline(s), and catchment basin(s) shall be carried out weekly when operating or more frequently as directed by the Inspector and records of these inspections shall be kept for review.
- c) An inspection of Two Rock Sedimentation Pond shall be carried out annually by a Professional Engineer. The Professional Engineer's full **Geotechnical Inspection Report** shall be submitted to the Board within 90 days of the inspection, including a covering letter from the Licensee outlining an implementation plan to respond to the Professional Engineer's recommendations.

#### 9. Long Lake Containment Facility

- a) The Licensee shall construct, operate, and maintain the Long Lake Containment Facility to design specifications such that:
- i. a minimum Freeboard limit of 5.5 metres (including 1.5 metres of Frozen Core and 4.0 metres of embankment material) for the perimeter dams shall be maintained at all times;
  - ii. a Freeboard limit of 1.0 metre for the intermediate dykes, or other Freeboard limit as recommended by a Professional Engineer, shall be maintained at all times;
  - iii. Seepage from the Long Lake Containment facility is minimized at all times;
  - iv. any Seepage from the Long Lake Containment Facility that occurs and does not meet effluent quality requirements as specified in Part H, Condition 21(a), shall be collected and immediately returned to the Long Lake Containment Facility;
  - v. any constructed facilities that are eroded are repaired immediately; and
  - vi. the solids fraction of all Processed Kimberlite deposited in the Long Lake Containment Facility shall be permanently contained.
- b) Weekly inspections of the Long Lake Containment Facility shall be carried out in consultation with a Professional Engineer and records of these inspections shall be kept for review. The Licensee shall perform more frequent inspections at the request of an Inspector; and
- c) An inspection of the Long Lake Containment Facility shall be carried out annually in July by a Professional Engineer. The Professional Engineer's full **Geotechnical Inspection Report** shall be submitted to the Board within 90 days of the inspection, including a covering letter from the Licensee



outlining an implementation plan to respond to any recommendations made by the Professional Engineer.

#### 10. Phase 1 Tailings Containment Area

- a) The Licensee shall construct, operate, and maintain the Phase 1 Tailings Containment Area to design specifications such that:
  - i. a minimum Freeboard limit of 1.0 metre, or other Freeboard limit as recommended by a Professional Engineer, shall be maintained at all times;
  - ii. Seepage from the Phase 1 Tailings Containment Area is minimized at all times;
  - iii. any Seepage from the Phase 1 Tailings Containment Area that occurs and does not meet effluent quality requirements as specified in Part H, Condition 21(a) shall be collected and immediately returned to the Phase 1 Tailings Containment Area; and
  - iv. any constructed facilities that are eroded are repaired immediately;
- b) Inspections of the Phase 1 Tailings Containment Area shall be carried out regularly in consultation with a Professional Engineer and records of these inspections shall be kept for review. The Licensee shall perform more frequent inspections at the request of an Inspector; and
- c) An inspection of the Phase 1 Tailings Containment Area shall be carried out annually in July by a Professional Engineer. The Professional Engineer's full **Geotechnical Inspection Report** shall be submitted to the Board within 90 days of the inspection, including a covering letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Professional Engineer.

#### 11. Collection and Settling Ponds

- a) The Licensee shall construct, operate, and maintain the Collection and Settling Ponds to design specifications such that:
  - i. a minimum Freeboard limit of 1.0 metre, or other Freeboard limit as recommended by a Professional Engineer, shall be maintained at all times;
  - ii. Seepage from the Collection and Settling Ponds is minimized at all times;
  - iii. any Seepage from the Collection and Settling Ponds that occurs and does not meet effluent quality requirements, as specified in Part H, Condition 21(b) for those facilities associated with the Misery Development, Condition 21(d) for those facilities associated with the Sable Development, Condition 21(e) for those facilities associated with the Jay Development, and Condition 21(a) for those facilities associated with the remainder of the Project, shall be collected and immediately returned to the Collection and Settling Ponds, the Long Lake Containment Facility, the Two Rock Sedimentation Pond, the Misery Pit Minewater Management Facility, the process plant, or another location approved by the Board; and
  - iv. any constructed facilities that are eroded are repaired immediately.
- b) Inspections of the Collection and Settling Ponds shall be carried out regularly in consultation with a Professional Engineer and records of these inspections shall be kept for review. The Licensee shall perform more frequent inspections at the request of an Inspector; and



- c) An inspection of the Collection and Settling Ponds shall be carried out annually in July by a Professional Engineer. The Professional Engineer's full **Geotechnical Inspection Report** shall be submitted to the Board within 90 days of the inspection, including a covering letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Professional Engineer.

12. Jay Dyke and North Dyke

- a) The Licensee shall construct, operate, and maintain the Jay Dyke and North Dyke to engineering standards such that at a minimum they comply with the *Dam Safety Guidelines*, and are in accordance with the following:
  - i. A minimum Freeboard limit of 1.4 meters for the North Dyke and 1.7 meters for the Jay Dyke, or other Freeboard limits as recommended by a Professional Engineer, shall be maintained at all times.
  - ii. Prior to the implementation of a Freeboard limit different from that described in Part H, Condition 12(a)(i), the Licensee shall submit a **Letter of Acceptance** from the Jay Dyke Review Panel that indicates their review and acceptance of the revised Freeboard limit.
- b) The Licensee shall install and maintain geotechnical instrumentation in the Water Retention Dykes as described in the **Jay Dyke and North Dyke Final Design Report**, described in Part F, Condition 11;
- c) Weekly inspections of the Jay Dyke and North Dyke shall be conducted and the records of these inspections and all monitoring records shall be kept for review upon request of an Inspector;
- d) Any deterioration or erosion of any Engineered Structures associated with the Jay Dyke and/or North Dyke shall be reported to an Inspector and repaired immediately; and
- e) An inspection of the Jay Dyke and North Dyke shall be carried out annually in July by a Professional Engineer. The Professional Engineer's full **Geotechnical Inspection Report** shall be submitted to the Board within 90 days of the inspection, including a covering letter from the Licensee outlining an implementation plan for addressing each of the Engineer's recommendations.

13. The Licensee shall conduct Dam Safety Reviews of the Jay Dyke and North Dyke commencing five years following the completion of Dewatering of the area enclosed by the Jay Dyke and North Dyke, and every five years thereafter or at a frequency approved by the Board.

14. The Dam Safety Reviews shall be conducted in accordance with the *Dam Safety Guidelines* by a Professional Engineer. The timing of the Dam Safety Review inspection will be at the discretion of the review Engineer conducting the Inspection.

15. Within six months of completing the Dam Safety Review inspection referred to in Part H, Condition 13, the Licensee shall submit to the Board:

- a) the Engineer's **Dam Safety Review Report**; and,
- b) an **Implementation Plan** outlining how the Licensee will respond to each recommendation in the Engineer's **Dam Safety Review Report**, including a rationale for any decisions that deviate from the Engineer's recommendations.



16. Within nine months of completing a Dam Safety Review inspection under Part H, Condition 13, the Licensee shall submit to the Board a **Letter of Acceptance** from the Jay Dyke Review Panel indicating their review and acceptance of the **Implementation Plan** described in Part H, Condition 15(b).
17. The Licensee shall provide water sampling results to an Inspector no later than five days prior to any planned Discharge of water or Waste to the Receiving Environment. Discharge shall not commence until authorized in writing by an Inspector.
18. Following completion of initial Dewatering, as described in the approved **Lynx Lake Dewatering Plan** required under Part E, Condition 2, all water from the Lynx Development shall be directed to the King Pond Settling Facility, unless otherwise approved by the Board.
19. Following completion of initial Dewatering, as described in the approved **Jay Dyke and North Dewatering Plan** required under Part E, Condition 3, all water from the Jay Development shall be directed to the Misery Pit Minewater Management Facility and/or Lynx pit, unless otherwise authorized by the Board.
20. All water from the Misery Underground Development shall be directed to the King Pond Settling Facility and/or Lynx pit, unless otherwise approved by the Board.
21. Effluent Quality Criteria (EQC)
  - a) All water or Waste from the Project that enters the Receiving Environment, including all Discharges at Surveillance Network Program Station 1616-30, but excluding those Discharges listed in Part H, Conditions 21(b), 21(c), 21(d), 21(e), and 25, shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Dissolved Aluminum	0.1	0.2
Total Antimony	0.01	0.02
Total Arsenic	0.004	0.008
Chloride	$116.6(\ln[\text{Hardness}]) - 204.1$	$2(116.6(\ln[\text{Hardness}]) - 204.1)$
Nitrate – N	$e^{(0.9518(\ln[\text{Hardness}]) - 2.032)}$	$2(e^{(0.9518(\ln[\text{Hardness}]) - 2.032)})$
Nitrite – N	0.06	0.12
Potassium	53	103
Total Selenium	0.001	0.002
Total Strontium	3.0	6.0
Sulphate	$e^{(0.9116(\ln[\text{Hardness}]) + 1.712)}$	$2(e^{(0.9116(\ln[\text{Hardness}]) + 1.712)})$
Total Suspended Solids	15	25
Total Petroleum Hydrocarbons	3.0	5.0

Hardness to be used in the equations shown above is the hardness as analyzed from the sample collected at the same time at Surveillance Network Program Station 1616-30, with the following limits:

- i. for nitrate and chloride: up to a maximum hardness of 160 mg/L (if hardness exceeds 160 mg/L, 160 mg/L will be used in the equations); and



- ii. for sulphate: up to a maximum hardness of 115 mg/L (if hardness exceeds 115 mg/L, 115 mg/L will be used in the equations).

A quick-reference table of EQC for chloride, nitrate, and sulphate is included in Schedule 6, Condition 8.

- b) All water or Waste from the Lynx and Misery Developments that enters the Receiving Environment, including all Discharges at Surveillance Network Program Station 1616-43, but excluding those listed in Part H, Conditions 21 (c) and 25 shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Aluminum	0.17	0.34
Ammonia-N	1.7	3.4
Total Arsenic	0.0085	0.017
Cadmium	$1.7 \times [(10^{[0.83 \log(\text{Cujo Lake Hardness}) - 2.46]}) / 1000]$	$3.4 \times [(10^{[0.83 \log(\text{Cujo Lake Hardness}) - 2.46]}) / 1000]$
Chloride	$1.7 \times [116.6 \times \ln(\text{Cujo Lake Hardness}) - 204.1]$	Minimum of: $3.4 \times [116.6 \times \ln(\text{Cujo Lake Hardness}) - 204.1]$ OR $10^{[0.297 \log(\text{KPSF Hardness}) + 2.232]}$
Chromium	0.0017	0.0034
Total Copper	0.0034	0.007
Iron	0.51	1
Nitrate – N	$1.7(e^{(0.9518(\ln[\text{Hardness}]) - 2.032)})$	$3.4(e^{(0.9518(\ln[\text{Hardness}]) - 2.032)})$
Phosphate	0.017	0.034
Potassium	41	82
Sulphate	$1.7(e^{(0.9116(\ln[\text{Hardness}]) + 1.712)})$	$e^{(0.4163(\ln[\text{Hardness}]) + 4.878)}$
Total Suspended Solids	15	25
Uranium	0.026	0.033
Total Petroleum Hydrocarbons	3.0	5.0

Hardness to be used in the equations shown above is the hardness as analyzed from the most recent sample collected during open water at Surveillance Network Program Station 1616-48 (Cujo Lake), with the following limits:

- i. for Maximum Average Concentration for chloride: up to a maximum hardness of 160 mg/L (if hardness exceeds 160 mg/L, 160 mg/L will be used in the equation);
- ii. for the maximum concentration of any grab sample for chloride: up to a maximum hardness of 300 mg/L in KPSF (if hardness exceeds 300 mg/L, 300 mg/L will be used in the second equation for the maximum concentration of any grab sample); and
- iii. for cadmium: up to a maximum hardness of 280 mg/L (if hardness exceeds 280 mg/L, 280 mg/L will be used in the equations).



- iv. for nitrate: up to a maximum hardness of 160 mg/L (if hardness exceeds 160 mg/L, 160 mg/L will be used in the equations); and
- v. for sulphate: up to a maximum hardness of 65 mg/L (if hardness exceeds 65 mg/L, 65 mg/L will be used in the equations).

A quick-reference table of EQC for nitrate and sulphate is included in Schedule 6, Condition 8.

- c) All Discharges from Desperation Pond at Surveillance Network Program Station 1616-47 shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Ammonia-N	1.34	2.68
Total Copper	0.004	0.008
Nitrate – N	$2.27(e^{(0.9518(\ln[\text{Hardness}]) - 2.032)})$	$4.54(e^{(0.9518(\ln[\text{Hardness}]) - 2.032)})$
Potassium	41	82
Sulphate	$2.27(e^{(0.9116(\ln[\text{Hardness}]) + 1.712)})$	$e^{(0.4163(\ln[\text{Hardness}]) + 4.878)}$
Total Suspended Solids	15	25
Total Petroleum Hydrocarbons	3.0	5.0

Hardness to be used in the equations shown above is the hardness as analyzed from the most recent sample collected during open water at Surveillance Network Program Station 1616-47, with the following limits:

- i. for nitrate: up to a maximum hardness of 160 mg/L (if hardness exceeds 160 mg/L, 160 mg/L will be used in the equations); and
- ii. for sulphate: up to a maximum hardness of 65 mg/L (if hardness exceeds 65 mg/L, 65 mg/L will be used in the equations).

A quick-reference table of EQC for nitrate and sulphate is included in Schedule 6, Condition 8.

- d) All water or Waste from the Sable Development that enters the Receiving Environment, including Discharges at Surveillance Network Program Station 0008-Sa3, but excluding those Discharges listed in Part H, Condition 25 shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Ammonia-N	4.0	8.0
Total Aluminum	1.0	2.0
Total Arsenic	0.050	0.10
Total Copper	0.02	0.04
Total Cadmium	0.0015	0.003





Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Chromium	0.02	0.04
Total Lead	0.01	0.02
Total Zinc	0.03	0.06
Total Nickel	0.05	0.1
Nitrite-N	1.0	2.0
Nitrate-N	20.0	40.0
Total Suspended Solids	15.0	25.0
Total Petroleum Hydrocarbons	3.0	5.0
Turbidity	10 NTU	15 NTU
Total Phosphorus	0.2	0.4

- e) All water or Waste from the Jay Development that enters the Receiving Environment, including all Discharges at Surveillance Network Program Station Jay-0005a/b, but excluding those listed in Part H, Condition 25, shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)	Annual Loading Limit
Chloride	lesser of  $0.8215(((116.6(\ln[\text{hardness}]) - 204.1)13,920,000 - 3,192,000)/1,152,000)$	$10^{(0.297(\text{Log}[\text{Effluent Hardness}]) + 2.232)}$	
	OR		
	$10^{(0.297(\text{Log}[\text{Effluent Hardness}]) + 2.232)}$		
Nitrate	$0.8215(((e^{(0.9518(\ln[\text{hardness}]) - 2.032})}13,920,000 - 38,300)/1,152,000)$ (mg N/L)	$1.6483(((e^{(0.9518(\ln[\text{hardness}]) - 2.032})}13,920,000 - 38,300)/1,152,000)$ (mgN/L)	
Total Ammonia	9 (mg N/L)	14 (mgN/L)	
Total Phosphorus			130-890 (kg P/yr)
Cadmium	0.0002	0.0003	
Chromium	0.003	0.006	
Cobalt	0.02	0.04	
Copper	0.006	0.02	
Iron	2	4	
Lead	0.02	0.04	



Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)	Annual Loading Limit
Uranium	0.033	0.033	
Dissolved Aluminum	0.4	0.8	
Total Suspended Solids	15	25	
Total Petroleum Hydrocarbons	3.0	5.0	

In the equations shown above, hardness refers to lake hardness, as analyzed in the most recent sample at SNP station Jay-0005c, and effluent hardness is analyzed in the most recent sample collected at SNP station Jay-0005a/b, with the following limits:

- i. for nitrate and chloride: a maximum hardness of 160 mg/L at SNP station Jay-0005c (if Hardness exceeds 160 mg/L, 160 mg/L will be used in the equations);
- ii. for chloride: a maximum effluent hardness of 300 mg/L at station Jay-0005a/b (if effluent hardness exceeds 300 mg/L, 300 mg/L will be used in the equations);

The total phosphorus annual loading limit is variable depending on the year of Discharge: Refer to Schedule 6 Condition 8 for limits that apply each year. Operational Discharge from Misery pit shall be managed to prevent the appearance of any visible hydrocarbon film on the surface of Lac du Sauvage. A quick-reference table of EQC for chloride, total phosphorus, and nitrate is included in Schedule 6, Condition 8.

- f) Any water or Waste from the Project that enters the Receiving Environment shall have a pH between 6.0 and 9.0, except surface runoff which shall have a pH between 5.0 and 9.0; and
- g) All water or Waste from the Project that enters the Receiving Environment, including Discharges at Surveillance Network Program Station 1616-30, 1616-43, 0008-Sa3, and Jay-0005a/b shall be non-acutely toxic as determined by the acute toxicity tests described in Part A in the attached Surveillance Network Program.

22. With submission of the revised Wastewater and Process Kimberlite Management Plan, required by Part H, Condition 2(d), the Licensee shall submit a **Misery Pit Update Report** to the Board. This Report shall include at minimum:

- a) summary comparing model predictions against measured water quality data in Misery pit, including but not limited to TDS and chloride;
- b) description of the stability of meromixis in Misery pit; and
- c) description of whether any additional evaluation is required.



23. At least two years prior to Discharge from the Misery pit, the Licensee will submit a **Misery Pit Water Quality Report** in accordance with Schedule 6, Condition 5 on the updated water quality model to the Board for approval. Discharge shall not occur from Misery pit until this Report is approved by the Board.
24. The Licensee shall direct all piped and pumped Sewage to the Sewage Treatment Facilities, or as otherwise approved by the Board.
25. All surface runoff during the Construction or Modification of any facilities designed to withhold, divert, or retain such runoff up to the end of Construction, as per the **Construction Plan**, shall prior to Discharge meet the criteria mentioned in Part H, Condition 21(a), (b), (c), (d), or (e) except for the following criterion:

Parameter	Maximum Average Concentration	Maximum Concentration of Any Grab Sample
total suspended solids	50 mg/L	100mg/L

26. The Licensee shall ensure that Construction of the Jay Dyke and North Dyke, and associated in-lake activities, meet the following criteria at SNP Station Jay-0010 to Jay-0015 inclusive, when active:
  - a) the maximum concentration for TSS remain below 50 mg/L in any daily sample;
  - b) the average concentration over any 30-day period shall not exceed 25 mg/L TSS;
  - c) all samples shall be taken on a depth-integrated basis; and
  - d) each depth-integrated sample shall consist of a continuous sample taken between 1 m from the lake bottom to 1 m below the lake surface.
27. The Licensee shall notify the Inspector on any day when weather conditions do not permit the collection of a TSS sample.
28. Erosion Mitigation:
  - a) erosion prevention structures that are satisfactory to an Inspector shall be used at all points where water or Waste is Discharged;
  - b) daily erosion inspections of Discharge points shall be carried out and records of these inspections shall be kept for review upon the request of an Inspector. If any erosion is observed, the Licensee shall notify an Inspector and take necessary corrective action to mitigate the erosion problem to the satisfaction of an Inspector.
29. The annual volumes of Discharge from Two Rock Sedimentation Pond shall not exceed 740,600 cubic metres per year during the operations phase.
30. At least one year prior to the commencement of Discharge from Two Rock Sedimentation Pond, the Licensee shall submit a **Two Rock Outfall Report** detailing the final proposed design of the outfall from Two Rock Sedimentation Pond into Horseshoe Lake to the Board for approval. This report shall be in accordance with Schedule 6, Condition 6.



31. Within eight months of the beginning of Discharge from Two Rock Sedimentation Pond, the Licensee shall submit a **Two Rock Plume Delineation Report** to the Board. This Report will include the results of a plume delineation study designed to describe dispersion of effluent into Horseshoe Lake from Two Rock Sedimentation Pond. This study should, at a minimum, be performed under worst-case conditions with respect to mixing within Horseshoe Lake and will be used to verify the SNP location proposed in Schedule 6, Condition 6(d). The location of SNP Station 0008-Sa9 may be moved as a result of this study.
32. Within 12 months of the beginning of Discharge from the Misery Pit Minewater Management Facility, the Licensee shall submit a **Misery Plume Delineation Report** to the Board. This Report will include the results of a plume delineation study designed to describe dispersion of effluent into Lac du Sauvage from the Misery Pit Minewater Management Facility. This Report shall be in accordance with Schedule 6, Condition 7. An updated plume delineation study may be required as directed by the Board.
33. At least 90 days prior to the deposition of Processed Kimberlite into the Panda and Koala pits, the Licensee shall submit a **Panda and Koala Deposition Study** to the Board for approval. This Study is to investigate how Fine Processed Kimberlite behaves once deposited into mined-out pits and the quality of the resulting supernatant water, and include an updated Panda and Koala Pits predictive water quality model.
34. At least six months prior to the commencement of Dewatering of the area enclosed by the Jay Dyke and North Dyke, the Licensee shall submit a **Jay Dyke and North Dyke Operation, Maintenance, and Surveillance Manual** in accordance with the *Dam Safety Guidelines* to the Board. This Manual shall include triggers for the use of a depressurization system.
35. At least six months prior to the commencement of Dewatering of the area enclosed by the Jay Dyke and North Dyke, the Licensee is to submit a **Letter of Acceptance** from the Jay Dyke Review Panel that indicates their review and acceptance of the **Jay Dyke and North Dyke Operation, Maintenance, and Surveillance Manual** referred to in Part H, Condition 34.
36. No later than 30 days following a material change to the **Jay Dyke and North Dyke Operation, Maintenance, and Surveillance Manual** referred to in Part H, Condition 34, the Licensee shall notify the Board and submit the revised Manual to the Board.
37. No later than six months following a material change to the **Jay Dyke and North Dyke Operation, Maintenance, and Surveillance Manual** referred to in Part H, Condition 34, the Licensee shall submit a **Letter of Acceptance** from the Jay Dyke Review Panel to the Board.
38. Potassium Toxicity Study
  - a) Within 90 days of the effective date of Amendment #5, the Licensee shall submit the **Potassium Toxicity Study Design** to the Board for approval. This study is to evaluate the toxicity responses of sensitive species using site water spiked with potassium concentrations at minimum 64 mg/L, 80 mg/L, and 100 mg/L. The Design must propose timelines for the submission of the Potassium Toxicity Study Report referred to in Part H, Condition 38(b).
  - b) The **Potassium Toxicity Study Report** shall include a summary of the results of the Study conducted in accordance with the approved **Potassium Toxicity Study Design** referred to in Part H, Condition 38(a), and identify any implications to potassium management at the Ekati Diamond Mine. The Report shall be submitted to the Board for approval.



39. The Licensee shall ensure that Discharge from the King Pond Settling Facility does not exceed 470,915 cubic metres (m<sup>3</sup>) annually.



## PART I: Conditions Applying to Contingency Planning

1. The Licensee shall review and update the Board-approved **Spill Contingency Plan** as necessary to reflect changes in operation and technology, as well as 60 days prior to the Construction of each of the Sable, Pigeon, Lynx, and Jay pits. Any proposed updates shall be in accordance with Indian and Northern Affairs Canada's *Guidelines for Spill Contingency Planning, 2007*, or subsequent editions, and shall be submitted to the Board for approval.
2. If, during the period of this Licence, an Unauthorized Discharge occurs or is foreseeable, the Licensee shall:
  - a) Implement the Spill Contingency Plan;
  - b) Report the incident immediately via the 24 Hour Spill Reporting Line (867) 920-8130 in accordance with the instructions contained in the Spill Report Form NWT 1752/0593 or subsequent editions; and
  - c) Submit a detailed report on each occurrence to an Inspector not later than 30 days after initially reporting the event.
3. All Unauthorized Discharges of water or Waste shall be reclaimed to the satisfaction of an Inspector.
4. The Licensee shall operate in accordance with the **Hydrocarbon-Contaminated Materials Management Plan**, as approved by the Board, which shall include the information set out in Schedule 7, Condition 1.



## **PART J: Conditions Applying to Aquatic Effects Monitoring**

1. The Licensee shall implement an Aquatic Effects Monitoring Program (AEMP) that meets the following objectives:
  - a) To determine the short- and long-term effects of the Project on the Receiving Environment;
  - b) To test the predictions made in the Environmental Assessment (EA) or in other submissions to the Board regarding the impacts of the Project on the Receiving Environment;
  - c) To assess the efficacy of mitigation measures that are used to minimize the effects of the Project on the Receiving Environment; and
  - d) To identify the need for additional mitigation measures to reduce or eliminate Project-related effects.

Results of the AEMP will be used to prevent or avoid adverse environmental effects through a **Response Framework** and regular evaluation of the AEMP.

2. The Licensee shall operate in accordance with the approved **AEMP Design Plan**. The Licensee shall submit a revised **AEMP Design Plan**, that satisfies the objectives of Part J, Condition 1, and the requirements of Schedule 8, Condition 1, to the Board for approval, at the following times:
  - a) At least one year prior to commencement of Construction at each of the Pigeon and Sable pits;
  - b) At least six months prior to commencement of Dewatering of Lynx Lake; and
  - c) Within six months of the effective date of Amendment #4.

The revised AEMP Design Plan shall include those sampling stations necessary to determine short- and long-term effects in the Receiving Environment as a result of the Pigeon, Sable, Lynx, or Jay Development.

3. The Licensee may at any time propose revisions to the **AEMP Design Plan** and shall review and revise the **AEMP Design Plan** as necessary to reflect directives from the Board. All revised plans shall be submitted to the Board for approval.
4. The Licensee shall review and revise, as necessary, the AEMP Design Plan every three years, or as directed by the Board. The Licensee shall submit a revised **AEMP Design Plan** that satisfies the objectives of Part J, Condition 1, and the requirements of Schedule 8, Condition 1, to the Board for approval.
5. Every three years, or as directed by the Board, the Licensee shall submit an **Aquatic Effects Re-Evaluation Report** that meets the following objectives and satisfies the requirements of Schedule 8, Condition 2 to the Board for approval:
  - a) To describe the Project-related effects on the Receiving Environment as measured from the Project inception and compared against Environmental Assessment (EA) predictions;
  - b) To update predictions of Project-related effects on the Receiving Environment based on monitoring results obtained since Project inception; and
  - c) To provide supporting evidence, if necessary, for proposed revisions to the **AEMP Design Plan**.



6. On or before March 31 each year, the Licensee shall submit an **AEMP Annual Report** to the Board for approval. This report shall include information relating to data collected in the preceding calendar year and which satisfies the requirements of Schedule 8, Condition 3.
7. Prior to February 15, 2014, the Licensee shall submit a **Response Framework**, which shall be integrated with the approved **AEMP Design Plan** and shall satisfy the requirements of Schedule 8, Condition 1(q) to the Board for approval.
8. The Licensee shall submit an update to the **Response Framework** referred to in Part J, Condition 7, in accordance with Schedule 8, Condition 1(q) to the Board for approval at the following times:
  - a) A minimum of one-year prior to Discharge from Two Rock Sedimentation Pond;
  - b) Within six months of the effective date of Amendment #4; and
  - c) A minimum of six months prior to Back-flooding of open pits from Lac du Sauvage.
9. If any Action Level defined in the approved **Response Framework** is exceeded, the Licensee shall:
  - a) Notify the Board within 60 days of when the exceedance is detected; and
  - b) Within 90 days of when the exceedance is detected, submit a **Response Plan** that satisfies the requirements of Schedule 8, Condition 4 to the Board for approval.
10. Prior to December 31, 2013, the Licensee shall submit a **Nitrogen Response Plan** to the Board for approval. The Plan shall have the objective of minimizing the amount of nitrogen that enters the Receiving Environment and shall satisfy the requirements set out in Schedule 8, Condition 5 to the Board for approval.
11. The Licensee shall implement **Response Plans** as and when approved by the Board.
12. The Licensee shall revise **Response Plans** as directed by the Board.
13. If not approved by the Board, the Plans and Framework referred to in Part J, Conditions 2, 7, 9(b) and 10 shall be revised and resubmitted in accordance with directives from the Board.
14. Prior to July 31, 2014, the Licensee shall conduct a special study to determine the toxicity of chloride on fingernail clams and shall submit the results of the study to the Board.
15. Prior to January 31, 2019, the Licensee is to submit the **Cujo Outflow Special Study Design** to the Board for approval. This Design is to propose details of the field surveys to be completed within streams B2, B3, and B4 to confirm outflows will be sufficient to ensure that access to spawning habitats is maintained for spring-spawning species.
16. The Licensee shall operate in accordance with the approved **Cujo Outflow Special Study Design**. The results of the Study conducted in accordance with the approved **Cujo Outflow Special Study Design** referred to in Part J, Condition 15 shall be submitted before January 31<sup>st</sup> of the year following open-water monitoring.





## PART K: Conditions Applying to Closure and Reclamation

1. The Licensee shall operate in accordance with the **Closure and Reclamation Plan** approved by the Board and shall endeavor to carry out progressive Reclamation of areas as soon as is reasonably practicable.
2. The Licensee shall revise the **Closure and Reclamation Plan** as directed by the Board and submit the revised Plan to the Board for approval. The Plan shall be in accordance with the Mackenzie Valley Land and Water Board and Aboriginal Affairs and Northern Development Canada's *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* and Schedule 9, Condition 1 of this Licence, and any additional direction by the Board.
3. The Licensee may at any time propose revisions to the Plan referred to in Part K, Condition 1 for approval by the Board.
4. Prior to December 31 of each year, the Licensee shall submit an annual **Closure and Reclamation Plan Progress Report** which shall be in accordance the Mackenzie Valley Land and Water Board and Aboriginal Affairs and Northern Development Canada's *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, and any additional direction from the Board.
5. A minimum of 24 months prior to the end of commercial operations, the Licensee shall submit a **Final Closure and Reclamation Plan** to the Board for approval.
6. Within 12 months of the effective date of Amendment #4, the Licensee shall submit the **Interim Closure and Reclamation Plan** Version 3.0 in accordance with the Mackenzie Valley Land and Water Board and Aboriginal Affairs and Northern Development Canada's *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, Schedule 9, Condition 1, and any additional direction by the Board.
7. The Licensee shall not permanently cover lakebed sediments and/or glacial till that result from the Construction of the Jay pit area and are deposited into the Jay Waste Rock Storage Area, or otherwise make this material unavailable for future use in Reclamation, unless approved by the Board.
8. At least six months prior to Back-flooding each of the open pits, the Licensee shall submit a **Back-flooding Plan** to the Board for approval. For the Jay and Misery pit, this shall include a description of adaptive management to protect fish habitat in the narrows between Lac du Sauvage and Lac de Gras.
9. The Licensee will make all reasonable efforts to establish and stabilize meromixis to ensure that water quality in the Misery pit and Jay pit is compatible with traditional uses after closure.
10. If the Licensee is unable to establish and stabilize meromixis as described in Part K, Condition 9, the Licensee will implement contingencies to ensure the pit lake water quality is compatible with traditional use after closure. The Licensee shall not implement any contingency until approved by the Board.
11. No pit lakes shall be reconnected to the Receiving Environment without approval from the Board.



Signed the 6<sup>th</sup> day of May 2021 on behalf of the Wek'èzhii Land and Water Board



Witness



Chair  
Wek'èzhii Land and Water Board



**Schedule 1**  
**Part B: General Conditions**

1. The **Annual Report** referred to in Part B, Condition 10 shall include, but not be limited to, the following information:

Measuring and Reporting on Water and Waste:

- a) The monthly and annual quantities in cubic metres of water obtained from any sources for the uses listed in Part D, Condition 2 and 3, where appropriate this is to differentiate between water diverted and water that has been otherwise used;
- b) The monthly elevations of water during the open-water season for Grizzly Lake, Little Lake, Thinner Lake, Upper Panda Lake, Cell E of the Long Lake Containment Facility, the King Pond Settling Facility, the Two Rock Sedimentation Pond, Misery pit during its use as the Misery Pit Minewater Facility, and Lynx pit during its use for Misery Underground Development and Jay Minewater management;
- c) The monthly and total quantities in cubic metres of water Dewatered from Sable, Pigeon, Two Rock Lakes, and Lac du Sauvage;
- d) The monthly and annual quantities in cubic metres of each Waste deposited into the Long Lake Containment Facility, King Pond Settling Facility, Phase 1 Tailings Containment Area, and Two Rock Sedimentation Pond, the Misery Pit Minewater Facility, and Lynx pit during its use for Misery Underground Development and Jay Minewater management;
- e) The monthly and annual quantities in cubic metres of any Discharges of water or Waste by location and nature of the Discharge;
- f) The monthly and annual quantities in cubic metres of Minewater pumped from each open pit and the underground mine and its deposit location;
- g) The monthly and annual quantities in cubic metres of treated Sewage effluent discharged from the Sewage Treatment Facilities;
- h) The monthly and annual quantities in cubic metres of Sewage solids removed from the Sewage Treatment Facilities;
- i) The monthly and annual quantities in cubic metres of recycled water, identifying both source and use;
- j) Tabular summaries of all data and information generated under the Surveillance Network Program and graphical summaries of parameters in the effluent quality criteria under Part H at the points of compliance (SNP stations 1616-30, 1616-43, 1616-47, 0008-Sa3, Jay-0005a/b) in an electronic format acceptable to the Board. The Licensee shall provide raw data in electronic form upon request by the Board;
- k) The monthly and annual quantities of overburden removed from dyked area;



Management Plans and Activities:

- l) A summary of Dewatering and Drawdown activities in accordance with Part E, Conditions 1-3;
- m) A summary of Construction activities and an updated Mine Plan;
- n) A summary of all work carried out over the last year under the approved Management Plans referred to in Part H, Conditions 1 through 3 of this Licence including:
  - i. the quantity of kimberlite processed through the process plant;
  - ii. the quantity of Waste Rock by type from each open pit and underground mine deposited in each of the Waste Rock Storage Areas and a description of Construction compared to the Board-approved design for each Waste Rock Storage Area;
  - iii. the quantity of Coarse Processed Kimberlite deposited in each deposition location;
  - iv. the quantity of Fine Processed Kimberlite deposited in each deposition location;
  - v. a summary of the results of Seepage surveys conducted in accordance with Part H, Condition 5 of this Licence;
  - vi. updated results of ongoing Acid/Alkaline Rock Drainage and related geochemical test work;
  - vii. tracking and documenting of Jay Waste Rock placement by rock type;
  - viii. results of Waste Rock sampling within the Jay open pit to confirm geochemical characteristics and geological mapping of the benches sampled;
  - ix. results of sampling and field inspection program to confirm Jay Waste Rock placement; and
  - x. results of Groundwater monitoring and reporting program for the open pits during operations for the Jay Development in accordance with the approved **Wastewater and Processed Kimberlite Management Plan**;
- o) A summary of any Modifications carried out in accordance with Part G of this Licence and/or major maintenance work carried out on any water or Waste management facilities including, but not limited to, Water Supply Facilities, Collection and Settling Ponds, Long Lake Containment Facility, King Pond Settling Facility, Sewage Treatment Facilities, Two Rock Sedimentation Pond, Pigeon Diversion Channel, Jay and North Dyke, Sub-Basin B Diversion Channel, and associated structures;
- p) A summary of the results of the Aquatic Effects Monitoring Program in accordance with Part J of this Licence;
- q) A progress report on any studies requested by the Board that relate to Waste management, water use, or mine site Reclamation and a brief description of any future studies planned by the Licensee;
- r) A summary of any revisions to the approved:
  - i. **Construction Plan** for the Jay and North Dyke referred to in Part F, Condition 3;



- ii. **Waste Management Plan, Wastewater and Processed Kimberlite Management Plan, and Waste Rock and Ore Storage Management Plan** referred to in Part H of this Licence; and
- iii. **Spill Contingency Plan and Hydrocarbon-Contaminated Materials Management Plan** referred to in Part I of this Licence;
- s) A summary of the results of the monitoring carried out under the **Hydrocarbon-Contaminated Materials Management Plan** referred to in Part I, Condition 4 of this Licence;

Spills and Unauthorized Discharges:

- t) A list and description, including volumes, of all Unauthorized Discharges and summaries of follow-up action taken; and
- u) An outline of any spill training and communications exercises carried out;

Closure and Reclamation:

- v) A summary of the results of the **Annual Closure and Reclamation Plan Progress Report** referred to in Part K of this Licence; and

Other Reporting Requirements:

- w) Any other details on water use or Waste disposal requested by the Board by November 1<sup>st</sup> of the year being reported;
- x) A description of how Traditional Knowledge, including but not limited to that received from the Traditional Knowledge Elders Group, influenced decision making; and
- y) Any changes to the Engineer of Record for the Jay Dyke and North Dyke.



**Schedule 2**  
**Part C: Conditions Applying to Security Deposits**

1. In accordance with subsection 35(1) of the Act and Part C of this Licence, the Licensee shall post and maintain:
  - a) a security deposit of CDN \$260,020,370; and
  - b) additional security deposits on the following schedule:
    - i. At least 60 days prior to completion of 60% Sable pit mining by volume, the Licensee shall post and maintain an additional CDN \$2,864,913.
    - ii. At least 60 days prior to commencement of Jay dyke construction, the Licensee shall post and maintain an additional CDN \$4,591,701.
    - iii. At least 60 days prior to commencement of Jay open pit mining, the Licensee shall post and maintain an additional CDN \$3,155,704.



### Schedule 3

#### Part D: Conditions Applying to Water Use

1. The Licensee shall adhere to the best practices outlined in both the Department of Fisheries and Oceans' *Freshwater Intake End-of-Pipe Fish Screen Guidelines*, 1995, or subsequent editions, and *Fish Screen Design Criteria for Flood and Water Truck Pumps*, 2011, or subsequent editions.
2. The Licensee shall adhere to the best practices outlined in the Department of Fisheries and Oceans' *Protocol for Winter Water-Withdrawal from Ice-Covered Waterbodies in the NWT and NU*.



## Schedule 4

### Part E: Conditions Applying to Dewatering and Drawdown

1. The **Dewatering Plan** or **Drawdown Plan** referred to in Part E, Condition 1 shall include, but not be limited to, the following information:
  - a) Volume of water produced by Dewatering or Drawdown from each source;
  - b) A schedule for Dewatering or Drawdown and maximum pump rates;
  - c) Pumping methods including locations of intake and outflow structures;
  - d) The design of any erosion prevention structures in the areas where water or Waste is Discharged;
  - e) The description of procedures for inspecting any erosion along the affected watercourse;
  - f) A description of, and mitigation measures for, any predicted hydrological or water quality impacts to downstream water bodies;
  - g) The schedule and locations for water quality monitoring;
  - h) The frequency, location, and procedures for monitoring flow rates in the Discharge stream and where appropriate, in the receiving water body;
  - i) The design of the pipeline and related facilities; and
  - j) The procedures and rates for Dewatering or Drawdown to minimize erosion of the downstream water bodies, adjacent shorelines and, in winter, damage to spawning habitat from the development of icings, overflows, or glaciation.
  
2. The **Lynx Lake Dewatering Plan** referred to in Part E, Condition 2 shall include, but not be limited to, the following information:
  - a) Volume of water produced by Dewatering;
  - b) A schedule for Dewatering and maximum pump rates;
  - c) Pumping methods including locations of intake and outflow structures;
  - d) The design of any erosion prevention structures in the areas where water or Waste is Discharged;
  - e) The description of procedures for inspecting any erosion along the affected watercourse;
  - f) A description of, and mitigation measures for, any predicted hydrological or water quality impacts to downstream water bodies;
  - g) The schedule and locations for that water quality monitoring necessary to evaluate any effects to the Receiving Environment caused by Lynx Lake Dewatering;
  - h) The frequency, location, and procedures for monitoring flow rates in the Discharge stream and if appropriate, in the receiving water body;
  - i) The design of the pipeline and related facilities;





- j) The procedures and rates for Dewatering to minimize erosion of the downstream water bodies, adjacent shorelines and, in winter, damage to spawning habitat from the development of icings, overflows, or glaciation; and
  - k) a description of how the Licensee will link the results of monitoring to those corrective actions necessary to prevent or minimize any Dewatering-related effects to the Receiving Environment. The description shall include, but not be limited to:
    - i. Definitions, with rationale, of Action Levels applicable to monitoring identified under Schedule 4, Condition 2(g) and (h). At a minimum, Action Levels should be set that:
      - 1. define a level of Discharge quality or receiving water quality that indicates that water from Lynx Lake should cease to be Discharged to Lac de Gras and be redirected to the King Pond Settling Facility; and,
      - 2. Define a level of Discharge quality or receiving water quality that indicates that additional monitoring (i.e., through the SNP or AEMP) should be undertaken;
    - ii. For each Action Level, a description of how exceedances of the Action Level will be assessed and generally which types of actions may be taken if the Action Level is exceeded.
3. The **Jay Dyke and North Dyke Dewatering Plan** referred to in Part E, Condition 3 shall include, but not be limited to, the following information:
- a) Schedule for Dewatering;
  - b) Volume of water produced by Dewatering to each Discharge location;
  - c) The expected quality of water to be discharged to Lac du Savage;
  - d) Pumping methods including locations of intake and outflow structures;
  - e) Maximum pumping rates with rationale;
  - f) The design of any erosion prevention structures in the areas where water or Waste is Discharged;
  - g) A description of, and mitigation measures for, any predicted hydrological or water quality impacts to downstream water bodies;
  - h) The schedule and locations for that water quality monitoring necessary to evaluate any effects to the Receiving Environment caused by Dewatering the area enclosed by the Jay Dyke and North Dyke, with rationale;
  - i) The frequency, location, and procedures for monitoring flow rates in the Discharge stream and if appropriate, in the receiving water body;
  - j) The design of the pipeline and related facilities which includes considerations for preventing/mitigating erosion at the Discharge locations and how that has been incorporated into the design of the Dewatering pumping and pipeline system;



- k) The procedures and rates for Dewatering to minimize erosion of the downstream water bodies, adjacent shorelines and, in winter, damage to spawning habitat from the development of icings, overflows, or glaciation; and
  - l) A description of how the Licensee will link the results of monitoring to those corrective actions necessary to prevent or minimize any Dewatering-related effects to the Receiving Environment. The description shall include, but not be limited to:
    - i. Definitions, with rationale, of Action Levels applicable to monitoring identified under Schedule 4, Condition 3 (h) and (i). At a minimum, Action Levels should be set that:
      - 1. define a level of Discharge quality or receiving water quality that indicates that water from the area enclosed by the Jay Dyke and North Dyke should cease to be discharged to the Receiving Environment and be redirected to the Misery Pit Minewater Management Facility; and
      - 2. define a level of Discharge quality or receiving water quality that indicates that additional monitoring (i.e., through the SNP or AEMP) should be undertaken;
    - ii. For each Action Level, a description of how exceedances of the Action Level will be assessed and generally which types of actions may be taken if the Action Level is exceeded.
4. The **Summary Reports** referred to in Part E, Condition 7 shall include, but not be limited to, the following information:
- a) The metered daily, monthly, and total pumping rates;
  - b) A description of any erosion problems encountered and mitigative actions taken;
  - c) The results of water quality monitoring and compliance with the regulated water quality requirements; and
  - d) A summary of any impacts to the Receiving Environment resulting from Dewatering or Drawdown activities.



## Schedule 5

### Part F: Conditions Applying to Construction

1. A **Construction Plan** referred to in Part F, Condition 2 shall include, but not be limited to, the following information:
  - a) A description of the facilities to be constructed;
  - b) The proposed location for the structures;
  - c) Any potential impacts to the aquatic environment;
  - d) A description of any monitoring including, but not limited to, sampling locations, parameters measured, and frequencies of sampling to be carried out to determine impacts to the aquatic environment, with rationale;
  - e) A detailed description of any measures used to prevent or mitigate impacts to the aquatic environment;
  - f) A schedule for the Construction;
  - g) Drawings of Engineered Structures stamped by a Professional Engineer; and
  - h) Description of adaptive management processes that systematically link monitoring results to management activities and allow management activities to be developed adaptively, in response to changes in the environment.
  - i) The **Construction Plans** for the Pigeon Stream Diversion Channel and the Sub-Basin B Diversion Channel, are also to include the details of measures to prevent degradation of permafrost and/or ice lenses;
  - j) The **Construction Plan** for the Jay Dyke and North Dyke is also to include, but not be limited to, the following:
    - i. A description of Dredging activities planned, including but not limited to the following:
      1. Schedule of Dredging Activities;
      2. Dredging equipment design and operation;
      3. Production rates;
      4. Operational approaches for minimizing sediment disturbance;
      5. A description of where dredged material will be located, if deemed necessary, and any implications for the Jay Waste Rock Storage Area Design; and
      6. Final monitoring plan details;
    - ii. A description of specific mitigation measures in consideration of Construction during and between different seasons;
    - iii. A description of adaptive management monitoring and mitigations, including but not limited to:
      1. A description of mitigation and management of fine sediments between the dyke and turbidity barriers;



2. A description of how the TSS-turbidity relationship will be established and validated;
3. A description of the actions to be taken in the event of a TSS exceedance of the limits set out in Part H, Condition 26;
4. A description of triggers and actions in response to weather events; and
5. Seven-day rolling average TSS concentration triggers and associated actions, in consideration of Construction during and between different seasons.

2. A **Waste Rock Storage Area Design Report**, referred to in Part F, Condition 4 shall include, but not be limited to:

- a) geothermal and short-term stability analyses stamped by a Professional Engineer.
- b) In addition, in the case of the Jay WRSA, the Report shall include, but not be limited to:
  - i. relevant background information;
  - ii. a description of the facilities to be constructed, including proposed locations;
  - iii. quantities of Waste material;
  - iv. discussion of setback distance of potentially acid generating rock within the Jay Waste Rock Storage Area, with rationale;
  - v. a summary of the results of the Study conducted in accordance with the approved Jay Waste Rock Co-placement Study Design referred to in Part H, Condition 4, and any implications for the Waste Rock Storage Area Final Design Report;
  - vi. design drawings and specifications of Engineered Structures, stamped by a Professional Engineer;
  - vii. summary of results of the geotechnical investigation to confirm foundation characteristics, including ground truthing and field reconnaissance study for the Jay Project, and a description of any implications for the Jay Waste Rock Storage Area design and routing for surface runoff and Seepage;
  - viii. Construction considerations, including timing, sequencing, and a schedule;
  - ix. operations and maintenance requirements;
  - x. detailed instrumentation and monitoring plans, including but not limited to sampling;
  - xi. locations, parameters measured, and frequencies of sampling to be carried out; and
  - xii. description of where dredged material will be located, if deemed necessary, and any implications for the Jay Waste Rock Storage Area Design.

3. **Jay Dyke and North Dyke Design Report** referred to in Part F, Condition 11 shall include, but not be limited to, the following:

- a) Jay Dyke and North Dyke detailed design drawings. These drawings should be:



- i. Signed and stamped by an engineer;
  - ii. Labeled “issued for-Construction” or equivalent; and
  - iii. Include an itemized list of revisions to design;
- b) An evaluation of the critical hydraulic gradient used in the dyke design, in consideration of the laboratory testing completed on the lakebed sediments; and
- c) Description of adaptive management processes that systematically link monitoring results to management activities and allow management activities to be developed adaptively, in response to changes in the environment.



## Schedule 6

### Part H: Conditions Applying to Waste Disposal

1. The **Wastewater and Processed Kimberlite Management Plan** referred to in Part H, Condition 2 shall be in accordance with the NWT Water Board's *Guidelines for Tailings Impoundment in the Northwest Territories, February 1987*, and shall include, but not be limited to, the following information:

#### Acid Rock Drainage (ARD) Characterization

- a) Representative sampling and testing of Processed Kimberlite;
- b) A description of the process to be used to regularly assess and revise the plans based on ongoing data collection through this program or through the attached Surveillance Network Program, the Aquatic Effects Monitoring Program, Seepage Surveys, or other environmental monitoring programs;

#### Wastewater and Processed Kimberlite Management

- c) A comprehensive description of all sources and types of Waste related to the Project where not provided in the **Waste Rock and Ore Storage Management Plan** as approved by the Board;
- d) A description of any proposed physical or chemical treatment of Waste prior to Discharge to the Long Lake Containment Facility, the King Pond Settling Facility, the Phase 1 Tailings Containment Area, Two Rock Sedimentation Pond, or to the Receiving Environment;
- e) A description, including maps to scale, of the locations of monitoring stations for ground temperature, water quality, water Discharge and Processed Kimberlite elevation, including the sampling protocols and frequency to be undertaken at each station;
- f) A schedule of Processed Kimberlite Discharge within the Long Lake Containment Facility over the term of this Licence, including detailed maps showing deposition locations;
- g) Capacity status and projected life expectancy of the Processed Kimberlite deposition locations and Two Rock Sedimentation Pond;
- h) An anticipated schedule of volumes of Discharge to and from the Two Rock Sedimentation Pond, King Pond Settling Facility, and Misery Pit Minewater Facility;
- i) A series of contingency options should Two Rock Sedimentation Pond, King Pond Settling Facility, or Misery Pit Minewater Facility approach or exceed capacity;
- j) Any operational changes and Modifications which may impact the **Wastewater and Processed Kimberlite Management Plan**;
- k) A list of contingencies to manage water for the Jay Project and an evaluation of the feasibility of each;
- l) A description of the scenarios (i.e., conditions and timing) under which contingencies required by paragraph (k) will be implemented;



- m) Identify which of the contingencies identified in Schedule 6, Condition 1(k), are preferred by the Licensee, with rationales, for each scenario;
- n) A description of monitoring of quantity and quality of water, to:
  - i. calibrate the water models used to make predictions in the EA;
  - ii. assess the suitability of contingencies; and
  - iii. evaluate the performance of contingencies used;
- o) A description of the Groundwater monitoring and reporting program for the open pits and underground mines; and
- p) Description of adaptive management processes that systematically link monitoring results to management activities and allow management activities to be developed adaptively, in response to changes in the environment.

2. The **Waste Rock and Ore Storage Management Plan** referred to in Part H, Condition 3 shall be in accordance with the Department of Indian and Northern Affairs and Northern Development's *Guidelines for Acid Rock Drainage Protection in the North*, September 1992, or in the case of the Jay Development, *Mine Environment Neutral Drainage's Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*, December 2009, and shall include, but not be limited to, the following information:

Acid Rock Drainage (ARD) Characterization

- a) Characterization of the rock types, geology, and mineralogy of the rock units for each mine component including each pit or pipe or mine workings, the quantity of rock, Waste or sludge, or the surface area exposure in pit walls;
- b) Representative sampling and testing of each rock unit;
- c) Assessment of potential for Acid/Alkaline Rock Drainage and for metal leaching from ore stockpiles, Waste Rock, and pit wall rock, both during operation and after closure;
- d) Description of predicted loadings and/or impact on receiving water chemistry from each source, incorporating the results of Seepage surveys where available;
- e) Geochemical characterization of material to be used for Reclamation;
- f) Description of the process to be used to regularly assess and revise the plans based on ongoing data collection through this program or through the attached Surveillance Network Program, the Aquatic Effects Monitoring, Seepage Surveys, or other environmental monitoring programs;
- g) For the Jay Waste Rock Storage Area, identification of the "effective" neutralization potential (NP) in Waste Rock as defined by *Mine Environment Neutral Drainage's Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*, December 2009;
- h) For the Jay Waste Rock Storage Area, the proposed target neutralization potential to acid potential (NP/AP) ratio for bulk rock in the Jay Waste Rock Storage Area, with a detailed



rationale that addresses the effective NP, the results of the Geochemistry Baseline Report and the results of the Waste Rock Co-placement Study referred to in Part H, Condition 4;

#### Waste Rock and Ore Storage Management

- i) A schedule of ore stockpiling, and Coarse Processed Kimberlite and Waste Rock production by rock type, tonnage, and destination over the term of this Licence;
- j) A complete description, including site maps to scale, of each proposed ore and Waste Rock Storage Area;
- k) Detailed descriptions of the different types of solid Waste disposed of and the locations for the disposal of solid Waste and Sewage sludge within the Waste Rock Storage Area;
- l) An identification of all potential sources of Seepage for each Waste Rock Storage Area and the distance to the downstream Receiving Environment;
- m) Detailed proposals for management of Seepage, including water quality monitoring, collection, treatment, re-routing, final disposal, and for incorporating the studies and plans developed under Part H, Condition 3 of this Licence;
- n) Detailed Construction Plans and drainage management for Waste Rock Storage Areas used for containment of the Misery schist, and other Waste Rock types that may be identified as problematic through Acid/Alkaline Rock Drainage testing, including contingency plans for controlling runoff and Seepage water chemistry;
- o) Temperature analysis of all Waste Rock Storage Areas having acid/alkaline potential to include the effect of oxidation reactions on predicted Acid/Alkaline Rock Drainage generation rates;
- p) Detailed descriptions of how Seepage surveys will be carried out to meet the requirements of Part H, Condition 5;
- q) For the Sable, Pigeon, and Misery pits, a description of the geochemical criteria for the management and placement of potentially ARD Waste Rock and hydrocarbon contaminated materials within the Waste Rock Storage Areas. This shall include a section describing the process for segregation of the various rock types;
- r) A description of co-placement method, limits, and controls for blending and layering;
- s) A description of confirmatory sampling and field inspection program to verify co-placement;
- t) A description of Waste Rock sampling within the Jay open pit to confirm geochemical characteristics;
- u) For the Jay Waste Rock Storage Area, a detailed monitoring plan for description of deformation, Seepage, and thermal monitoring, including parameters and frequency of sampling for the Waste Rock Storage Area;
- v) Description of anticipated slope movement during rock placement at the Jay Waste Rock Storage Area and the associated monitoring and mitigation measures;
- w) Discussion of setback distance of potentially acid generating rock within the Jay Waste Rock Storage Area, with rationale;





- x) Discussion of how the results of the Study conducted in accordance with the approved **Jay Waste Rock Co-placement Study Design** referred to in Part H, Condition 4 were considered in the proposed Waste Rock and ore management;
  - y) Discussion of potential Seepage quality issues for the Jay Waste Rock Storage Area including thresholds and triggers for adaptive management; and
  - z) Description of adaptive management processes that systematically link monitoring results to management activities and allow management activities to be developed adaptively, in response to changes in the environment.
3. The study outlined in the **Jay Waste Rock Co-placement Study Design**, referred to in Part H, Condition 4, shall investigate at minimum the following:
- a) the sensitivity of effective neutralizing potential/acid potential (NP/AP) to imperfect mixing for the propose co-placement management plan;
  - b) whether the effective neutralizing potential/acid potential (NP/AP) characteristics of the fine rock fractions for metasediments, granite, and diabase are different in samples of rock blasted during mining than in samples of rock prepared for humidity cell testing, and if so, a means of accounting for the differences when managing the proposed co-placement of rock in the WRSA;
  - c) how to optimize co-placement methods of blending and layering for the proposed co-placement of the potentially acid generating (PAG) and non-PAG rock to prevent acid rock drainage and metal leaching; and
  - d) any other testing or analysis that will inform the most appropriate NP/AP ratio and the co-placement method, limits, and controls for blending and/or layering.
4. The Seepage survey referred to in Part H, Condition 5 shall be conducted in accordance with the Waste Rock and Ore Storage Management Plan referred to in Part H, Condition 3, and on the following basis:
- a) Sampling of detected Seepage twice per year; once during spring freshet, and again in late summer or fall;
  - b) Testing in the field shall include measurements of volume and rate of flow, field pH, and conductivity;
  - c) Laboratory analysis of each sample shall include Major Ions (as defined in the attached Surveillance Network Program), pH, conductivity, sulphate, nitrogen as total ammonia, total suspended solids (TSS), and dissolved metals by inductively coupled plasma (ICP) mass spectrometry;
  - d) Laboratory analysis of Seepage samples in areas down gradient of the Land Farm, Contaminated Snow Containment Facility, and the Racetrack shall include TPH and BTEX as defined in the attached Surveillance Network Program;



- e) All data collected is to be reported to the Board as part of the **Annual Report** required under Part B, Condition 10 and shall include an overview analysis of major trends, site plans indicating the locations of Seepage, and summary of recommendations for future Seepage monitoring or management actions; and
  - f) A report interpreting the results of all survey data collected since Project inception shall be submitted to the Board for approval every three years beginning March 31, 2014, and shall include site plans indicating the locations of Seepage, the Quality Assurance/Quality Control (QA/QC) protocols used, and a consideration of how the results will affect the **Waste Rock and Ore Storage Management Plan** required under Part H, Condition 3.
5. The **Misery Pit Water Quality Report** referred to in Part H, Condition 23 shall include but not be limited to the following:
- a) A report summarizing the assumptions and results of the updated water quality model;
  - b) A description of how the updated water quality model has considered monitoring data available for Discharge from the KPSF during the Misery Underground Development, and initial filling of Misery pit, with rationale;
  - c) A description of any implications of water quality changes on the downstream environment;
  - d) An assessment based on the results of Schedule 6, Condition 5(a) of whether the EQC as outlined in Part H, Condition 21(e), including but not limited to Phosphorus, require re-evaluation prior to Discharge; and
  - e) One of the following:
    - i. A description of whether the modelling results demonstrate that the Licensee will be able to ensure Part K, Condition 9 will be satisfied, with rationale, or
    - ii. Propose any revisions to the approved **Wastewater and Processed Kimberlite Management Plan** described in Part H, Condition 2, to satisfy Part K, Condition 9.
6. The **Two Rock Outfall Report** referred to in Part H, Condition 30 shall include, but not be limited to, the following information:
- a) The specifications of the proposed Discharge pipeline and diffuser;
  - b) The location of the end of the pipe within Horseshoe Lake and a detailed rationale for selection of that location;
  - c) The results of modeling the initial mixing of effluent into Horseshoe Lake based on the selected placement and specifications of the outfall;
  - d) A proposed location for Surveillance Network Program Station 0008-Sa9 that will allow verification of the model of initial effluent mixing in Horseshoe Lake; and
  - e) The design for a plume delineation study to confirm initial effluent mixing in Horseshoe Lake.



7. The **Misery Plume Delineation Report** referred to in Part H, Condition 32 shall include, but not be limited to, the following information:
- The results of monitoring the initial mixing of effluent into Lac du Sauvage; and
  - Propose locations for Surveillance Network Program Station Jay-0005c that will allow verification of initial effluent mixing in Lac du Sauvage.
8. The EQC for chloride, nitrate, and sulphate are determined based on the equations shown in Part H, Conditions 21(a), 21(b), 21(c), and 21(e). Tables that can be used for quick reference of select values resulting from those equations are provided below:

Hardness (mg/L)	EQC at 1616-30					
	Nitrate as N (mg/L)		Sulphate (mg/L)		Chloride (mg/L)	
	Max. Average	Max. Grab	Max. Average	Max. Grab	Max. Average	Max. Grab
<10	1.2	2.3	45.2	90.4	64.4	129
10-20	1.7	3.5	65.4	131	112	223
20-30	2.8	5.6	104	208	171	342
30-40	3.9	7.7	142	283	210	421
40-50	4.9	9.8	178	356	240	480
50-60	5.9	12	214	428	263	526
60-70	7.0	14	249	498	283	565
70-80	8.0	16	284	567	299	599
80-90	9.0	18	318	636	314	628
90-100	10	20	352	704	327	654
100-110	11	22	386	771	339	677
110-120	12	24	419	838	349	698
120-130	13	26	419	838	359	718
130-140	14	28	419	838	368	736
140-150	15	31	419	838	380	760
150-160	16	32	419	838	384	768
>160	16	33	419	838	388	775

Hardness (mg/L)	Nitrate as N (mg/L)		Sulphate (mg/L)	
	Max. Average	Max. Grab	Max. Average	Max. Grab
<10	2.0	4.0	77	343
10-20	2.9	5.9	111	406
20-30	4.8	9.5	177	502
30-40	6.6	13	241	577



40-50	8.3	17	303	641
50-60	10	20	363	697
60-70	12	24	423	747
70-80	14	27	423	747
80-90	15	31	423	747
90-100	17	34	423	747
100-110	19	37	423	747
110-120	20	41	423	747
120-130	22	44	423	747
130-140	24	47	423	747
140-150	26	53	423	747
150-160	27	54	423	747
>160	28	56	423	747

<b>Chloride EQC at 1616-43</b>			
<b>King Pond Hardness (mg/L as CaCO<sub>3</sub>)</b>	<b>Cujo Lake Hardness (mg/L as CaCO<sub>3</sub>)</b>	<b>Maximum Average (mg/L)</b>	<b>Maximum Grab (mg/L)<sup>1</sup></b>
<17	<10	109	219
17-34	10-20	190	380
34-51	20-30	291	520
51-68	30-40	358	574
68-85	40-50	408	619
85-102	50-60	447	657
102-119	60-70	480	690
119-136	70-80	509	720
136-153	80-90	534	747
153-170	90-100	556	772
170-187	100-110	576	796
187-204	110-120	594	817
204-221	120-130	610	838



221-238	130-140	625	857
238-255	140-150	640	876
255-272	150-160	653	893
>272	>160	659	902

<sup>1</sup> Maximum grab EQC values not shaded are based on 2 times the maximum average EQC; those shaded in grey are equal to the acute WQO for chloride, which is less than 2 times the maximum average EQC. The Cujo Lake hardness shown above, assumes a dilution factor of 1.7.

<b>Cadmium EQC at 1616-43</b>		
<b>Cujo Lake Hardness (mg/L as CaCO<sub>3</sub>)</b>	<b>Maximum Average (mg/L)</b>	<b>Maximum Grab (mg/L) <sup>1</sup></b>
<17	0.00006	0.00012
17-20	0.00007	0.00014
20-40	0.00010	0.00020
40-60	0.00015	0.00030
60-80	0.00020	0.00040
80-100	0.00025	0.00049
100-120	0.00029	0.00058
120-140	0.00033	0.00067
140-160	0.00038	0.00075
160-180	0.00042	0.00084
180-200	0.00046	0.00092
200-220	0.00050	0.00100
220-240	0.00054	0.00108
240-260	0.00058	0.00115
260-280	0.00061	0.00123
>280	0.00063	0.00127

<sup>1</sup> Maximum grab EQC values are based on 2 times the maximum average EQC, which is expected to be consistently less than the acute WQO for cadmium at hardness levels in King Pond.



Hardness (mg/L)	EQC at 1616-47			
	Nitrate as N (mg/L)		Sulphate (mg/L)	
	Max. Average	Max. Grab	Max. Average	Max. Grab
<10	2.7	5.4	103	343
10-20	3.9	7.8	148	406
20-30	6.4	13	237	502
30-40	8.8	18	321	577
40-50	11	22	404	641
50-60	14	28	485	697
60-70	16	32	565	747
70-80	18	36	565	747
80-90	20	40	565	747
90-100	23	46	565	747
100-110	25	50	565	747
110-120	27	54	565	747
120-130	30	60	565	747
130-140	32	64	565	747
140-150	34	68	565	747
150-160	36	72	565	747
>160	37	74	565	747

Hardness in Lac du Sauvage (i.e., at Jay-0005c) (mg/L)	Hardness-dependent Chronic WQO	EQC at Jay-0005a/b
	Chloride (mg/L)	Chloride (mg/L)
		Max. Average
5	64	631
10	64	635
15	112	1,102
20	145	1,434
25	171	1,692
30	192	1,902
Chloride concentrations shaded in grey are above the maximum grab EQC. As a result, the Maximum Average Concentration should be set equal to the maximum grab concentration.		

Hardness in Discharge (i.e., at Jay-0005a/b) (mg/L)	Hardness-dependent Acute WQO	EQC at Jay-0005a/b
	Chloride (mg/L)	Chloride (mg/L)



		<b>Max. Grab</b>
<b>50</b>	<b>545</b>	<b>545</b>
<b>100</b>	<b>670</b>	<b>670</b>
<b>150</b>	<b>756</b>	<b>756</b>
<b>200</b>	<b>823</b>	<b>823</b>
<b>250</b>	<b>879</b>	<b>879</b>
<b>300</b>	<b>928</b>	<b>928</b>
<b>&gt;300</b>	<b>N/A</b>	<b>928</b>

<b>Hardness in Lac du Sauvage (i.e., at Jay-0005c) (mg/L)</b>	<b>EQC at Jay-0005a/b</b>	
	<b>Nitrate (mg/L)</b>	
	<b>Max. Average</b>	<b>Max. Grab</b>
<b>5</b>	<b>12</b>	<b>23</b>
<b>10</b>	<b>12</b>	<b>23</b>
<b>15</b>	<b>17</b>	<b>34</b>
<b>20</b>	<b>22</b>	<b>45</b>
<b>25</b>	<b>28</b>	<b>56</b>
<b>30</b>	<b>33</b>	<b>66</b>
<b>35</b>	<b>38</b>	<b>77</b>

<b>Operations Year</b>	<b>Annual Loading Limit in Lac du Sauvage during Jay Operations</b>
	<b>Total Phosphorus (kg P/yr)</b>
<b>6</b>	380
<b>7</b>	440
<b>8</b>	655
<b>9</b>	705
<b>10</b>	805
<b>11</b>	870
<b>12</b>	890
<b>13</b>	880
<b>14</b>	130



## Schedule 7

### Part I: Conditions Applying to Contingency Planning

1. The **Hydrocarbon-Contaminated Materials Management Plan** referred to in Part I, Condition 4 shall describe the following:
  - a) Locations and designated uses of existing or planned facilities used for storage, treatment, disposal or management of hydrocarbon-contaminated solids and liquids;
  - b) A general description of the facilities described under Schedule 7, Condition 1(a);
  - c) Operating history of existing facilities and chemical characteristics of existing stockpiles of hydrocarbon-contaminated materials;
  - d) A general description of the planned activities and processes for storage;
  - e) Monitoring, treatment, and disposal or management of hydrocarbon-contaminated materials;
  - f) Monitoring program to test for migration, leakage, or Seepage of hydrocarbon contaminated materials;
  - g) The process for review of information and revising the plan as necessary;
  - h) Identification of ways to reduce the generation of hydrocarbon-contaminated materials; and
  - i) Reporting to the Board on activities carried out under this plan, including details on the volumes of hydrocarbon-contaminated materials treated and treatment efficacy.





## Schedule 8

### Part J: Conditions Applying to Aquatic Effects

1. The **AEMP Design Plan** for the Aquatic Effects Monitoring Program referred to in Part J, Conditions 2, 3, and 4 shall include, but not be limited to, the following:
  - a) Clearly identifiable objectives of the Aquatic Effects Monitoring Program;
  - b) A description of the area to be monitored including maps showing all sampling and control sites, as well as the overall Zone of Influence of the Project;
  - c) A description of the sampling program that will be conducted to achieve the objectives of the Aquatic Effects Monitoring Program including the variables, sample media, monitoring protocols, and Quality Assurance/Quality Control procedures;
  - d) Statistical design criteria, including a description of sampling frequencies for each parameter that ensures both accurate characterization of short-term variability and the collection of sufficient data to establish long-term trends;
  - e) A description of procedures to analyze and interpret data collected and procedures to identify and address information gaps;
  - f) A description of evaluation criteria for the Aquatic Effects Monitoring Program and approaches to revise and refine the Aquatic Effects Monitoring Program;
  - g) A description of how proposed changes in monitoring protocols will be calibrated to previous monitoring procedures and data sets so that continuity, consistency, validity, and usability of monitoring results will be maintained;
  - h) The findings of an integrated biological, chemical, and biophysical assessment of the monitoring data and rationale for how the results of these findings are incorporated into revisions of the **AEMP Design Plan**;
  - i) A process for measuring Project-related effects to:
    - i. physical limnology (dissolved oxygen/temperature profiles, and water clarity);
    - ii. lake water quality (major ions, nutrients, and metals) under ice and during the open-water season (August);
    - iii. stream water quality (major ions, nutrients, and metals) during the open-water season (freshet, July, August, and September);
    - iv. sediment quality (nutrients and metals) every three years during the open-water season (August);
    - v. chlorophyll a concentrations, phytoplankton density, and community composition during the open-water season (August);
    - vi. zooplankton biomass, density, and community composition during the open-water season (August);
    - vii. lake and stream benthos density, and community composition during the open-water season (August);



- viii. fish community, tissue contaminant levels, and biological characteristics (length, weight, age, sex, sexual maturity, reproductive status, gonad weight, number of eggs, and liver weight); and
  - ix. fish parasites, deformities, erosion, lesions, and tumors, as well as chlorinated phenolics (known to impair fish palatability);
- j) The establishment of sufficient control sites outside the immediate Zone of Influence of mining operations and associated activities to provide the necessary information on reference conditions including:
- i. a detailed rationale for site selection;
  - ii. an assessment of adequacy of existing data for representing predevelopment conditions; and
  - iii. an assessment of the degree to which each site is representative;
- k) The establishment of sufficient monitoring sites within the Zone of Influence including sites located at:
- i. lakes in the vicinity of the Project including, but not limited to, Leslie Lake, Moose Lake, Nema Lake, Slipper Lake, and connecting streams;
  - ii. lakes in the vicinity of the Misery operation and connecting streams;
  - iii. Lac de Gras in the vicinity of the outflow of Slipper Lake;
  - iv. Lac du Sauvage in the vicinity of the Misery operation;
  - v. lakes in the vicinity of the Sable Development (when constructed) including, but not limited to, Horseshoe Lake and outflow, Ulu Lake, Ross Lake and outflow, Lower Exeter Lakes, and connecting streams;
  - vi. lakes in the vicinity of the Pigeon Development (when constructed) including, but not limited to, Upper Exeter Lake, Pigeon Fay Stream and Fay Lake;
  - vii. lakes in the vicinity of the Lynx Development (when constructed) including, but not limited, to Cujo Lake;
  - viii. Lac du Sauvage in the vicinity of the Jay Development (when constructed), including, but not limited to, the Narrows; and
  - ix. any additional sites necessary to evaluate the spatial extent of impacts associated with the Project;
- l) A description of the procedures that will be used to minimize the impacts of the Aquatic Effects Monitoring Program on fish populations;
- m) A description of the procedures that will be used to assess the accuracy of the Licensee's impact predictions and to evaluate the effectiveness of the proposed mitigation measures;
- n) A description of how the data collected in the Aquatic Effects Monitoring Program will be used to identify the need for additional mitigation strategies to minimize the impacts of the Project;
- o) A summary of how Traditional Knowledge will be collected and incorporated into the Aquatic Effects Monitoring Program;



- p) An evaluation of the Project-related effects on the Receiving Environment that may contribute to cumulative effects in the region;
- q) A description of an **Response Framework** that will link the results of the AEMP to those actions necessary to ensure that Project-related effects on the Receiving Environment remain within an acceptable range. The **Response Framework** shall include:
  - a. definitions, with rationale, for Significance Thresholds and tiered Action Levels applicable to biotic and abiotic parameters monitored in the aquatic Receiving Environment of the Project; and
  - b. for each Action Level:
    - i. a description of the rationale including, but not limited to, a consideration of the predictions and conclusions of the Environmental Assessment as well as AEMP results to date;
    - ii. a description of how exceedances of Action Levels will be assessed; and
    - iii. a general description of what types of actions may be taken if an Action Level is exceeded;
- r) A summary table of all baseline data that will be utilized in AEMP for the Jay Development and a description of any additional baseline data to be collected;
- s) A description of comparisons to be made to baseline data for the Jay Development, including:
  - i. identification of the baseline and proposed sampling stations, and parameters to be compared,
  - ii. a description of why the baseline stations are considered comparable to the proposed stations,
  - iii. a description of variability in each baseline data set, and
  - iv. based on Schedule 6, Condition 1(s)(i-iii), an estimation of the magnitude of change that could be reliably detected in each planned comparison;
- t) An evaluation, based on the information in Schedule 6, Condition 1(s), of the adequacy of the baseline data to support the objectives of the AEMP;
- u) A summary of the results of the reconnaissance study and provide recommendations for the use of Thonokied Lake as the reference lake for the AEMP, or for the selection of another potential reference lake; and
- v) An evaluation of the use of Slimy Sculpin as a sentinel species for detecting effects due to the Jay Development, including recommendations for sample sizes, frequency, locations, and measured parameters as well as a description of contingencies if adequate sample sizes cannot be achieved.

2. The **Aquatic Effects Re-Evaluation Report** referred to in Part J, Condition 5 shall include:
  - a) A scientifically defensible interpretation and discussion of the data, including data collected as part of snow quality surveys;
  - b) An evaluation of the overall effectiveness of the Aquatic Effects Monitoring Program to date;



- c) A summary of the results of the Aquatic Effects Monitoring Program from Project inception, an integrated biological, chemical, and physical assessment of the monitoring data, and a comparison against Environmental Assessment (EA) predictions; and
  - d) Updated predictions of Project-related effects on the Receiving Environment based on monitoring results obtained since Project inception.
3. The **AEMP Annual Report** referred to in Part J, Condition 6 shall include the following information:
- a) A summary of activities conducted under the Aquatic Effects Monitoring Program;
  - b) Tabular summaries of all data and information generated under the Aquatic Effects Monitoring Program in an electronic and printed format acceptable to the Board; and
  - c) An assessment of any identified environmental changes relative to baseline conditions that occurred as a result of the Project.
4. The **Response Plan** referred to in Part J, Condition 9(b) shall contain the following information for each parameter that has exceeded an Action Level:
- a) A description of the parameter, its relation to Significance Thresholds, and the ecological implication of the Action Level exceedance;
  - b) A summary of how the Action Level exceedance was determined and confirmed;
  - c) A description of likely causes of the Action Level exceedance and potential mitigation options if appropriate;
  - d) A description of actions to be taken by the Licensee in response to the Action Level exceedance including:
    - i. a justification of the selected action which may include a cost/benefit analysis;
    - ii. a description of timelines to implement the proposed actions;
    - iii. a projection of the environmental response to the planned actions, if appropriate;
    - iv. a monitoring plan for tracking the response to the actions, if appropriate; and
    - v. a schedule to report on the effectiveness of actions and to revise the AEMP Response Plan as required;
  - e) For hydrology-related parameters at the Narrows, a description of how the Action Levels proposed will ensure water levels at the Narrows are maintained such that the Jay Development does not adversely affect fish passage and the continuation of traditional use of the area as an open water source; and
  - f) Any other information that is necessary to assess the response to an Action Level exceedance or that has been requested by the Board.
5. The **Nitrogen Response Plan** referred to in Part J, Condition 10 shall include, but not be limited to:
- a) A description of current nitrogen (i.e. nitrate and ammonia) sources and management including:



- i. Identification of which recommendations made by Golder, in their 2008 *Blasting Practices at Ekati Mine and Sources of Nitrate Available for Dissolution by Mine Drainage Water*, have been implemented; and
  - ii. Rationale for any recommendations made by Golder that have not been implemented;
- b) A report produced by appropriate experts following an audit to assess the current blasting practices at EKATI; and
- c) An implementation plan which addresses the recommendations from the audit report identified under b) and includes:
  - i. justification of the selected actions to minimize nitrogen losses, which may include a cost/benefit analysis;
  - ii. a description of timelines to implement the selected actions; and
  - iii. a schedule to report on the effectiveness of actions and to revise the **Nitrogen Response Plan** as required.



**Schedule 9**  
**Part K: Closure and Reclamation**

1. The **Interim Reclamation and Closure Plan** shall include, but not be limited to:
  - a) Reclamation Research Plans related to the uncertainty associated with, but not limited to the following:
    - i. Freshwater cap depth of Jay pit;
    - ii. Freshwater cap depth of Misery pit;
    - iii. Freshwater cap depth of Panda pit;
    - iv. Freshwater cap depth of Koala pit;
    - v. Closure of the Sub-Basin B Diversion Channel;
    - vi. Jay Dyke breaching and Back-flooding; and
    - vii. Use of lakebed sediments as an additive mixture for Reclamation substrates.
  - b) Description of engagement on the use of glacial till and overburden material for vegetation at Jay site and also for the main Ekati site;
  - c) Description of the accelerated Reclamation of the Long Lake Containment Facility;
  - d) Description of how the input received from the Traditional Knowledge Elders group was incorporated for closure planning initiatives, including but not limited to the Construction of Waste Rock management area egress ramps;
  - e) Details for monitoring the Lynx pit Lake overflow;
  - f) Closure objectives and criteria for the Jay Project components, including but not limited to the following:
    - i. Jay pit;
    - ii. Misery pit;
    - iii. Lynx pit; and
    - iv. Jay Waste Rock Storage Area;
  - g) An updated security to distinguish between the allocation between land and water related security.





**Annex B: Surveillance Network Program**

**Annexed to Water Licence W2020L2-0004**

**Part A - Surveillance Network Program Description and Sampling Requirements**

1. Location of sampling sites and specific monitoring requirements are as follows:

**Dewatering or Drawdown at reactivated Surveillance Network Program (SNP) Station or Temporary SNP Station**

Description:	During any possible future Dewatering or Drawdown where an existing SNP station is reactivated or a temporary SNP station is set up, samples shall be taken at the Dewatering or Drawdown Discharge point of each station.		
Location:			
Sampling Frequency:	Once prior to commencement of Dewatering or Drawdown	Daily during Dewatering or Drawdown	Once on the final day of Dewatering or Drawdown
Sampling Parameters:	TSS, total ammonia-N, major ions <sup>1</sup> , physical parameters <sup>2</sup> and total metals <sup>3</sup>	pH, TSS and turbidity	TSS, total ammonia-N, major ions <sup>1</sup> , physical parameters <sup>2</sup> and total metals <sup>3</sup>
Rationale for Station:	To document the quality of water being pumped from a natural water body through a Dewatering or Drawdown program.		

**Surveillance Network Program (SNP) Station 1616-2 (permanently inactive)**

Description:	Little Lake at freshwater intake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	Monitor the quality of drinking water taken from Little Lake.
Rationale for Status:	Freshwater intake structure was never created at Little Lake as there are no plans to use Little Lake for drinking water.

**Surveillance Network Program (SNP) Station 1616-3 (active)**

Description:	Discharge from the Phase 1 Tailings Containment Area. Point of Compliance.	
Location:	517953 7173740	
Sampling Frequency:	Up to four weeks prior to Discharge. Sampling not required unless Discharge is reactivated.	On the first day of Discharge, weekly during Discharge and on the final day of Discharge.
Sampling Parameters:	pH, TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> and BTEX <sup>6</sup>	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water Discharged from the Phase 1 Tailings Containment Area.	
Rationale for Status:	Presently no Discharge, and none anticipated.	

**Surveillance Network Program (SNP) Station 1616-5 (permanently inactive)**

Description:	Discharge from the Fox Underground Minewater Settling Pond.	
Location:		
Sampling Frequency:		
Sampling Parameters:		
Rationale for Station:	To monitor the quality of water released to the environment from the (closed) Fox underground development.	
Rationale for Status:	No future Discharge.	

**Surveillance Network Program (SNP) Station 1616-8 (permanently inactive)**

Description:	Discharge from Process Mill Clarifier overflow pipeline	
Location:		
Sampling Frequency:		
Sampling Parameters:		
Rationale for Station:	To monitor the quality of water released to the environment from the (no longer present) Process Mill Clarifier overflow pipeline.	
Rationale for Status:	No future Discharge.	



**Surveillance Network Program (SNP) Station 1616-10 (permanently inactive)**

Description:	Polar Lake Outflow.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 1616-11 (permanently inactive)**

Description:	Freshwater intake from the Grizzly Lake Pumphouse.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water to the drinking water treatment plant.
Rationale for Status:	Under the SNP, drinking water monitoring is not required.

**Surveillance Network Program (SNP) Station 1616-12 (active)**

Description:	North Panda Lake adjacent to the Panda Lake Dam.
Location:	520105 7178295
Sampling Frequency:	Monthly during periods of flow
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water entering the Panda Diversion Channel.
Rationale for Status:	In combination with SNP 1616-13, this information is useful to document potential changes related to a Licensed water use, diversion of water through the Panda Diversion Channel.

**Surveillance Network Program (SNP) Station 1616-13 (active)**

Description:	Panda Diversion Channel prior to entering Kodiak Lake.
Location:	518421 7175881
Sampling Frequency:	Monthly during periods of flow
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> .
Rationale for Station:	To monitor the quality of water exiting the Panda Diversion Channel.
Rationale for Status:	In combination with SNP 1616-12, this information is useful to document potential changes related to a Licensed water use, diversion of water through the Panda Diversion Channel.

**Surveillance Network Program (SNP) Station 1616-14 (permanently inactive)**

Description:	Panda Lake at Dewatering intake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Panda Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-15 (permanently inactive)**

Description:	Koala Lake at Dewatering intake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Koala Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-16 (permanently inactive)**

Description:	Discharge from the Panda/Koala Sedimentation Pond downstream of the impervious Seepage collection Dam
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Discharged (in the past) from the named sedimentation pond.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-17 (permanently inactive)**

Description:	Runoff from the area nearby Seep-19 location which drains into Bearclaw Lake, northeast of the Panda/Koala Waste Rock Storage Areas.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of Seepage water from the Panda/Koala/Beartooth Waste Rock Storage Area near Beartooth Lake.
Rationale for Status:	Duplicate of Seepage monitoring stations SEEP-331, SEEP-018B and SEEP-019.

**Surveillance Network Program (SNP) Station 1616-20 (active)**

Description:	Runoff from the Southwestern Catchment Area of the plant site.
Location:	517931 7176183
Sampling Frequency:	Once each year during open water.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> and BTEX <sup>6</sup>
Rationale for Station:	To monitor the quality of runoff water entering Kodiak Lake from the Southwestern Catchment Area of the plant site.
Rationale for Status:	This provides information relevant to mine activities.

**Surveillance Network Program (SNP) Station 1616-21 (permanently inactive)**

Description:	Runoff from the Northern Catchment Area of the plant site
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To monitor the quality of runoff water entering Kodiak Lake from the Southwestern Catchment Area of the plant site.
Rationale for Status:	Station no longer exists. This area is occupied by the Panda/Koala Waste Rock Storage Area.

**Surveillance Network Program (SNP) Station 1616-22 (permanently inactive)**

Description:	Sewage Treatment Facilities outfall into Kodiak Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To monitor the quality of water released (in the past) to Kodiak Lake from the start-up Sewage Treatment Facility.
Rationale for Status:	The facility no longer exists. Treated Sewage effluent is directed to the Long Lake Containment Facility.

**Surveillance Network Program (SNP) Station 1616-24 (permanently inactive)**

Description:	Airstrip Lake at Dewatering Intake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Airstrip Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-26 (permanently inactive)**

Description:	Long Lake Containment Facility, upstream of Cell C intermediate dyke, in the area most likely to collect ponded water
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in Cell C of the LLCF.
Rationale for Status:	Station was replaced with 1616-26b.

**Surveillance Network Program (SNP) Station 1616-26a (permanently inactive)**

Description:	Long Lake Containment Facility, upstream of the Cell C intermediate dyke in the area most likely to collect ponded water.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale:	To document the quality of water in Cell C of the LLCF.
Rationale for Status:	Station was replaced with 1616-26b.

**Surveillance Network Program (SNP) Station 1616-26b (active)**

Description:	Long Lake Containment Facility, Cell C.
Location:	514784 7176844
Sampling Frequency:	Twice annually – once under ice cover and once during open water.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To document the quality of water in Cell C of the LLCF.
Rationale for Status:	Provides information relevant to mine activities.

**Surveillance Network Program (SNP) Station 1616-27 (permanently inactive)**

Description:	Long Lake Containment Facility, downstream of the Cell B intermediate dyke
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in Cell C of the LLCF.
Rationale for Status:	Water quality in Cell C of the LLCF is monitored under SNP Station 1616-26b.

**Surveillance Network Program (SNP) Station 1616-28 (permanently inactive)**

Description:	Long Lake Containment Facility, downstream of the Cell C intermediate dyke in the area most likely to collect ponded water.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in Cell D of the LLCF.
Rationale for Status:	Station was replaced with 1616-28a.

**Surveillance Network Program (SNP) Station 1616-28a (active)**

Description:	Long Lake Containment Facility, Cell D
Location:	515070 7174910
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To document the quality of water in Cell D of the LLCF.
Rationale for Status:	Provides information relevant to mine activities.

**Surveillance Network Program (SNP) Station 1616-29 (permanently inactive)**

Description:	Long Lake Containment Facility, downstream of the Cell D intermediate dyke.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in Cell E of the LLCF.
Rationale for Status:	Station was replaced with 1616-29a.

**Surveillance Network Program (SNP) Station 1616-29a (active)**

Description:	Long Lake Containment Facility, Cell E
Location:	513568 71734667
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To document the quality of water in Cell E of the LLCF.
Rationale for Status:	Provides information relevant to mine activities.

**Surveillance Network Program (SNP) Station 1616-30 (permanently inactive)**

Description:	Cell E of the Long Lake Containment Facility, upstream of decant structure to Leslie Lake. Point of Compliance.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To monitor the quality of water in and Discharged from Cell E of the LLCF.
Rational for Status:	Station replaced with 1616-30a and 1616-30b.

**Surveillance Network Program (SNP) Station 1616-30a (active)**

Description:	Cell E of the Long Lake Containment Facility, upstream of decant structure to Leslie Lake. Point of Compliance.		
Location:	514021 7173081		
Sampling Frequency:	Up to four weeks prior to Discharge	Quarterly	Once each year during open water and once each year under-ice.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , dissolved metals <sup>9</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> , BTEX <sup>6</sup> , and acute <sup>8a</sup> and chronic <sup>8b</sup> toxicity tests	pH, TSS, nutrients <sup>4</sup> , TPH <sup>5</sup> , BTEX <sup>6</sup> , oil and grease, Total Coliforms and Escherichia coli	Acute <sup>8a</sup> and chronic <sup>8b</sup> toxicity tests
Rationale for Station:	To provide a pre-Discharge sample location (for 1616-30b) and for other special sampling requirements.		
Rationale for Status:	Primary Discharge location.		

**Surveillance Network Program (SNP) Station 1616-30b (active)**

Description:	Discharge from Cell E of the Long Lake Containment Facility. Point of Compliance.		
Location:	To be determined.		
Sampling Frequency:	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.		
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , dissolved metals <sup>9</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> , and BTEX <sup>6</sup>		
Rationale for Station:	To monitor the quality of water Discharged to the Receiving Environment from Cell E of the LLCF.		
Rationale for Status:	Primary Discharge location.		



**Surveillance Network Program (SNP) Station 1616-32 (permanently inactive)**

Description:	Outlet of Leslie Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in the Receiving Environment.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 1616-33 (permanently inactive)**

Description:	Outlet of Moose Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in the Receiving Environment.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 1616-34 (permanently inactive)**

Description:	Outlet of Nema Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in the Receiving Environment.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 1616-35 (permanently inactive)**

Description:	Outlet of Slipper Lake prior to entering Lac de Gras.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in the Receiving Environment.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 1616-36 (permanently inactive)**

Description:	Freshwater intake at Thinner Lake Pumphouse.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	Monitor the quality of drinking water taken from Thinner Lake.
Rationale for Status:	Freshwater intake structure has not been and will not be constructed at Thinner Lake.

**Surveillance Network Program (SNP) Station 1616-37 (active)**

Description:	Sewage Treatment Facilities outfall into the King Pond Settling Facility.
Location:	To be determined.
Sampling Frequency:	Quarterly. Sampling is not required until Discharge is activated.
Sampling Parameters:	pH, TSS, nutrients <sup>4</sup> , BOD <sub>5</sub> , TPH <sup>5</sup> , BTEX <sup>6</sup> , oil and grease, Total Coliforms and Escherichia coli
Rationale for Station:	To monitor the quality of water entering the KPSF from the Sewage Treatment Facility.
Rationale for Status:	Will provide relevant information regarding mine activities if activated.

**Surveillance Network Program (SNP) Station 1616-39 (permanently inactive)**

Description:	Misery Lake at Dewatering intake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Koala Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-43 (active)**

Description:	King Pond Settling Facility, upstream of intake structure. Point of Compliance.		
Location:	538830 7161344		
Sampling Frequency:	Up to four weeks prior to Discharge	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.	Once each year after spring break-up and once each year before fall freeze-up.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> , TPH <sup>5</sup> and BTEX <sup>6</sup>	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> .	Acute <sup>8a</sup> and chronic <sup>8b</sup> toxicity tests
Rationale for Station:	To monitor the quality of water in the KPSF prior to and during Discharge.		
Rationale for Status:	Primary Discharge Location.		

**Surveillance Network Program (SNP) Station 1616-44 (permanently inactive)**

Description:	Discharge from Koala Minewater Settling Pond
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Discharged (in the past) from the named sedimentation pond.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-45 (permanently inactive)**

Description:	Discharge from Fox Lake at Dewatering intake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Koala Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 1616-46a (active)**

Description:	Monitor water pumped from Misery Pit into the KPSF
Location:	To be determined.
Sampling Frequency:	Weekly during pumping from Misery Pit into KPSF
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> .
Rationale for Station:	To monitor the quality of water entering the KPSF from Misery Pit.
Rationale for Status:	Provides relevant information relating to mine activities.

**Surveillance Network Program (SNP) Station 1616-46b (active)**

Description:	Monitor water pumped from Misery Underground sump into the KPSF/Lynx pit
Location:	To be determined.
Sampling Frequency:	Weekly during pumping from Misery Underground into KPSF
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> .
Rationale for Station:	To monitor the quality of water entering the KPSF/Lynx pit from Misery Underground.
Rationale for Status:	Provides relevant information relating to mine activities.

**Surveillance Network Program (SNP) Station 1616-47 (active)**

Description:	Desperation Pond Discharge to Carrie Stream. Point of Compliance.	
Location:	538100 7160823	
Sampling Frequency:	Up to four weeks prior to Discharge	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> and BTEX <sup>6</sup> .	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> ,
Rationale for Station:	To monitor the quality of water being Discharged to Carrie Stream.	
Rationale for Status:	Discharge point.	

**Surveillance Network Program (SNP) Station 1616-48 (active)**

Description:	Cujo Lake, same location as AEMP station.	
Location:	538721 7162007	
Sampling Frequency:	Every four weeks during open water.	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.
Sampling Parameters:	Hardness	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> .
Rationale for Station:	To monitor hardness to be used in the equations shown in Part H, Condition 21(b) for the purpose of calculating hardness-based effluent quality criteria.	
Rationale for Status:	Provides necessary information for determining hardness-related EQC applicable to 1616-43 (point of compliance).	

**Surveillance Network Program (SNP) Station 1616-49 (active)**

Description:	Lynx Lake Dewatering outflow.	
Location:	To be determined.	
Sampling Frequency:	Daily during Dewatering.	On the first day of Dewatering, weekly during periods of Dewatering, and on the final day of Dewatering.

Sampling Parameters:	TSS, Turbidity, and pH.	Major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , and dissolved metals <sup>9</sup>
Rationale for Station:	To monitor the quality of water being Discharged to Lac de Gras during Lynx Lake Dewatering.	
Rationale for Status:	Discharge point.	

**Surveillance Network Program (SNP) Station 1616-50 (active)**

Description:	Monitor water pumped from Lynx Pit into the KPSF		
Location:	Lynx open pit Sump (coordinates to be determined).		
Sampling Frequency:	Weekly during pumping from Lynx Pit into KPSF.		
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , and nutrients <sup>4</sup>		
Rationale for Station:	To monitor the quality of water entering the KPSF from Lynx Pit.		
Rationale for Status:	Provides relevant information relating to mine activities.		

**Surveillance Network Program (SNP) Station 0008-Pi1 (active)**

Description:	Pigeon Pond Dewatering station.		
Location:	During Dewatering sample at Dewatering Discharge point. To be determined.		
Sampling Frequency:	Once prior to commencement of Dewatering.	Daily during Dewatering.	Once on the final day of Dewatering.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>	TSS and physical parameters <sup>2</sup>	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of the water being pumped to the Long Lake Containment Facility.		
Rationale for Status:	Pigeon Pit has not yet been developed.		

**Surveillance Network Program (SNP) Station 0008-Pi2 (active)**

Description:	Pigeon Pit Minewater.
Location:	To be determined.
Sampling Frequency:	Weekly during Discharge.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water entering the Long Lake Containment Facility.
Rationale for Status:	Pigeon Pit has not yet been developed.

**Surveillance Network Program (SNP) Station 0008-Pi3 (permanently inactive)**

Description:	Upstream reference site. The outflow from the unnamed lake referenced as W.L. 463.7 on Figure 4.1-1 of the February 2002 Response to Information Requests.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 0008-Pi4 (permanently inactive)**

Description:	The inflow to Fay Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 0008-Pi5 (permanently inactive)**

Description:	Upper Exeter
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station 0008-Pi6 (active)**

Description:	The outflow of Little Reynolds Pond.
Location:	516327 7180306
Sampling Frequency:	Once each year after spring break-up and before fall freeze-up. Sampling is to commence with Construction of the Pigeon Pit.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water leaving the Pigeon Waste Rock drainage area and to detect potential contamination from the Waste Rock Storage Areas.
Rationale for Status:	Pigeon Waste Rock Storage Area has not yet been developed.

**Surveillance Network Program (SNP) Station 0008-Pi100 (active)**

Description:	Upper Exeter at site of withdrawal for the future filling of Pigeon Pit.
Location:	To be determined
Sampling Frequency:	To be determined
Sampling Parameters:	To be determined
Rationale for Station:	To monitor the quality of water entering the Pigeon Pit.
Rationale for Status:	Pigeon Pit has not yet been developed.



**Surveillance Network Program (SNP) Station 0008-Sa1 (active)**

Description:	Sable Lake Dewatering station. Site of Compliance.		
Location:	Near intake structure in Sable Lake.		
Sampling Frequency:	Once prior to commencement of Dewatering.	Daily during Dewatering.	Once on the final day of Dewatering.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>	pH, TSS and physical parameters <sup>2</sup>	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water entering the Receiving Environment.		
Rationale for Status:	Will provide information relevant to mine activities.		

**Surveillance Network Program (SNP) Station 0008-Sa2 (active)**

Description:	Sable Pit Minewater.
Location:	To be determined.
Sampling Frequency:	Weekly during Discharge.
Sampling Parameters:	TSS, physical parameters <sup>2</sup> , major ions <sup>1</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water entering the Two Rock Sedimentation Pond.
Rationale for Status:	Sable Pit has not yet been developed.

**Surveillance Network Program (SNP) Station 0008-Sa3 (active)**

Description:	Outlet of Two Rock Sedimentation Pond. Site of Compliance.		
Location:	To be determined.		
Sampling Frequency:	When Discharging from Two Rock Sedimentation Pond.		
	Up to four weeks prior to Discharge	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.	Once each year during first week of Discharge (after spring break-up) and once each year during the last week of Discharge (before fall freeze-up).

Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> , TPH <sup>5</sup> and BTEX <sup>6</sup> .	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>	Acute <sup>8a</sup> and chronic <sup>8b</sup> toxicity tests
Rationale for Station:	To monitor the quality of effluent leaving Two Rock Sedimentation Pond prior to Discharge entering the Receiving Environment.		
Rationale for Status:	Primary (future) Discharge point.		

**Surveillance Network Program (SNP) Station 0008-Sa4 (permanently inactive)**

Description:	Ulu Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP). Also, the Seepage Survey (Part H, Condition 5) will more appropriately directly monitor Seepage from the Sable Waste Rock Storage Areas.

**Surveillance Network Program (SNP) Station 0008-Sa5 (permanently inactive)**

Description:	Inflow to Horseshoe Lake from Ulu Lake.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP). Also, the Seepage Survey (Part H, Condition 5) will more appropriately directly monitor Seepage from the Sable WRSA's.

**Surveillance Network Program (SNP) Station 0008-Sa6 (active)**

Description:	Horseshoe Lake, to be located within 200 m of the Discharge point from Two Rock Sedimentation Pond.
Location:	
Sampling Frequency:	Once each year after spring break-up and before fall freeze-up. Sampling is to commence with Construction of the Sable Pit.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , and dissolved metals <sup>9</sup>
Rationale:	To detect impacts due to effluent Discharged from Two Rock Sedimentation Pond.
Rationale for Status:	Will provide information relevant to mine activities.

**Surveillance Network Program (SNP) Station 0008-Sa7 (permanently inactive)**

Description:	Lower Exeter Lake
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water in the Receiving Environment.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP).

**Surveillance Network Program (SNP) Station 0008-Sa8 (active)**

Description:	Runoff from Southern Catchment Area.	
Location:	522868 7191858	
Sampling Frequency:	Sampling is to commence with Construction of the Sable Pit.	
	Once annually during the open water season.	Once every two years
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , and TPH <sup>5</sup>	TPH
Rationale for Station:	To monitor the water quality of surface runoff and Seepage leaving the site facility area.	
Rationale for Status:	Will provide information relevant to mine activities.	

**Surveillance Network Program (SNP) Station 0008-Sa9a (active)**

Description:	Horseshoe Lake, location to be determined as per Part H, Condition 30 and 31 of this Licence.		
Location:	100 m northwest of the center of the diffuser.		
Sampling Frequency:	When Discharging from Two Rock Sedimentation Pond.		
	Up to four weeks prior to Discharge	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.	Once each year during first week of Discharge (after spring break-up) and once each year during the last week of Discharge (before fall freeze-up).
Sampling Frequency:	Once each year after spring break-up and before fall freeze-up. Sampling is to commence with Construction of the Sable Pit.		
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>		
Rationale for Station:	To verify the characteristics of initial mixing of effluent from Two Rock Sedimentation Pond in Horseshoe Lake close to end of pipe.		
Rationale for Status:	Will provide information relevant to mine activities.		

**Surveillance Network Program (SNP) Station 0008-Sa9b (active)**

Description:	Horseshoe Lake, location to be determined as per Part H, Condition 30 and 31 of this Licence.		
Location:	Along the 100 m contour line from the Point of Discharge at the location with the highest specific conductivity.		
Sampling Frequency:	When Discharging from Two Rock Sedimentation Pond.		
	Up to four weeks prior to Discharge	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.	Once each year during first week of Discharge (after spring break-up) and once each year during the last week of Discharge (before fall freeze-up).
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>		
Rationale for Station:	To verify the characteristics of initial mixing of effluent from Two Rock Sedimentation Pond in Horseshoe Lake close to end of pipe.		

Rationale for Status:	Will provide information relevant to mine activities.
-----------------------	---

**Surveillance Network Program (SNP) Station 0008-Sa10 (active)**

Description:	Upstream portion of Two Rock Sedimentation Pond.
Location:	To be determined.
Sampling Frequency:	Two weeks prior to Discharge from 0008-Sa3, weekly thereafter and on the final day of Discharge from 0008-Sa3.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of water in the upstream portion of Two Rock Sedimentation Pond during operations.
Rationale for Status:	Will provide information relevant to mine activities.

**Surveillance Network Program (SNP) Station 0008-Sa100 (active)**

Description:	Ursula Lake at site of withdrawal for the future filling of Sable Pit.
Location:	To be determined
Sampling Frequency:	To be determined
Sampling Parameters:	To be determined
Rationale for Station:	To monitor the quality of water entering the Sable Pit.
Rationale for Status:	Sable Pit has not yet been developed.

**Surveillance Network Program (SNP) Station 0008-Be1 (permanently inactive)**

Description:	Beartooth Lake Dewatering. Site of Compliance.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of water Dewatered (in the past) from Beartooth Lake.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 0008-Be2 (permanently inactive)**

Description:	Beartooth Pit Minewater.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To determine the water quality entering the Long Lake Containment Facility.
Rationale for Status:	The activity is complete and there is no future Discharge.

**Surveillance Network Program (SNP) Station 0008-Be3 (permanently inactive)**

Description:	North Panda Lake Inflow.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To determine the quality of the water entering North Panda Lake. Sampling the quality of water flowing from one natural water body to another does not provide application to the mine operation.
Rationale for Status:	Water quality in North Panda Lake that is relevant to the SNP is monitored under SNP 1616-12. This is a duplicative requirement.

**Surveillance Network Program (SNP) Station 0008-Be4 (active)**

Description:	Beartooth Pit.
Location:	To be determined.
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> and ecological monitoring <sup>7</sup> , and dissolved metals <sup>9</sup>
Rationale for Station:	To monitor the quality of water in Beartooth Pit during its use as a mine water retention pond and Processed Kimberlite Containment Area.

Rationale for Status:	Provides relevant information related to mine activities.
-----------------------	---

**Surveillance Network Program (SNP) Station 0008-REF1 (permanently inactive)**

Description:	Reference station to replace the Vulture site should impacts be detected at that site.
Location:	
Sampling Frequency:	
Sampling Parameters:	
Rationale for Station:	To document the quality of natural water.
Rationale for Status:	Duplicative of the purpose and sampling for the Aquatic Effects Monitoring Program (AEMP)

**Surveillance Network Program (SNP) Station Jay-0001 (active)**

Description:	Jay Dyke Dewatering (two locations) Point of Compliance.		
Location:	During Dewatering of inside of Jay Dyke to Lac du Sauvage. To be determined.		
Sampling Frequency:	Once prior to commencement of Dewatering.	Daily during Dewatering.	Once on the final day of Dewatering.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>	TSS and physical parameters <sup>2</sup>	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of the water being pumped from inside the Jay Dyke to Lac du Sauvage.		
Rationale for Status:	Provides relevant information relating to mine activities.		

**Surveillance Network Program (SNP) Station Jay-0002 (active)**

Description:	Jay Dyke Dewatering to Misery and Lynx Pits
Location:	During Dewatering of the area enclosed by the Jay Dyke and North Dyke to Misery and Lynx pits. To be determined.
Sampling Frequency:	Every two weeks

Sampling Parameters:	Major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of the water being pumped from the area enclosed by the Jay Dyke and North Dyke to Misery and Lynx Pits.
Rationale for Status:	Provides relevant information relating to mine activities.

**Surveillance Network Program (SNP) Station Jay-0003 (active)**

Description:	Jay Pit Mine Inflows Sump
Location:	Located inside the area enclosed by the Jay Dyke and North Dyke. To be determined.
Sampling Frequency:	Monthly while being pumped.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of the water entering the bottom of Misery Pit from Jay Pit.
Rationale for Status:	Provides relevant information relating to mine activities.

**Surveillance Network Program (SNP) Station Jay-0004 (active)**

Description:	Jay Pit Run-off Sump
Location:	Located inside the area enclosed by the Jay Dyke and North Dyke. To be determined.
Sampling Frequency:	Monthly while being pumped.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup>
Rationale for Station:	To monitor the quality of the water entering the top of Misery Pit from Jay Pit.
Rationale for Status:	Provides relevant information relating to mine activities.

**Surveillance Network Program (SNP) Station Jay-0005a (active)**

Description:	Misery Pit. Point of Compliance.		
Location:	Within Misery Pit, upstream of decant structure to Lac du Sauvage, during pumping. To be determined.		
Sampling Frequency:	Up to four weeks prior to Discharge	Quarterly	Once each year during open water and once each year under-ice.



Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , dissolved aluminum, nutrients <sup>4</sup> , TPH <sup>5</sup> , BTEX <sup>6</sup> , and acute toxicity tests <sup>8a</sup>	pH, TSS, nutrients <sup>4</sup> , TPH <sup>5</sup> , BTEX <sup>6</sup>	Acute toxicity tests <sup>8a</sup> Chronic toxicity test <sup>8b</sup> conducted at a depth of maximum conductivity (or mid-depth if no conductivity gradient is observed)
Rationale for Station:	To provide a pre-Discharge sample location (for Jay-0005b) by monitoring the quality of water in Misery pit that will be pumped to Lac du Sauvage.		
Rationale for Status:	Primary Discharge location.		

**Surveillance Network Program (SNP) Station Jay-0005b (active)**

Description:	Discharge to Lac du Sauvage from Misery pit. Point of Compliance.	
Location:	At outlet of the pipe carrying water from Misery pit. To be determined.	
Sampling Frequency:	On the first day of Discharge, weekly during periods of Discharge, and on the final day of Discharge.	Monthly
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , dissolved aluminum, nutrients <sup>4</sup>	TPH <sup>5</sup> , BTEX <sup>6</sup>
Rationale for Station:	To monitor the quality of water that is being Discharged to the Receiving Environment (Lac du Sauvage) from Misery pit.	
Rationale for Status:	Primary Discharge location.	

**Surveillance Network Program (SNP) Station Jay-0005c (active)**

Description:	Edge of mixing zone in Lac du Sauvage: three sites at the edge of the mixing zone
Location:	At the edge of the mixing zone in Lac du Sauvage, 200 m from the diffuser. To be determined.

Sampling Frequency:	Monthly during Discharge (during safe ice cover conditions and during open water)	Sediment (once a year during Discharge, in the fall)
Sampling Parameters:	At the depth of maximum conductivity: TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> , nutrients <sup>4</sup> , TPH <sup>5</sup> , BTEX <sup>6</sup>  If no conductivity gradient is observed (i.e., <10% change throughout the water column), samples are to be collected at mid water column depth	Total phosphorus, total organic carbon, total metals
Rationale for Station:	To verify that water quality objectives are achieved at the edge of the mixing zone.	
Rationale for Status:	Primary Discharge location.	

**Surveillance Network Program (SNP) Station Jay-0006 (active)**

Description:	Misery pit.
Location:	To be determined after safe access.
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To monitor the quality of water within Misery pit, and to understand formation of meromixis in Misery Pit during its use for mine water management. In-pit monitoring.
Rationale for Status:	Provides information on establishment and stability of Meromixis.

**Surveillance Network Program (SNP) Station Jay-0007 (active)**

Description:	Lynx pit.
Location:	To be determined after safe access.
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.

Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To monitor the quality of water in Lynx pit during its use for mine water management. In-pit monitoring.
Rationale for Status:	Provides relevant information related to mine activities.

**Surveillance Network Program (SNP) Station Jay-0008 (active)**

Description:	Panda pit.
Location:	To be determined after safe access.
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To monitor the quality of water in Panda pit during its use as a mine water retention pond and Processed Kimberlite Containment Area.
Rationale for Status:	Provides relevant information related to mine activities.

**Surveillance Network Program (SNP) Station Jay-0009 (active)**

Description:	Koala pit.
Location:	To be determined after safe access.
Sampling Frequency:	Twice annually – once under ice cover and once during open water, at two depths – one near the surface and one at depth.
Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> and ecological monitoring <sup>7</sup>
Rationale for Station:	To monitor the quality of water in Panda pit during its use as a mine water retention pond and Processed Kimberlite Containment Area.
Rationale for Status:	Provides relevant information related to mine activities.

**Surveillance Network Program (SNP) Station Jay-0010 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler	Sample weekly using approved depth integrated	Monthly

	(provided safe boating and ice conditions)	sampler (provided safe boating and ice conditions)	
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0011 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler (provided safe boating and ice conditions)	Sample weekly using approved depth integrated sampler (provided safe boating and ice conditions)	Monthly
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0012 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler (provided safe boating and ice conditions)	Sample weekly using approved depth integrated sampler (provided safe boating and ice conditions)	Monthly
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0013 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler	Sample weekly using approved depth integrated	Monthly

	(provided safe boating and ice conditions)	sampler (provided safe boating and ice conditions)	
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0014 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler (provided safe boating and ice conditions)	Sample weekly using approved depth integrated sampler (provided safe boating and ice conditions)	Monthly
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0015 (active)**

Description:	SNP reference station in Lac du Sauvage for dyke Construction		
Location:	To be determined. Active during dyke Construction.		
Sampling Frequency:	Daily using approved depth integrated sampler (provided safe boating and ice conditions)	Sample weekly using approved depth integrated sampler (provided safe boating and ice conditions)	Monthly
Sampling Parameters:	TSS, turbidity	major ions <sup>1</sup>	Nutrients <sup>4</sup>
Rationale for Station:	Reference Station during dyke Construction		
Rationale for Status:	Provides relevant information related to dyke Construction.		

**Surveillance Network Program (SNP) Station Jay-0016 (active)**

Description:	Sub-Basin B Diversion Channel prior to entering Lac du Sauvage.
Location:	To be determined, upstream of the confluence with Lac du Sauvage
Sampling Frequency:	Monthly during periods of flow

Sampling Parameters:	TSS, major ions <sup>1</sup> , physical parameters <sup>2</sup> , total metals <sup>3</sup> and nutrients <sup>4</sup> .
Rationale for Station:	To monitor the quality of water exiting the Sub-Basin B Diversion Channel.
Rationale for Status:	This information is useful to document potential changes related to the diversion of water through the Sub-Basin B Diversion Channel.

2. The field pH, sample temperature and ambient wind and weather conditions shall be recorded at all locations at the time of sampling.
3. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of "Standards Methods for the Examination of Water and Wastewater", or by such other methods approved by an Analyst.
4. 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.
5. The Licensee shall annually review the approved **quality assurance/quality control (QA/QC) Plan**, which shall include a list of techniques that will be used to analyze samples collected under the SNP, and revise the Plan as necessary. Proposed revisions shall be submitted to an Analyst for approval.
6. The **QA/QC Plan** referred to in Condition 5 above shall be implemented as approved by an Analyst.
7. The final location of sampling stations is subject to approval of an Inspector.
8. Additional temporary sample collection may be required at the request of an Inspector.

**Notes:**

<sup>1</sup>Major ions include the following parameters:

Hardness, alkalinity, total dissolved solids, fluoride, sulphate, chloride, nitrate-N, total calcium, total magnesium, total sodium, and total potassium.

<sup>2</sup>Physical parameters include the following measurements:

pH, temperature, conductivity, and turbidity.

<sup>3</sup>Total Metals shall include, at a minimum, the following parameters:

Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, silicon, strontium, uranium, vanadium, and zinc. Total metals shall be analyzed on an unfiltered sample.

<sup>4</sup>Nutrients include the following parameters:

Ammonia-N, nitrate-N, nitrite-N, total Kjeldhal nitrogen, orthophosphate, total phosphorus, total dissolved phosphorus, total organic carbon and total carbon, and reactive silica.

<sup>5</sup>TPH is defined as Total Petroleum Hydrocarbons.

<sup>6</sup>BTEX includes the following parameters:  
Benzene, toluene, ethylene, and xylene.

<sup>7</sup>Ecological Monitoring: field multiprobe tests at depth intervals for the following parameters:  
pH, conductivity, temperature, dissolved oxygen (mg/L and % saturation), and redox potential (Eh).

<sup>8a/b</sup>Bioassays. Bioassay samples shall be provided to an accredited bioassay laboratory for the following analyses:

- <sup>8a</sup> Acute lethality to rainbow trout (*Oncorhynchus mykiss*) (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/13 Second Edition December 2000 (with May 1997 amendments));
- <sup>8a</sup> Acute lethality to the cladoceran crustacean *Daphnia magna* (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/11 July 1990 (with May 1996 amendments));
- <sup>8b</sup> Chronic toxicity to the cladoceran crustacean *Ceriodaphnia dubia* (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/21); and
- <sup>8b</sup> Chronic toxicity to the alga *Selenastrum capricornutum* (*Pseudokirchneriella subcapitata*) (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/25).

<sup>9</sup>Dissolved metals include:

Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, silicon, strontium, uranium, vanadium, and zinc.

## **Part B - Flow and Volume Measurement Requirements**

1. Unless otherwise noted, all flow and volume measurements shall be recorded monthly and recorded in cubic metres.
2. The monthly and annual quantities in cubic metres of freshwater obtained from Lac du Sauvage, Grizzly Lake, Little Lake, Falcon Lake, and Thinner Lake (Misery Camp).
3. The monthly lake levels during open water for Lac du Sauvage, Grizzly Lake, Little Lake, Falcon Lake, Thinner Lake (Misery Camp), Upper Panda Lake, Cell E of the Long Lake Containment Facility, and the King Pond Settling Facility.
4. The source and volume (on a monthly and annually basis in cubic metres) of recycled water used in the process plant and sampling plant.
5. The monthly and annual quantities in cubic metres of each Waste deposited to the Long Lake Containment Facility, King Pond Settling Facility, Phase 1 Tailings Containment Area, Two Rock Sedimentation Pond, Misery pit, Lynx pit, and open pits approved as Processed Kimberlite Containment Areas.
6. The monthly and annual quantities in cubic metres of any Discharges of water or Waste from the Long Lake Containment Facility, King Pond Settling Facility, Phase 1 Tailings Containment Area, Two Rock Sedimentation Pond, and Misery pit.

7. The monthly and annual quantities in cubic metres of Minewater pumped from each open pit and the underground mine and its deposit location.
8. The monthly and annual quantities in cubic meters of treated Sewage effluent Discharged from the Sewage Treatment Facilities.
9. The monthly and annual quantities in cubic metres of Sewage solids removed from the Sewage Treatment Facility.
10. The monthly and annual quantities in cubic metres of Sewage delivered to the Sewage Treatment Facilities from the Sable, Pigeon, and Jay Developments.
11. The quantity of water Dewatered from Sable Lake and Lac du Sauvage.
12. The quantity of Minewater pumped from the Pigeon, Sable, Beartooth, Panda, Koala, Misery, and Jay open pits.

### **Part C - Other Monitoring Requirements**

1. The Licensee shall measure and record the following data:
  - a) Precipitation; and
  - b) Evaporation, which is calculated from the parameters list below:
    - i. Wind speed at approximately 2 meters above the water surface;
    - ii. Wind direction;
    - iii. Air temperature at approximately 0.75 and 2 metres above the water surface;
    - iv. Relative humidity at approximately 0.75 and 2 metres above the water surface;
    - v. Water temperature at two levels;
    - vi. Net solar radiation over the water surface; and
    - vii. Water level.
2. The Licensee shall submit to the Board for approval, the location, methods and frequency for measuring and recording the meteorological data identified in Item 1 above.
3. The methods and frequency referred to in Item 1 above, shall be implemented as and when approved by the Board.
4. The quantity of ore processed shall be measured in tonnes and recorded monthly.
5. The quantity of Waste Rock and Coarse Processed Kimberlite shall be measured in tonnes and recorded monthly and their disposal locations recorded monthly.
6. A summary of the results of the monitoring carried out under the **Construction Plan** for the Jay and North Dyke referred to in Part F, Condition 2 of this Licence;

### **Part D - Reports**



1. The Licensee shall within 30 days following the month being reported, submit to the Board all data and information required by the "Surveillance Network Program" including the results of the approved **QA/QC Plan**.

**Annex C**

**Revisions to Water Licence #W2020L2-0004**

**(Current to SEPTEMBER 30, 2021)**

*List of changes made to the Water Licence since Issuance*

<b>Effective Date</b>	<b>Section and Description</b>	<b>Reference</b>
JUNE 3, 2021	Renewal of <a href="#">W2012L2-0001</a> .	Original Issuance
AUGUST 24, 2001	Schedule 2: Update to Condition 1(a) to reflect the Board's April 22, 2021 Decision on Old Camp Refund Request. See August 24, 2021 Decision Letter	Security Adjustment #1
September 30, 2021	SNP update to reflect the Board's September 30, 2021 decision on Version 3.0 of the Two Rock Outfall Report	SNP Update #1