



Mackenzie Valley Land and Water Board
Water Licence

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

De Beers Canada Inc.

(Licensee)

of Suite 300 – 1601 Airport Road NE, Airport Corporate Centre, Calgary, Alberta T2E 6Z8

(Mailing Address)

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

Licence Number:	MV2019L2-0004
Licence Type:	A
Water Management Area:	Northwest Territories 01
Location:	Snap Lake, Northwest Territories
Purpose:	To use water and dispose of waste and associated uses
Description:	Mining and Milling Undertaking
Quantity of Water not to be exceeded :	188,000 cubic metres (m ³) per year
Effective date of Licence:	June 14, 2020
Expiry date of Licence:	June 13, 2035

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

Mackenzie Valley Land and Water Board

Handwritten signature of Mavis Cli-Michaud in blue ink.

Mavis Cli-Michaud, Chair

Handwritten signature of Amanda Gauthier in black ink.

Amanda Gauthier, Witness

Approved by

Honourable Shane Thompson
Minister of Environment and Natural Resources

Type A Water Licence MV2019L2-0004 De Beers Canada Inc. – Snap Lake Project

Table of Contents

Part A: [Scope](#) and [Defined Terms](#)

[Part B](#): General Conditions

[Part C](#): Security

[Part D](#): Water Use

[Part E](#): Construction

[Part F](#): Waste and Water Management

[Part G](#): Aquatic Effects Monitoring

[Part H](#): Spill Contingency Planning

[Part I](#): Closure and Reclamation

Schedules

[Schedule 1](#): Annual Water Licence Report (Part B)

[Schedule 2](#): Security (Part C)

[Schedule 3](#): Construction (Part E)

[Schedule 4](#): Waste and Water Management (Part F)

[Schedule 5](#): Aquatic Effects Monitoring (Part G)

[Schedule 6](#): Closure and Reclamation (Part I)

Annex A: Surveillance Network Program

[Part A](#): Station Description and Monitoring Requirements

[Part B](#): Flow and Volume Measurements

[Part C](#): Other Monitoring Requirements

[Part D](#): Reporting Requirements

Annex B: Concordance Table of Items Requiring Submission

Annex C: Table of Revision History

Part A: Scope and Defined Terms

Scope:

1. This Licence entitles the Licensee to use Water and deposit Waste from mining and milling and associated activities for closure of the Snap Lake Diamond Project Site.

The scope of this Licence includes the following:

- a) Construction, operation, and maintenance of site facilities, roads, and laydown areas;
 - b) Construction, operation, and maintenance of a winter ice road;
 - c) Construction, operation, and maintenance of the North Pile Facility;
 - d) Storage of fuel;
 - e) Quarrying of materials from specified areas;
 - f) Withdrawal of Water for domestic purposes;
 - g) Depositing of Waste to the North Pile Facility; and
 - h) Associated Closure and Reclamation activities.
2. This Licence is issued subject to the conditions contained herein with respect to the use of Water and the deposit of Waste in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Commissioner in Executive Council under the *Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations.
 3. Compliance with the defined terms and conditions of this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, or municipal legislation.

Defined Terms:

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

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

Active Closure – the closure period during which Closure and Reclamation activities are being implemented and prior to breaching the Influent Storage Ponds to allow Water to passively flow into Snap Lake.

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

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

Average Concentration – the arithmetic mean/discrete average of four consecutive analytical results, or if less than four analytical results, the arithmetic mean/discrete average of the analytical results collected during a batch decant, as submitted to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program.

Board – the Mackenzie Valley Land and Water Board established under subsection 99(1) of the *Mackenzie Valley Resource Management Act*.

Closure Cost Estimate – an estimate of the cost to close and reclaim a project.

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

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

Closure and Reclamation – the works and activities conducted during closure and as described in the Final Closure and Reclamation Plan.

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

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

Dam – a structure that meets the definition of a Dam as per the *Dam Safety Guidelines* and is intended to contain, withhold, divert, or retain Water or Waste.

Dam Class – the category of dam based on its failure consequences, as described in the *Dam Safety Guidelines*.

Dam Safety Guidelines – the Canadian Dam Association (CDA) *Dam Safety Guidelines*, including the CDA *Dam Safety Guidelines Technical Bulletins*.

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

Effluent – a Wastewater Discharge.

Effluent Quality Criteria (EQC) – numerical or narrative limits on the quality or quantity of the Waste deposited to the Receiving Environment.

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

Engineer of Record – a qualified and competent Professional Engineer who is responsible for the design and performance of the mine openings to surface, North Pile, and North Pile Perimeter Water Control Structures.

Engineered Structure – any structure or facility related to Water Use or the deposit of Waste that is designed by a Professional Engineer, including but not limited to the mine openings to surface, North Pile, and North Pile Perimeter Water Control Structures associated with the Project.

Environmental Assessment (EA) – the totality of the Mackenzie Valley Environmental Impact Review Board's Public Registry for Environmental Assessments EA01-004 and EA1314-02.

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

Groundwater – as defined in section 1 of the Waters Regulations: all Water in a zone of saturation below the land surface, regardless of its origin.

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

Influent Storage Pond – includes the east and west Influent Storage Ponds which receive and store Seepage and Runoff from the North Pile Facility.

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

Licensee – the holder of this Licence.

Maximum Average Concentration – the concentration of a parameter that cannot be exceeded by the running average of any four consecutive analytical results.

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

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

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

Minister – the Minister of the Government of the Northwest Territories (GNWT) – Environment and Natural Resources.

North Pile – the North Pile Waste Rock and Processed Kimberlite storage facility which is comprised of the containment basins and the Engineered Structures designed to store and contain the Processed Kimberlite and other Waste materials.

North Pile Facility – includes the North Pile and the North Pile Perimeter Water Control Structures.

North Pile Perimeter Water Control Structures – includes the ditches, sumps, and ponds that collect and convey Water away from the North Pile.

Passive Water Treatment System – components related to the collection, conveyance and/or treatment of Water without active management.

Post-Closure – the phase in the mine life cycle where physical works relating to Closure and Reclamation have been completed. Monitoring is being conducted during this phase until such time that it can be demonstrated that Closure Criteria have been achieved.

Potentially Acid Generating – the potential to produce Acid Rock Drainage.

Processed Kimberlite – the material rejected from the process plant after the recoverable materials have been extracted.

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

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

Project – the undertaking described in Part A, Condition 1.

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

RECLAIM – the Government of the Northwest Territories' model for estimating Closure and Reclamation costs.

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

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

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

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

Sewage – all Toilet Wastes and Greywater.

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

Surveillance Network Program (SNP) – a monitoring program established to define environmental sampling, analysis, and reporting requirements, as detailed in Annex A of this Licence.

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

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

Unauthorized Discharge – a Discharge of any Water or Waste not authorized under this Licence.

Waste – as defined in section 1 of the *Waters Act*:

- a) a substance that, if added to Water, would degrade or alter or form part of a process of degradation or alteration of the quality of the Water to an extent that is detrimental to its use by people or by an animal, fish or plant, or
- b) Water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, that it would, if added to other Water, degrade or alter or form part of a process of degradation or alteration of the quality of that Water to the extent described in paragraph (a),

and includes

- c) a substance or Water that, for the purposes of the *Canada Water Act*, is deemed to be waste,
- d) a substance or class of substances prescribed by regulations made under subparagraph 63(1)(b)(i),
- e) Water that contains a substance or class of substances in a quantity or concentration that is equal to or greater than a quantity or concentration prescribed in respect of that substance or class of substances by regulations made under subparagraph 63(1)(b)(ii), and
- f) Water that has been subjected to a treatment, process or change prescribed by regulations made under subparagraph 63(1)(b)(iii).

Waste Management Plan (WMP) – a document, developed in accordance with the Mackenzie Valley Land and Water Board's *Guidelines for Developing a Waste Management Plan*, that describes the methods of Waste management from Waste generation to final disposal.

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

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

Water – as defined in section 1 of the *Waters Act*: Water under the administration and control of the Commissioner, whether in a liquid or frozen state, on or below the surface of land.

Watercourse – as defined in section 1 of the Waters Regulations: a natural watercourse, body of Water or Water supply, whether usually containing Water or not, and includes Groundwater, springs, swamps, and gulches.

Water Management Area – a geographical area of the Northwest Territories established by section 2 and Schedule A of the Waters Regulations.

Water Management Pond – the impoundment that was used for disposal of Processed Kimberlite during the exploration phase but during operations is being used for temporary storage of Water and Waste and as a contingency Water storage area for the Water treatment plant.

Waters Regulations – the regulations proclaimed pursuant to section 63 of the *Waters Act*.

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

Water Use – as defined in section 1 of the *Waters Act*: a direct or indirect use of any kind, including, but not limited to,

- a) a diversion or obstruction of Waters,
- b) an alteration of the flow of Waters, and
- c) an alteration of the bed or banks of a river, stream, lake or other body of Water, whether or not the body of Water is seasonal,

but does not include a use connected with shipping activities that are governed by the *Canada Shipping Act, 2001*.

Water Use Fee – the fee for use of Water as per the Waters Regulations pursuant to section 63 of the *Waters Act* and the Mackenzie Valley Land and Water Board's *Water Use Fee Policy*.

Part B: General Conditions

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| 1. | The Licensee shall ensure a copy of this Licence is maintained on site at all times. | COPY OF LICENCE |
| 2. | The Licensee shall take every reasonable precaution to protect the environment. | PRECAUTION TO PROTECT ENVIRONMENT |
| 3. | In conducting its activities under this Licence, the Licensee shall make every reasonable effort to consider and incorporate any scientific information and Traditional Knowledge that is made available to the Licensee. | INCORPORATE SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE |
| 4. | In each submission required by this Licence or by any directive from the Board, the Licensee shall identify all recommendations based on Traditional Knowledge received, describe how the recommendations were incorporated into the submission, and provide justification for any recommendation not adopted. | IDENTIFY TRADITIONAL KNOWLEDGE |
| 5. | All references to policies, guidelines, codes of practice, statutes, regulations, or other authorities shall be read as a reference to the most recent versions, unless otherwise denoted. | REFERENCES |
| 6. | The Licensee shall ensure all submissions to the Board: <ul style="list-style-type: none"> a) Are in accordance with the Mackenzie Valley Land and Water Board's <i>Document Submission Standards</i>; b) Include a conformity statement or table which identifies where the requirements of this Licence, or other directives from the Board, are addressed; and c) Include any additional information requested by the Board. | SUBMISSION FORMAT AND CONFORMITY |
| 7. | The Licensee shall ensure management plans are submitted to the Board in a format consistent with the Mackenzie Valley Land and Water Board's <i>Standard Outline for Management Plans</i> , unless otherwise specified. | MANAGEMENT PLAN FORMAT |
| 8. | The Licensee shall comply with all plans, programs, and studies approved pursuant to the conditions of this Licence, including such revisions made as per the conditions of this Licence, and as approved by the Board. | COMPLY WITH SUBMISSIONS AND REVISIONS |
| 9. | The Licensee shall conduct an annual review of all plans, programs, and studies and make any revisions necessary to reflect changes in operations, contact information, or other details. No later than March 31 each year, the Licensee shall send a notification letter to the Board, listing the documents that have been reviewed and do not require revisions. | ANNUAL REVIEW |
| 10. | The Licensee may propose changes at any time by submitting revised plans, programs, or studies to the Board, for approval, a minimum of 90 days prior to the proposed implementation date for the changes. The Licensee shall not implement the changes until approved by the Board. | REVISIONS |
| 11. | The Licensee shall revise any submission and submit it as per the Board's directive. | REVISE AND SUBMIT |

12.	If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.	SUBMISSION DATE
13.	The Licensee shall comply with the Schedules , which are annexed to and form part of this Licence, and any updates to the Schedules as may be made by the Board.	COMPLY WITH SCHEDULE(S)
14.	The Licensee shall comply with the Surveillance Network Program , which is annexed to and forms part of this Licence, and any updates to the Surveillance Network Program as may be made by the Board.	COMPLY WITH SURVEILLANCE NETWORK PROGRAM
15.	The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be updated at the discretion of the Board.	UPDATES TO COMPLIANCE DATE(S)
16.	The Licensee shall ensure signs are posted for all active Surveillance Network Program stations. All sign(s) shall be located and maintained to the satisfaction of an Inspector.	POST SURVEILLANCE NETWORK PROGRAM SIGN(S)
17.	The Licensee shall install, operate, and maintain meters, devices, or other such methods used for measuring the volumes of Water used and Waste discharged to the satisfaction of an Inspector.	MEASURE WATER USE AND WASTE DISCHARGED
18.	Beginning March 31, 2021 and no later than every March 31 st thereafter, the Licensee shall submit an Annual Water Licence Report to the Board and an Inspector. The Report shall be in accordance with the requirements of Schedule 1, Condition 1.	ANNUAL WATER LICENCE REPORT
19.	The Licensee shall comply with the Engagement Plan , once approved.	ENGAGEMENT PLAN
20.	A minimum of 48 hours prior to the initial commencement of Project activities, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the commencement date, and the name and contact information for the individual responsible for overseeing the Project. Written notification shall be provided to the Board and an Inspector if any changes occur.	NOTIFICATION – COMMENCEMENT
21.	A minimum of 48 hours prior to re-commencement of Project activities following a temporary shut-down period, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the commencement date, and the name and contact information for the individual responsible for overseeing the Project. Written notification shall be provided to the Board and an Inspector if any changes occur.	NOTIFICATION – RE-COMMENCEMENT
22.	The Licensee shall immediately provide written notification to the Board and an Inspector of any non-compliance with the conditions of this Licence or with any directive from the Board pursuant to the conditions of this Licence.	NOTIFICATION – NON-COMPLIANCE
23.	The Licensee shall ensure that a copy of any written authorization issued to the Licensee by an Inspector is provided to the Board.	COPY – WRITTEN AUTHORIZATION
24.	The Licensee shall submit a current Project schedule to the Board and an Inspector upon request.	SUBMIT CURRENT PROJECT SCHEDULE

Part C: Security

1.	The Licensee shall post and maintain a security deposit with the Minister in accordance with Schedule 2. The Licensee shall not commence Project activities until the security deposit has been posted.	POST SECURITY DEPOSIT
2.	Upon request of the Board, the Licensee shall submit an updated Closure Cost Estimate using the current version of RECLAIM or another method acceptable to the Board.	UPDATE CLOSURE COST ESTIMATE
3.	The amount of the security deposit required by Part C, Condition 1 may be adjusted by the Board: a) Based on an updated Closure Cost Estimate as per Part C, Condition 2; or b) Based on such other information as may become available to the Board.	ADJUSTED SECURITY AMOUNT
4.	If the amount of the security deposit is adjusted by the Board as per Part C, Condition 3, the Licensee shall post the adjusted amount with the Minister within the timeframe set by the Board. The Licensee shall not commence any new activities associated with a security adjustment until the additional security deposit has been posted.	POST ADJUSTED SECURITY AMOUNT
5.	Unless otherwise approved by the Board, the Licensee may not submit security adjustment requests except with any of the following submissions: a) Closure and Reclamation Plans; b) Closure and Reclamation Completion Reports; or c) Performance Assessment Reports.	SECURITY ADJUSTMENT REQUESTS

Part D: Water Use

1.	The Licensee shall only obtain fresh Water for the Project from Snap Lake. The Licensee may withdraw up to 188,000 m ³ /year of Water from this source.	WATER SOURCE AND MAXIMUM VOLUME
2.	In any single ice-covered season, the Licensee shall not withdraw greater than 10% of the available Water volume of any Watercourse, as calculated using the appropriate maximum expected ice thickness.	MAXIMUM UNDER-ICE WATER WITHDRAWAL VOLUME
3.	The Licensee may use Wastewater from the Water Management Pond, North Pile Perimeter Water Control Structures, and the Influent Storage Ponds for dust control only if that Wastewater meets the Effluent Quality Criteria established in Part F, Condition 17 of this Licence, or as otherwise approved by the Board.	WASTEWATER USE
4.	The Licensee shall only withdraw Water using the Water Supply Facilities, unless otherwise authorized temporarily in writing by an Inspector.	WATER WITHDRAWAL – FACILITIES
5.	Prior to obtaining Water from a licensed Water source, the Licensee shall post sign(s) to identify the intake for the Water Supply Facilities. All sign(s) shall be located and maintained to the satisfaction of an Inspector.	POST WATER INTAKE SIGN(S)

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| 6. | The Licensee shall construct and maintain the Water intake(s) with a screen designed to prevent impingement or entrapment of fish. | WATER INTAKE
SCREEN |
| 7. | Each year, prior to the 14 th day of June, and in advance of any Water use, the Licensee shall pay the Water Use Fee in accordance with the MVLWB <i>Water Use Fee Policy</i> . | WATER USE FEE |

Part E: Construction

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| 1. | The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Waste are designed, constructed, and maintained to minimize the escape of Waste to the Receiving Environment. | OBJECTIVE –
CONSTRUCTION |
| 2. | The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Wastes, and which meet the definition of a Dam as per the <i>Dam Safety Guidelines</i> are designed, constructed, maintained, and monitored to meet or exceed the <i>Dam Safety Guidelines</i> . | DAMS – GENERAL |
| 3. | The Licensee shall ensure that all Engineered Structures are constructed and maintained in accordance with the recommendations of the Professional Engineer responsible for the design, including, but not limited to, recommendations regarding field supervision and inspection requirements. | ENGINEERED
STRUCTURES –
GENERAL |
| 4. | The Licensee shall ensure that all material used in Construction meets the geochemical criteria specified in the approved Acid Rock Drainage and Geochemical Characterization and Management Plan referred to in Part F, Condition 5. | CONSTRUCTION
MATERIAL –
GEOCHEMICAL
CRITERIA |
| 5. | The Licensee shall maintain records of Construction materials for all structures and make them available at the request of the Board or an Inspector. | CONSTRUCTION
RECORDS |
| 6. | The Licensee shall maintain geochemical records of Construction materials for the North Pile and the Passive Water Treatment System and make them available at the request of the Board or an Inspector. | GEOCHEMICAL
RECORDS |
| 7. | Unless otherwise authorized in writing by an Inspector, a minimum of 90 days prior to the commencement of Construction of all structures, excluding Engineered Structures, intended to contain, withhold, divert, or retain Water or Wastes, the Licensee shall submit to the Board, for approval, a Structure Description and Construction Plan . The Plan shall be in accordance with the requirements of Schedule 3, Condition 1. The Licensee shall not commence Construction prior to Board approval of the Plan. | STRUCTURE
DESCRIPTION AND
CONSTRUCTION
PLAN |
| 8. | A minimum of 90 days prior to the commencement of Construction of any Engineered Structures, the Licensee shall submit to the Board for approval, a Design and Construction Plan . The Plan shall be in accordance with the requirements of Schedule 3 Condition 2. The Licensee shall not commence Construction prior to Board approval of the Plan. | DESIGN AND
CONSTRUCTION
PLAN |
| 9. | A minimum of 90 days prior to the commencement of Construction of any Engineered Structures, the Licensee shall submit to the Board, Design Drawings stamped and signed by a Professional Engineer. A minimum of 90 days prior to implementing any proposed changes, the Licensee shall submit revised Design Drawings to the Board. | DESIGN DRAWINGS |

10.	A minimum of 48 hours prior to the commencement of Construction of any Engineered Structure(s), the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the Construction commencement date, and the name and contact information for the individual responsible for overseeing Construction. Written notification shall be provided to the Board and an Inspector if any changes occur.	NOTIFICATION – CONSTRUCTION – ENGINEERED STRUCTURES
11.	A minimum of 48 hours prior to the commencement of Construction of any structure(s) intended to contain, withhold, divert, or retain Water or Wastes, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the Construction commencement date, and the name and contact information for the individual responsible for overseeing the Construction. Written notification shall be provided to the Board and an Inspector if any changes occur.	NOTIFICATION – CONSTRUCTION
12.	The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Wastes, excluding Engineered Structures, are constructed in accordance with the approved Structure Description and Construction Plan(s) .	CONSTRUCT AS DESIGNED – STRUCTURE(S)
13.	The Licensee shall ensure that all Engineered Structures are constructed in accordance with the Design Drawings and approved Design and Construction Plans .	CONSTRUCT AS DESIGNED – ENGINEERED STRUCTURE(S)
14.	Within 90 days of the completion of the Construction of each Engineered Structure, the Licensee shall submit to the Board, an As-Built Report stamped and signed by a Professional Engineer, which shall include, but not be limited to, the following information: a) final as-built drawings of the Engineered Structure(s), stamped and signed by a Professional Engineer; b) documentation, with rationale, of field decisions that deviate from Design and Construction Plans and Design Drawings ; and c) any data used to support these decisions.	AS-BUILT REPORT – ENGINEERED STRUCTURE(S)

Part F: Waste and Water Management

1.	The Licensee shall manage Waste and Water with the objective of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment through the use of appropriate mitigation measures, monitoring, and follow-up actions.	OBJECTIVE – WASTE AND WATER MANAGEMENT
<u>Management Plans and Monitoring Programs</u>		
2.	Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Waste Management Plan in accordance with the Mackenzie Valley Land and Water Board’s <i>Guidelines for the Development of a Waste Management Plan</i> . The Licensee shall not implement the changes until Board approval of the Plan.	WASTE MANAGEMENT PLAN – REVISED
3.	Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Water Management Plan . The Plan shall be in accordance with the requirements of Schedule 4, Condition 1. The Licensee shall not	WATER MANAGEMENT PLAN – REVISED

implement the Water management activities described in the revised Plan prior to Board approval.

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| 4. | A minimum of 90 days prior to commencement of activities, the Licensee shall submit to the Board, for approval, a revised North Pile Management Plan . The Plan shall be in accordance with the requirements of Schedule 4, Condition 2. The Licensee shall not commence Construction of North Pile Facility prior to Board approval of the Plan. | NORTH PILE
MANAGEMENT
PLAN – REVISED |
| 5. | A minimum of 90 days prior to commencement of blasting, earthworks activities, or placing of cover material, the Licensee shall submit to the Board, for approval, a revised Acid Rock Drainage and Geochemical Characterization and Management Plan . The Plan shall be in accordance with the requirements of Schedule 4, Condition 3. The Licensee shall not commence Construction of any Engineered Structures prior to Board approval of the Plan. | ACID ROCK
DRAINAGE AND
GEOCHEMICAL
CHARACTERIZATION
AND MANAGEMENT
PLAN – REVISED |
| 6. | Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, Erosion and Sedimentation Management Plan . The Plan shall be in accordance with the requirements of Schedule 4, Condition 4. The Licensee shall not commence Closure and Reclamation activities within 150 m of Snap Lake prior to Board approval of the Plan. | EROSION AND
SEDIMENTATION
MANAGEMENT
PLAN |
| 7. | Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, Explosives Management Plan . The Plan shall be in accordance with the requirements of Schedule 4, Condition 5. The Licensee shall not commence handling or use of explosives to Board approval of the Plan. | EXPLOSIVES
MANAGEMENT
PLAN |

Operation of Structure and Facilities

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| 8. | The Licensee shall construct, operate, and maintain the North Pile Facility to the design specifications and engineering standards, such that: <ul style="list-style-type: none">a) the specifications described in the North Pile Facility Design and Construction Plan, referred to in Part E are maintained at all times;b) Any deterioration or erosion of constructed structures/facilities shall be reported immediately to an Inspector;c) Any deterioration or erosion of constructed structures/facilities that requires repair shall be reported to an Inspector and the Board immediately, and repaired as per the Engineer of Record’s instructions;d) Monitoring of the facility is sufficient to ensure that:<ul style="list-style-type: none">i. Performance criteria, as described in the Design and Construction Plan, referred to in Part E, Condition 8 are being met; andii. Necessary changes in operation of the facility, including any additional mitigations, are identified. | NORTH PILE FACILITY |
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Inspection of Structures and Facilities

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| 9. | The Licensee shall conduct annual inspections of Engineered Structures, that are designed to contain, withhold, divert, or retain Water or Waste, or as otherwise directed by an Inspector or the Board. Records of these inspections shall be made available to the Board or an Inspector upon request. | ANNUAL
INSPECTION OF
ENGINEERED
STRUCTURES |
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<p>10. The Licensee shall conduct erosion inspections of Discharge locations during periods of Discharge as described in the approved North Pile Management Plan and Erosion and Sedimentation Management Plan, or more frequently as directed by an Inspector. Records of these inspections shall be made available to the Board or an Inspector upon request.</p>	<p>DAILY INSPECTIONS OF DISCHARGE LOCATIONS</p>
<p>11. The Licensee shall ensure that geotechnical inspections of all Engineered Structures are conducted annually during the summer months, by a Professional Engineer and following any events that exceed design criteria. The Licensee shall:</p> <ul style="list-style-type: none"> a) A minimum of two weeks prior to the annual inspection, provide written notification to an Inspector; and b) Within 60 days of completing the inspection, submit the Professional Engineer’s full Geotechnical Inspection Report to the Board and an Inspector. The Report shall include: <ul style="list-style-type: none"> i. a covering letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Professional Engineer, including rationale for any decisions that deviate from the Professional Engineer’s recommendations; and ii. a summary of any actions taken by the Licensee to address the recommendations made following the previous year’s inspection. 	<p>ANNUAL GEOTECHNICAL INSPECTION</p>
<p>12. The Licensee shall conduct a Dam Safety Review of all Engineered Structures intended to contain, withhold, divert, or retain Water or Wastes, and which meet the definition of a dam under the <i>Dam Safety Guidelines</i> at a frequency based on the Dam classification thereafter. The Dam Safety Review shall be conducted in accordance with the <i>Dam Safety Guidelines</i> by a Professional Engineer.</p>	<p>DAM SAFETY REVIEW</p>
<p>13. Prior to January 31 of the year following the year in which the Dam Safety Review was conducted, the Licensee shall submit the Professional Engineer’s Dam Safety Review Report to the Board. The Report shall include a covering letter from the Licensee outlining an implementation plan to respond to any recommendations made by the Professional Engineer, including rationale for any decisions that deviate from the Professional Engineer’s recommendations and a summary of any actions taken by the Licensee to address the recommendations made following the previous Dam Safety Review.</p>	<p>DAM SAFETY REVIEW REPORT</p>
<p><u>Discharge and Disposal Locations and Rates</u></p>	
<p>14. The Licensee shall deposit all Waste as described in the approved Waste Management Plan.</p>	<p>WASTE – GENERAL</p>
<p>15. The Licensee shall direct all Potentially Acid Generating material to the North Pile Facility and manage it according to the approved Acid Rock Drainage and Geochemical Characterization and Management Plan and final Closure and Reclamation Plan.</p>	<p>POTENTIALLY ACID GENERATING MATERIAL – NORTH PILE FACILITY</p>
<p>16. The Licensee shall Discharge all Effluent from North Pile Facility to Snap Lake as described in the approved Water Management Plan.</p>	<p>EFFLUENT DISCHARGE – NORTH PILE FACILITY</p>

Effluent Quality Criteria – Discharges from Water Management Systems during Active Closure Phase

17. The Licensee shall ensure that all Water and Waste from the Project that enters the Receiving Environment, including all Discharges at Surveillance Network Program stations 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge), has a pH value between 6.0 and 9.0^(a) and meets the following Effluent Quality Criteria (EQC):

EFFLUENT QUALITY CRITERIA – ACTIVE CLOSURE

Parameter	Effluent Quality Criteria	
	Maximum Average Concentration	Maximum Grab Concentration
	(mg/L)	(mg/L)
Nitrate as N	60	80
Total Suspended Solids	15	25
Total Petroleum Hydrocarbons ^(b)	-	5
Faecal Coliforms ^(c)	10 CFU/100 mL	20 CFU/100 mL

CFU – colony-forming units

(a) Excludes surface Runoff not reporting to the North Pile Perimeter Water Control Structures, which shall have a pH between 5.0 and 9.0

(b) Only applicable during period when the tank farm and heavy machinery are on site.

(c) Only applicable during period when on-site Sewage management is required.

18. The Licensee shall ensure that Discharge to Snap Lake shall not be acutely toxic to aquatic life as determined at SNP station 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge) by the test methods referenced in Part A of the Surveillance Network Program.

EFFLUENT QUALITY – TOXICITY – WATER TREATMENT PLANTS, INFLUENT STORAGE PONDS

19. Prior to breaching the East and West Influent Storage Ponds, the Licensee shall submit Water quality data for samples collected from Surveillance Network Program station 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge) to the Board and an Inspector as follows:

TESTING BEFORE DISCHARGE – WATER TREATMENT PLANTS, INFLUENT STORAGE PONDS

- a) A minimum of five days prior to commencing seasonal Discharge of Effluent to 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge); and
- b) A minimum of five days prior to commencing seasonal Discharge of Effluent to 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge) following an exceedance of the EQC specified in Part F, Condition 17.

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

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| <p>20. If Water quality data from any sample collected at Surveillance Network Program stations 02-17b (Water and Sewage treatment plant), 02-17c (East Influent Storage Pond Discharge), and 02-17d (West Influent Storage Pond Discharge) exceeds the EQC specified in Part F, Condition 21, or is determined to be acutely toxic as per Part F, Condition 22, the Licensee shall:</p> <ul style="list-style-type: none"> a) Cease the Discharge; b) Notify the Board and an Inspector immediately; c) Report the spill immediately in accordance with the Spill Contingency Plan referred to in Part H, Condition 2; d) Comply with the approved Water Management Plan referred to in Part F, Condition 3; and e) Within 30 days of initially reporting the incident, or within a timeframe authorized by an Inspector, submit a detailed report on the occurrence, including a summary of corrective actions taken, to the Board and an Inspector within 30 days. | <p>EFFLUENT QUALITY CRITERIA – EXCEEDANCE – WATER TREATMENT PLANTS, INFLUENT STORAGE PONDS</p> |
| <p>21. A minimum of 90 days prior to conducting the Plume Delineation Study, the Licensee shall submit to the Board for approval, a Plume Delineation Study Design for the East and West Influent Storage Ponds Discharge locations.</p> | <p>PLUME DELINEATION STUDY DESIGN</p> |
| <p>22. Within the first open Water season following submission of the Closure and Reclamation Completion Report for the North Pile Facility (excluding the landfill area) and all Water management structures, the Licensee shall complete a Plume Delineation Study in accordance with the approved Plume Delineation Study Design referred to in Part F, Condition 21.</p> | <p>PLUME DELINEATION STUDY</p> |
| <p>23. Within 90 days of the completion of the Plume Delineation Study referred to in Part F, Condition 22, the Licensee shall submit to the Board for approval, a Plume Delineation Study Report.</p> | <p>PLUME DELINEATION STUDY REPORT</p> |
| <p>24. A minimum of 180 days prior to breaching the Influent Storage Ponds and proceeding to a Passive Water Treatment System Discharge, the Licensee shall submit to the Board for approval, an EQC Re-evaluation Report. The Plan shall be in accordance with the requirements of Schedule 4, Condition 6. The Licensee shall not breach the Influent Storage Ponds and proceed to a Passive Water Treatment System Discharge prior to Board approval of the Report.</p> | <p>EQC RE-EVALUATION REPORT</p> |

Effluent Quality Criteria – Discharges from Passive Water Treatment System

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| <p>25. The Licensee shall ensure that Discharge to Snap Lake shall not be acutely toxic to aquatic life as determined at SNP station 02-17c (East Influent Storage Pond Discharge) and 02-17d (West Influent Storage Pond Discharge) by the test methods referenced in Part A of the Surveillance Network Program.</p> | <p>EFFLUENT QUALITY – TOXICITY – PASSIVE WATER TREATMENT SYSTEM</p> |
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Part G: Aquatic Effects Monitoring

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| 1. | The Licensee shall design and implement an Aquatic Effects Monitoring Program (AEMP) in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> . | OBJECTIVE – AEMP |
| 2. | Within 90 days of the effective date of this Licence, the Licensee shall submit to the Board, for approval, an AEMP Design Plan . The Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> . | AEMP DESIGN PLAN |
| 3. | Within 90 days of the effective date of this Licence, the Licensee shall submit to the Board, for approval, an AEMP Re-evaluation Report . The Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> . | AEMP RE-EVALUATION REPORT – REVISED |
| 4. | Three years following implementation of the AEMP Design Plan , and every three years thereafter, or as directed by the Board, the Licensee shall submit to the Board, for approval, an AEMP Re-Evaluation Report . The Report shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> and shall evaluate the overall effectiveness of the AEMP to date. | AEMP RE-EVALUATION REPORT |
| 5. | Every three years following implementation of the AEMP Design Plan , or as directed by the Board, the Licensee shall submit to the Board, for approval, a revised AEMP Design Plan . The revised Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> . | AEMP DESIGN PLAN – REVISED |
| 6. | Beginning May 1, 2021, and no later than May 1 st of each year thereafter, the Licensee shall submit to the Board, for approval, an AEMP Annual Report . The Report shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i> and the requirements of Schedule 5, Condition 1. The Licensee may submit the AEMP Annual Report as part of the AEMP Re-evaluation Report as referred to in Part G, Condition 3. | AEMP ANNUAL REPORT |
| 7. | If any low Action Level established in the approved AEMP Design Plan is exceeded, the Licensee shall, at a minimum, implement the response actions described in the approved AEMP Design Plan , and report the exceedance in the AEMP Annual Report . | LOW ACTION LEVEL EXCEEDANCE |
| 8. | If any moderate or high Action Level established in the approved AEMP Design Plan is exceeded, the Licensee shall: <ul style="list-style-type: none"> a) Within the timeframe identified in the approved AEMP Design Plan, notify the Board and an Inspector; and b) Within the timeframe identified in the approved AEMP Design Plan, or as otherwise directed by the Board, submit an AEMP Response Plan to the Board for approval. The Response Plan shall be in accordance with the MVLWB/GNWT <i>Guidelines for Aquatic Effects Monitoring Programs</i>. | MODERATE OR HIGH ACTION LEVEL EXCEEDANCE |

PART H: Spill Contingency Planning

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| 1. | The Licensee shall ensure that Unauthorized Discharges associated with the Project do not enter any Waters. | OBJECTIVE –
PREVENT WASTE
INTO WATER |
| 2. | Within 60 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Spill Contingency Plan . The Licensee shall not commence Project activities prior to Board approval of the Plan. | SPILL CONTINGENCY
PLAN – REVISED |
| 3. | During the period of this Licence, if a spill or an Unauthorized Discharge occurs or is foreseeable, the Licensee shall:

a) Implement the approved Spill Contingency Plan referred to in Part H, Condition 2;
b) Report it immediately using the NU-NT Spill Report Form by one of the following methods: <ul style="list-style-type: none">• Telephone: (867) 920-8130• Fax: (867) 873-6924• E-mail: spills@gov.nt.ca• Online: Spill Reporting and Tracking Database c) Notify the Board and an Inspector immediately; and
d) Within 30 days of initially reporting the incident, or within a timeframe authorized by an Inspector, submit a detailed report to the Board and an Inspector, including descriptions of causes, response actions, and any changes to procedures to prevent similar occurrences in the future. Written notification shall be provided to the Board and an Inspector if any changes occur. | REPORT SPILLS |
| 4. | The Licensee shall ensure that spill prevention infrastructure and spill response equipment is in place prior to commencement of the Project. | SPILL PREVENTION
AND RESPONSE
EQUIPMENT |
| 5. | The Licensee shall restore all areas affected by spills and Unauthorized Discharges to the satisfaction of an Inspector. | CLEAN UP SPILLS |

PART I: Closure and Reclamation

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| 1. | The Licensee shall comply with the final Closure and Reclamation Plan , once approved. The Plan shall be in accordance with the MVLWB/AANDC <i>Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories</i> . | CLOSURE AND
RECLAMATION PLAN |
| 2. | Within 90 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised final Closure and Reclamation Plan . | CLOSURE AND
RECLAMATION PLAN
– REVISED |
| 3. | Every three years during Closure and following the previous approval, or as directed by the Board, the Licensee shall submit to the Board, for approval, a revised final Closure and Reclamation Plan . | CLOSURE AND
RECLAMATION PLAN
– UPDATE |

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| 4. | Within 90 days of completing Closure and Reclamation of any specific component of the Project, the Licensee shall submit to the Board a Closure and Reclamation Completion Report . The Report shall be in accordance with the MVLWB/AANDC <i>Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories</i> . | CLOSURE AND RECLAMATION COMPLETION REPORT |
| 5. | A minimum of one year prior to completing Closure and Reclamation of the Project, or as otherwise directed by the Board, the Licensee shall submit a table of contents or draft schedule for the Post-Closure and Reclamation Monitoring and Maintenance Plan to the Board for approval. | POST-CLOSURE AND RECLAMATION MONITORING AND MAINTENANCE PLAN – TABLE OF CONTENTS |
| 6. | Within 90 days of completing Closure and Reclamation of the Project, or as otherwise directed by the Board, the Licensee shall submit to the Board for approval, a Post-Closure and Reclamation Monitoring and Maintenance Plan in accordance with the approved schedule referred to in Part I, Condition 5. The Plan shall be in accordance with the requirements of Schedule 6, Condition 1. | POST-CLOSURE AND RECLAMATION MONITORING AND MAINTENANCE PLAN |
| 7. | Within five years of completing Closure and Reclamation of any specific component of the Project, the Licensee shall submit to the Board for approval, a Performance Assessment Report . The Report shall be in accordance with the MVLWB/AANDC <i>Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories</i> . The Licensee shall submit subsequent Reports as directed by the Board. | PERFORMANCE ASSESSMENT REPORT – COMPONENT-SPECIFIC |

Signed on behalf of the Mackenzie Valley Land and Water Board

Mavis Cli-Michaud, Chair

Amanda Gauthier, Witness

Schedule 1: Annual Water Licence Report

1. The **Annual Water Licence Report** referred to in Part B, Condition 18 of this Licence shall include, but not be limited to, the following information about activities conducted during the previous calendar year:
 - a) A brief summary of Project activities;
 - b) An updated Project schedule;
 - c) A summary of the calibration and status of the meters and devices referred to in Part B, Condition 17 of this Licence;
 - d) A summary of engagement activities conducted in accordance with the approved **Engagement Plan**, referred to in Part B, Condition 19 of this Licence;
 - e) A summary of Construction activities conducted in accordance with Part E of this Licence;
 - f) A summary of activities conducted in accordance with the **Structure Description and Construction Plans** and the **Design and Construction Plans**, referred to in Part E of this Licence, including:
 - i. A summary of structures constructed;
 - ii. A summary of source and annual quantities of all materials used for Construction, including an updated map or diagram showing the location of the deposited materials;
 - iii. A summary of monitoring conducted under the Structure Description and Construction Plans and/or Design and Construction Plan; and
 - iv. A summary of exceedances of Action Levels, and actions taken in response to the exceedance.
 - g) A summary of major maintenance activities conducted in accordance with this Licence;
 - h) A summary of activities conducted in accordance with the approved **Waste Management Plan**, referred to in Part F, Condition 2 of this Licence, including:
 - i. A summary of approved updates or changes to the process or facilities required for the management of Waste;
 - ii. Monthly and annual quantities, in cubic metres, of domestic Waste, Hazardous Waste disposed, by location;
 - iii. Monthly and annual quantities of Sewage liquid discharged, by location; and
 - iv. Monthly and annual quantities, in cubic metres, of Sewage solids removed from the Sewage Treatment Plant, identified by disposal location.
 - i) A summary of activities conducted in accordance with the approved **Water Management Plan**, referred to in Part F, Condition 3 of this Licence, including:
 - i. A summary of approved updates or changes to the process or facilities required for the management of Water and Wastewater;
 - ii. Monthly and annual quantities, in cubic metres, of Water obtained from each approved source;
 - iii. Monthly and annual quantities, in cubic metres, of recycled Water, identifying both the source and use;
 - iv. Monthly and annual quantities of Water, in cubic metres, used for dust control;
 - v. Monthly and annual quantities, in cubic metres, of all Discharges, identified by Discharge location;
 - vi. Monthly and annual quantities in cubic metres, of Water and Wastewater pumped into the underground, Water Management Pond and Influent Storage Ponds;
 - vii. Monthly and annual estimates and/or measurements of precipitation and Runoff;
 - viii. Elevations of Water in Snap Lake during the open Water season;

- ix. Monthly elevations of Water in the Water Management Pond and Influent Storage Ponds during the open Water season and a stage volume curve for the pond;
 - x. A comparison of Water and Wastewater quantities measured in the year to the Water balances predicted for that year in the approved Plan, and an explanation of any significant differences between predictions and actual measurements;
 - xi. A comparison of Water and Wastewater quality measured in the year to the predicted Water quality models for that year in the approved Plan, and an explanation of any significant differences between predictions and actual measurements;
 - xii. An updated Water balance if required as per the approved Plan;
 - xiii. A summary and interpretation of monitoring results, including any Action Level exceedances; and
 - xiv. A description of actions taken in response to any Action Level exceedances.
- j) A summary of activities conducted in accordance with the approved **North Pile Management Plan**, referred to in Part F, Condition 4, including:
- i. A summary and interpretation of closure and Post-Closure monitoring results, including any Action Level exceedances; and
 - ii. A description of actions taken in response to any Action Level exceedances under the Response Framework.
- k) A summary of activities conducted in accordance with the approved **Acid Rock Drainage and Geochemical Characterization and Management Plan**, referred to in Part F, Condition 5, including:
- i. A summary of approved updates or changes to the processes for characterizing and managing Acid Rock Drainage and/or Metal Leaching;
 - ii. A summary of annual quantities of all Potentially Acid Generating materials, including an updated map or diagram showing the location of the deposited materials;
 - iii. A comparison of the annual quantities of each type of Waste Rock generated to the quantities predicted in the approved Acid Rock Drainage and Geochemical Characterization and Management Plan;
 - iv. A summary and interpretation of results from the geochemical monitoring performed under the approved Geochemical Characterization and Management Plan;
 - v. A summary and interpretation of results from Seepage monitoring performed under the approved Acid Rock Drainage and Geochemical Characterization and Management Plan, including:
 - a. a site map with Seepage locations;
 - b. comparisons to reference locations;
 - c. an analysis of major trends over the year and since Project inception; and
 - d. a summary of recommendations for future Seepage monitoring and/or management actions;
 - vi. A summary of results from investigations or activities related to field test cells;
 - vii. A summary and interpretation of Water quality monitoring results for each of the main source areas and how these compare to predicted values;
 - viii. A summary of any exceedances of the Action Levels described in the Acid Rock Drainage and Geochemical Characterization and Management Plan; and
 - ix. A description of actions taken in response to any Action Level exceedances under the Acid Rock Drainage and Geochemical Characterization and Management Plan.
- l) A summary of activities conducted in accordance with the approved **Erosion and Sedimentation Management Plan**, referred to in Part F, Condition 6 of this Licence, including:
- i. A summary of approved updates or changes to the process or facilities required for the management of erosion and sedimentation;
 - ii. A description of any erosion susceptible areas encountered;
 - iii. A summary of activities undertaken to prevent or mitigate erosion;
 - iv. A report of the performance of mitigations applied to each area;
 - v. A summary and interpretation of monitoring results, including any Action Level exceedances; and

- vi. A description of actions taken in response to any Action Level exceedances.
- m) A summary of activities conducted in accordance with the approved **Explosives Management Plan**, referred to in Part F, Condition 7 of this Licence, including:
- i. A summary of approved updates or changes to the process or facilities required for the management of explosives;
 - ii. A summary of activities undertaken to prevent or mitigate effects with respect to storage, handling, blasting, and spills;
 - iii. A report of the performance of mitigations applied to each area;
 - iv. A summary and interpretation of monitoring results, including any Action Level exceedances; and
 - v. A description of actions taken in response to any Action Level exceedances.
- n) A summary of activities conducted in accordance with the approved **Spill Contingency Plan**, referred to in Part H, Condition 2 of this Licence, including:
- i. A list and description for all Unauthorized Discharges, including the date, NWT spill number, volume, location, summary of the circumstances and follow-up actions taken, and status (i.e. open or closed), in accordance with the reporting requirements in Part H, Condition 3 of this Licence; and
 - ii. An outline of any spill training carried out.
- o) A summary of activities conducted in accordance with the **Closure and Reclamation Plan**, required in Part I, Condition 1 of this Licence, including:
- i. Details of any Closure and Reclamation undertaken;
 - ii. A discussion on whether planning and implementation remains on schedule, and a summary of any new scheduling setbacks;
 - iii. A summary of engagement conducted regarding Closure and Reclamation; and
 - iv. A list of any factors that would increase or decrease the Closure Cost Estimate the next time the estimate is updated.
- p) A summary of the results and any actions taken as a result of the following inspections:
- i. Inspections conducted to fulfill Part F of this Licence; and
 - ii. Dam Safety Reviews conducted as required in Part F of this Licence.
- q) Tabular summaries of all data and information generated under the SNP annexed to this Licence and graphical summaries of parameters with EQC referred to in Part F, Conditions 17, at the points of compliance (SNP Stations 02-17, 02-17b, 02-17c, and 02-17d in Excel format;
- r) A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this Licence;
- s) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;
- t) A table detailing all commitments related to Water Use and the deposit of Waste made during the Environmental Assessments EA01-004 and EA1314-02, with descriptions of how each commitment is being or has been met; and
- u) Any other details requested by the Board by November 1 of the year being reported.

Schedule 2: Conditions Applying to Security Deposits

1. Pursuant to section 35 of the *Waters Act* and section 11 of the Waters Regulations, the Licensee shall post, within 90 days following the effective date of Licence and maintain a security deposit totaling \$31,194,253.00.

Schedule 3: Conditions Applying to Construction

1. The **Structure Description and Construction Plans** referred to in Part E, Condition 7, shall include, but not be limited to the following:
 - a) Information about the design of the facilities:
 - i. A description of the facilities to be constructed, including the purpose of the facilities;
 - ii. Relevant background information for the area beneath the footprint of the containment and Runoff control structures, including the results of geotechnical and geochemical investigations; hydrogeological investigations; programs to characterize soil, rock, Groundwater, ground ice, and ground temperature conditions to the depth expected to be affected by the proposed facilities; and any other relevant information;
 - iii. Design specifications and performance parameters;
 - iv. A description of how the design has been optimized for Closure and Reclamation;
 - v. A description of any operations and maintenance requirements associated with the design of the facility; and
 - vi. An explanation of why the facility design does not need to be prepared by a Professional Engineer.
 - b) Information about the Construction of the facilities:
 - i. Construction schedule, including sequencing information;
 - ii. A description of the materials required for Construction, including, but not limited to:
 - a. sources;
 - b. quantities;
 - c. physical characteristics; and
 - d. geochemical characteristics;
 - iii. A description of any potential impacts on the Receiving Environment associated with Construction of the facilities; and
 - iv. A description of any mitigation measures that will be undertaken to minimize the potential impacts identified above.
 - c) Information regarding monitoring, including:
 - i. A description of any monitoring that will be conducted to determine the potential impacts to the Receiving Environment and the effectiveness of the mitigation measures described above, including, but not limited to:
 - a. locations;
 - b. parameters;
 - c. frequencies; and
 - d. rationale.
2. The **Design and Construction Plans** referred to in Part E, Condition 8, shall include, but not be limited to the following:
 - a) Information about the design of the facilities:
 - i. A description of the facilities to be constructed;
 - ii. The proposed location(s) of the facilities, with GPS coordinates and a map to scale;
 - iii. Relevant background information for the area beneath the footprint of the containment and Runoff control structures, including the results of geotechnical and geochemical investigations; hydrogeological investigations; programs to characterize soil, rock, Groundwater, ground ice, and ground temperature conditions to the depth expected to be affected by the proposed facilities; and any other relevant information, as deemed adequate by the Professional Engineer responsible for the design;

- iv. Design specifications and performance criteria;
 - v. Stability analyses;
 - vi. A description of how the design has been optimized for Closure and Reclamation;
 - vii. A description of any instrumentation that will be installed as part of the facilities, including locations and rationale; and
 - viii. A description of any operations and maintenance requirements associated with the design of the facility.
- b) Information about the Construction of the facilities:
- i. A Construction schedule, including sequencing information;
 - ii. A description of the materials required for Construction, including, but not limited to:
 - a. sources;
 - b. quantities;
 - c. physical characteristics; and
 - d. geochemical characteristics.
 - iii. A description of any potential impacts on the Receiving Environment associated with Construction of the facilities; and
 - iv. A description of any mitigation measures that will be undertaken to minimize the potential impacts identified above.
- c) Information regarding monitoring, including:
- i. A description of any monitoring that will be conducted to determine the potential impacts to the Receiving Environment and the effectiveness of the mitigation measures described above, including, but not limited to:
 - a. locations;
 - b. parameters;
 - c. frequencies; and
 - d. rationale.
- d) Information about responses to monitoring results, including:
- i. Definitions, with rationale, for Action Levels applicable to the performance of the mitigation measures;
 - 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 by the Licensee if the Action Level is exceeded; and
 - iii. A 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 Receiving Environment.
- e) A **Quality Control Plan** stamped by a Professional Engineer, a component of which includes a plan for a Professional Engineer to supervise and field check Construction activities.

Schedule 4: Conditions Applying to Waste and Water Management

1. The **Water Management Plan** referred to in Part F, Condition 3, shall include, but not be limited to the following:
 - a) Information regarding Water and Wastewater management during closure and Post-Closure:
 - i. A description of the facilities to be constructed, including the purpose of the facilities;
 - ii. Relevant background information for the area beneath the footprint of the containment and Runoff control structures, including the results of geotechnical and geochemical investigations; hydrogeological investigations; programs to characterize soil, rock, Groundwater, ground ice, and ground temperature conditions to the depth expected to be affected by the proposed facilities; and any other relevant information;
 - iii. The process and facilities for the collection and management of surface Runoff and Seepage generated on site;
 - iv. The process and facilities for the collection and management of any Wastewater resulting from closure and Post-Closure activities;
 - v. The process and facilities for the Water treatment and Discharge of Effluent from the Water management system to Snap Lake;
 - vi. Details of the final hydraulic design of all Water management structures and Water balance estimates on a monthly basis for each year of the proposed Licence;
 - vii. A summary of the results of the site Water models, including Water quality and quantity predictions;
 - viii. A summary of any linkages to activities described in the North Pile Management Plan; and
 - ix. Any other information required to describe how Water and Wastewater will be managed such that the objectives referred to in Part F, Condition 1 of this Licence will be met.
 - b) Information regarding contingency measures including:
 - i. A description of the proposed contingency measures for Water and Waste Management;
 - ii. A description of the criteria and events triggering the use of each contingency option
 - iii. A description of the series of events and sampling required to decide to use the proposed contingency measures; and
 - iv. Any other information required to describe the Water and Wastewater management of the contingency options.
 - c) Information regarding monitoring during closure and Post-Closure including:
 - i. Details of monitoring, including a rationale for each component of the Water management system;
 - ii. Linkages to other monitoring programs required in this Licence; and
 - iii. Any other information about the monitoring that will be performed to meet the objectives referred to in Part F, Condition 1 of this Licence.
 - d) Information about responses to closure and Post-Closure monitoring results:
 - i. A description of how site Water monitoring results will be compared to modeling predictions for Water quality and quantity, including the frequency for calibrating and updating site Water models; and
 - ii. A description of the Response Framework that will be implemented by the Licensee to link the results of monitoring to those corrective actions necessary to ensure that the objectives referred to in Part F, Condition 1 of this Licence are met including:
 - a. Definitions, with rationale for Action Levels applicable to the performance of the Water management system with respect to geotechnical stability, thermal characteristics, Seepage quality and quantity, and Runoff; and
 - b. 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.

2. The **North Pile Management Plan** referred to in Part F, Condition 4, shall include, but not be limited to the following:
- a) Information regarding operation and management:
 - i. A summary, with appropriate maps or diagrams, of the North Pile Facility and all the Waste streams that report to it;
 - ii. A description of the geochemical criteria for management and placement of Potentially Acid Generating Waste Rock including linkages to the Acid Rock Drainage and Geochemical Characterization and Management Plan referred to in Part F, Condition 5 of this Licence;
 - iii. A description of Water management procedures for the North Pile Facility including:
 - a. An identification of all potential sources of drainage from each storage site and the distance to the downstream Receiving Environment;
 - b. A detailed description, including a map or diagram, of the structures intended to contain, withhold, divert, or retain Water or Wastes related to the North Pile Facility and their predicted performance in terms of flow, capacity, and Water quality parameters;
 - c. A summary of proposed contingency measures for controlling Runoff and Seepage Water volume, routing, and quality; and
 - d. A summary of any linkages to activities described in the Water Management Plan, Acid Rock Drainage and Geochemical Characterization and Management Plan, and Erosion and Sedimentation Management Plan.
 - iv. Any other information required to describe how the North Pile Facility will be managed and operated such that the objectives referred to in in Part F, Condition 1 of this Licence will be met.
 - b) Information regarding erosion and sediment control methodologies specific to the North Pile:
 - i. A summary, with appropriate maps or diagrams, of the Project site identifying areas susceptible to erosion;
 - ii. The process and criteria for assessing erosion risk;
 - iii. A description of the best management practices that will be employed for different Project activities and for different levels of assessed risk; and
 - iv. Any other information required to describe how erosion and sediment release into the Receiving Environment will be minimized.
 - c) Information about monitoring specific to the North Pile including:
 - i. Details for monitoring, including rationale, that will be undertaken with respect to erosion and sediment control during all phases of the Project include closure and Post-Closure;
 - ii. The monitoring frequency for different levels of erosion risk;
 - iii. Linkages to other monitoring programs required in this Licence; and
 - iv. Any other information about monitoring that will be performed to meet the objectives in Part F, Condition 1 of this Licence.
 - d) Information about responses to monitoring specific to the North Pile results:
 - i. A description of how the monitoring information will be assessed and generally what types of actions will be taken in response to the monitoring results.
 - e) Information regarding contingency measures including:
 - i. A description of the proposed contingency measures for Water and Waste Management;
 - ii. A description of the criteria and events triggering the use of each contingency option; and
 - iii. Any other information required to describe the Water and Wastewater management of the contingency options.

- f) Information regarding closure and Post-Closure monitoring including:
 - i. Details and rationale for monitoring of erosion and sedimentation, geotechnical stability, thermal characterization, Seepage quality and quantity, and run-off for all components of the North Pile Facility including:
 - a. Monitoring locations, types of instrumentation used, and frequency of monitoring, including a site map to scale; and
 - b. Predicted performance values based on expected facility design.
 - ii. Linkages to other monitoring programs required in the Licence; and
 - iii. Any other information about the monitoring that will be performed to meet the objectives referred to in Part F, Condition 1 of this Licence.
 - g) Information about responses to closure and Post-Closure monitoring results:
 - i. A description of the Response Framework that will be implemented by the Licensee to link the results of monitoring to those corrective actions necessary to ensure that the objectives listed in Part F, Condition 1 of this Licence are met including:
 - a. Definitions, with rationale for Action Levels applicable to the performance of the North Pile Facility with respect to geotechnical stability, thermal characteristics, Seepage quality and quantity, and Runoff; and
 - b. 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 **Acid Rock Drainage and Geochemical Characterization and Management Plan** referred to in Part F, Condition 5, shall include, but not be limited to the following:
- a) A characterization of all representative rock types, (geology and mineralogy of typical rock units) used during all blasting and earthworks activities, including the anticipated quantities of each rock type;
 - b) An assessment of the potential for acidic, neutral or alkaline drainage and for Metal Leaching from the North Pile Facility both during closure and Post-Closure;
 - c) Description of estimated loadings and change in receiving Water chemistry and the internal contaminant loading balance from each source, and description of how results of Seepage surveys will be incorporated;
 - d) A geochemical characterization of material to be used for Construction and reclamation, including a geochemical assessment conducted in areas where the acid generation potential of North Pile cover Construction material requires confirmation;
 - e) A rationale describing how the sampling plan and sampled materials are representative of the materials used;
 - f) A description of placement of Potentially Acid Generating material, including those encountered during Construction of the North Pile Facility and any linkages to the requirements of Design Drawings and/or Design and Construction Plans; and
 - g) A description of the proposed means for preventing, monitoring, and managing Acid Rock Drainage and Metal Leaching including a map or diagram of monitoring locations.
4. The **Erosion and Sedimentation Management Plan** referred to in Part F, Condition 6, shall include, but not be limited to the following:

- a) Information regarding erosion and sediment control methodologies specific to all areas except the North Pile:
 - i. A summary, with appropriate maps or diagrams, of the Project site identifying areas susceptible to erosion;
 - ii. The process and criteria for assessing erosion risk;
 - iii. A description of the best management practices that will be employed for different Project activities and for different levels of assessed risk; and
 - iv. Any other information required to describe how erosion and sediment release into the Receiving Environment will be minimized.

- b) Information about monitoring specific to all areas except the North Pile including:
 - i. Details for monitoring, including rationale, that will be undertaken with respect to erosion and sediment control during all phases of the Project include closure and Post-Closure;
 - ii. The monitoring frequency for different levels of erosion risk;
 - iii. Linkages to other monitoring programs required in this Licence; and
 - iv. Any other information about monitoring that will be performed to meet the objectives in Part F, Condition 1 of this Licence.

- c) Information about responses to monitoring specific to all areas except the North Pile results:
 - i. A description of how the monitoring information will be assessed and generally what types of actions will be taken in response to the monitoring results.

- 5. The **Explosives Management Plan** referred to in Part F, Condition 7, shall include, but not be limited to the following:
 - a) The quantity and type of explosives predicted to be used onsite;
 - b) The predicted ammonium nitrate dissolution rate, by type;
 - c) Identification of mitigation approaches to be employed with respect to storage, handling, blasting and spills;
 - d) Description of the monitoring required to evaluate whether the mitigation approaches for storage, handling, and blasting procedures are effective, with rationale, for Action Levels applicable to the performance of the plan:
 - i. For each Action Level, a description of how exceedances of the Action Level will be assessed, and generally which types of action will be taken if the Action Level is exceeded.

- 6. The **EQC Re-evaluation Report** referred to in Part F, Condition 24, shall include, but not be limited to the following:
 - a) Tabulated Site Water quality data including, but not limited to a minimum of two open Water seasons after the submission of the Closure and Reclamation Report for the North Pile and Water management structures;
 - b) Describe the trends of the measured Water quality parameters (total suspended solids (TSS), nitrate, total phosphorous, and cobalt) for a minimum of two open Water seasons after the submission of the Closure and Reclamation Complete Report for the North Pile and Water management structures;
 - c) A report summarizing the assumptions and results of an updated Site Water quality model;

- d) A description of how the updated Site Water quality model has considered monitoring data with rationale, including but not limited to the following:
 - i. tracking of the measured Water quality parameters of nitrate, total phosphorous, cobalt, and any other applicable parameters in the Influent Storage Ponds, and
 - ii. demonstrate if those parameters have a median relative percent residual difference $< 15\%$ for at least two open Water seasons after the submission of the Closure and Reclamation Completion Report for the North Pile and Water management structures;
- e) A description of any implications of Site Water quality changes on the downstream environment;
- f) A description of the results of the Plume Delineation Study Report referred to in Part F, Condition 23, and the assessment of mixing zone; and
- g) An assessment based on the results above whether the EQC as outlined in Part F, Condition 17 require re-evaluation prior to breaching the Influent Storage Ponds and proceeding to a Passive Water Treatment System Discharge.

Schedule 5: Conditions Applying to Aquatic Effects Monitoring Program

1. The **AEMP Annual Report** referred to in Part G, Condition 6 of this Licence shall include, but not be limited to, the following:
 - a) A plain language summary and interpretation of the major results obtained in the preceding calendar year;
 - b) A summary of activities conducted under the AEMP;
 - c) A summary of any spills, activities, or other considerations within the report time frame that could influence the results of the AEMP;
 - d) Tabular summaries of all data and information generated under the AEMP, in Excel format;
 - e) An interpretation of the results, including an evaluation of any identified environmental effects that occurred as a result of the Project;
 - f) A comparison of predicted mixing and dilution of Effluent in Snap Lake in comparison to monitoring data;
 - g) An analysis that integrates the results of individual monitoring components collected in a calendar year and describes the ecological significance of the results;
 - h) A comparison of monitoring results to Action Levels as defined in the approved **AEMP Design Plan**;
 - i) For any low Action Level exceedances, a summary of the nature and extent of the exceedance, as well as a description of actions taken in response to the exceedance;
 - j) An evaluation of any adaptive management response actions implemented;
 - k) Recommendations, with rationale, for changes to any aspect of the **AEMP Design Plan**; and
 - l) Any other information specified in the approved **AEMP Design Plan**.

Schedule 6: Conditions Applying to Closure and Reclamation

1. The **Post-Closure and Reclamation Monitoring and Maintenance Plan** referred to in Part I, Condition 6 of this Licence shall include, but not be limited to the following information:
 - a) *To be updated in accordance with Part I, Condition 5.*

Annexes
Annexed to Water Licence MV2019L2-0004
De Beers Canada Inc. – Snap Lake Project

Table of Contents

Annex A: Surveillance Network Program

Part A: Station Description and Monitoring Requirements

Part B: Flow and Volume Measurements

Part C: Other Monitoring Requirements

Part D: Reporting Requirements

Annex B: Concordance Table of Items Requiring Submission

Annex C: Table of Revision History

Annex A – Surveillance Network Program (SNP)

Part A: Station Description and Monitoring Requirements

1. The location of sampling stations and specific monitoring requirements are as follows:

SNP station Quick Reference Table

SNP station #	Description
02-02	North Pile drainage collection ditch north of Water Management Pond
02-02b	East Influent Storage Pond
02-02c	West Influent Storage Pond
02-05	Uncontrolled surface Runoff at Bulk Sample Mine Rock Pad
02-06	Uncontrolled surface Runoff at Quarry Site on south side of North Pile
02-11	Seepage monitoring well downgradient from Water Management Pond Dam 1, near Snap Lake shoreline
02-14	Water Management Pond
02-15	Water Intake from Snap Lake
02-16j	Sewage Effluent from Sewage treatment plant, prior to mixing with Water treatment plant Effluent
02-17b	Final Combined Water treatment plant and Sewage treatment plant Effluent that is discharged via a diffuser into Snap Lake.
02-17c	Discharge from East Influent Storage Pond to Snap Lake main basin. Monitoring to characterize the quality of Water from the East Influent Storage Pond to Snap Lake
02-17d	Discharge from West Influent Storage Pond to Northwest arm of Snap Lake. Monitoring to characterize the quality of Water from the West Influent Storage Pond to Snap Lake
02-20d	In Snap Lake, the three stations located in a radius of 120 degrees at 200 m from the diffuser, on the edge of the mixing zone around the diffuser.
02-20e	
02-20f	
02-20h, i	In Snap Lake main basin, two stations located on the edge of the mixing zone 200 m from the East Influent Storage Pond Discharge location
02-20j, k	In Northwest arm of Snap Lake, two stations located on the edge of the mixing zone 200 m from the West Influent Storage Pond Discharge location

SNP station 02-02:

Description:	North Pile drainage collection ditch north of Water Management Pond	
Location:	N 7052663, E 0506400	
Sampling Frequency:	Continuously by in-line monitoring during pumping operations	Every two weeks during Discharge
Sampling Parameters:	Flow, temperature, pH, conductivity, turbidity	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴
Rationale:	Closure monitoring to evaluate the quantity and quality of all Seepage and Runoff coming from the North Pile Facility. Discontinue during Post-Closure because Sumps will be allowed to flow into Passive Water Treatment System.	
Status:	Active during Active Closure; Inactive during Post-Closure	

SNP station 02-02b:

Description:	East Influent Storage Pond		
Location:			
Sampling Frequency:	Continuously by in-line monitoring during pumping operations	Monthly during open Water	Monthly during Discharge from the Passive Water Management System
Sampling Parameters:	Flow, temperature, pH, conductivity, turbidity	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), temperature, TDS (measured and calculated ⁸)	Elevation (masl) to calculate Volume (m ³)
Rationale:	Closure monitoring to evaluate the quantity and quality of Seepage and Runoff coming from the North Pile Facility and collected in the East Influent Storage Pond.		
Status:	Active once Water is routed to the East Influent Storage Pond during Active Closure; Active during Post-Closure. Sampling frequency can be revised for Post-Closure once sufficient data is collected to indicate the North Pile cover is performing as expected.		

SNP station 02-02c:

Description:	West Influent Storage Pond		
Location:			
Sampling Frequency:	Continuously by in-line monitoring during pumping operations	Monthly during open Water	Monthly during Discharge
Sampling Parameters:	Flow, temperature, pH, conductivity, turbidity	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), temperature, TDS (measured and calculated ⁸)	Elevation (masl) to calculate Volume (m ³)
Rationale:	Closure monitoring to evaluate the quantity and quality of Seepage and Runoff coming from the North Pile Facility and collected in the West Influent Storage Pond.		
Status:	Active once Water is routed to the West Influent Storage Pond during Active Closure; Active during Post-Closure. Sampling frequency can be revised for Post-Closure once sufficient data is collected to indicate the North Pile cover is performing as expected.		

SNP station 02-05:

Description:	Uncontrolled surface Runoff at Bulk Sample Mine Rock Pad	
Location:	N 7053192, E 0506838	
Sampling Frequency:	Once annually during spring freshet	Once during heavy rainfall events if measurable flow is present during periods of occupancy
Sampling Parameters:	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴
Rationale:	Closure monitoring; Evaluate Runoff from the Bulk Sample Mine Rock Pad during closure. Data from this station is evaluated as part of the Acid Rock Drainage and Geochemical Characterization Monitoring Report.	
Status:	Active during Active Closure. Inactive during Post-Closure.	

SNP station 02-06:

Description:	Uncontrolled surface Runoff at Quarry Site on south side of North Pile	
Location:	De Beers will provide coordinates in the event of sampling uncontrolled Runoff.	
Sampling Frequency:	Once annually during spring freshet	Daily during heavy rainfall events if measurable flow is present during active quarrying
Sampling Parameters:	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴
Rationale:	Closure monitoring; Evaluate Runoff from the quarry as it is used during Closure for Construction. Data from this station is evaluated as part of the Acid Rock Drainage and Geochemical Characterization Monitoring Report. Monitoring during Post-Closure is inactive as quarry will not be used during Post-Closure.	
Status:	Active during Active Closure. Inactive during Post-Closure.	

SNP station 02-11:

Description:	Seepage monitoring well downgradient from Water Management Pond Dam 1, near Snap Lake shoreline.	
Location:	N 7052303, E 0506501	
Sampling Frequency:	Monthly during periods of occupancy	Once annually during spring freshet
Sampling Parameters:	Water level	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴
Rationale:	Closure monitoring; to evaluate Dam performance while Dam 1 is being used.	
Status:	Active as long as Dam 1 is required	

SNP station 02-14:

Description:	Water Management Pond		
Location:	N 7052620, E 0506480		
Sampling Frequency:	Continuously when pumping to the Water treatment plant	Every two weeks during Discharge	
Sampling Parameters:	Flow	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury, total petroleum hydrocarbons, BTEX ⁴	
Rationale:	Closure monitoring to monitor Water quality in the Water Management Pond.		
Status:	Active during Active Closure; Inactive during Post-Closure.		

SNP station 02-15:

Description:	Water intake from Snap Lake		
Location:	N 7053276, E 0506515		
Sampling Frequency:	Monthly, if extracting Water from Snap Lake	Quarterly, if extracting Water from Snap Lake	Annually, if extracting Water from Snap Lake
Sampling Parameters:	<i>E. coli</i> , major ions ¹ , nitrate, TDS (measured and calculated ⁸)	Microbial Pathogens (<i>Gardia</i> , <i>Cryptosporidium</i> , and total heterotrophic plate count)	Turbidity, TSS, pH, conductivity, major ions ¹ , nutrients ² , CCMS scan ³ (total and dissolved), total mercury
Rationale:	Closure monitoring; to evaluate safety of drinking Water and amount of Water withdrawal.		
Status:	Active during Active Closure and periods of occupancy; Inactive during Post-Closure.		

SNP station 02-16j:

Description:	Sewage Effluent from Sewage treatment plant, prior to mixing with Water treatment plant Effluent		
Location:			
Sampling Frequency:	Continuously, by in-line monitoring during periods of operation	Once every two weeks during pumping operations	Annually if in operation
Sampling Parameters:	Flow, pH, temperature, conductivity, turbidity	CBOD, nutrients ² , oil and grease, TSS, <i>E. Coli</i> , faecal coliforms	CCMS scan ³ (total and dissolved), total mercury
Rationale:	Closure monitoring: to evaluate whether Sewage has been adequately treated before Discharge		
Status:	Active during Active Closure; Inactive during Post-Closure		

SNP stations 02-17b:

Description:	Final Combined Water treatment plant or Sewage treatment plant Effluent that is discharged via a diffuser into Snap Lake.				
Location:	N 7052727, E 0506761				
Sampling Frequency:	Continuously, by in-line monitoring during periods of flow	Weekly during Discharge	Once monthly during Discharge	Once quarterly during Discharge	Monthly during Discharge
Sampling Parameters:	Flow, pH, temperature, conductivity, turbidity	TDS (measured and calculated ⁸), nutrients ² , TSS, turbidity, conductivity, faecal coliforms, total petroleum hydrocarbons	Acute toxicity tests ⁵	Chronic toxicity tests ⁵	TDS (measured and calculated ⁸), nutrients ² , TSS, turbidity, conductivity, faecal coliforms, major ions ¹ , CCMS scan ³ (total only), total mercury, total petroleum hydrocarbons, BTEX ⁴ , <i>E. Coli</i> , oil and grease, CBOD,
Rationale:	Water Licence Compliance Monitoring during Active Closure. Discontinue during Post-Closure because Discharge will not occur at this location during Post-Closure.				
Status:	Active during Active Closure; Inactive during Post-Closure				

SNP station 02-17c:

Description:	Discharge from East Influent Storage Pond to Snap Lake main basin. Monitoring to characterize the quality of Water from the East Influent Storage Pond to Snap Lake.			
Location:	Outflow from the East Influent Storage Pond to Snap Lake			
Sampling Frequency:	Weekly during Discharge	Once monthly during Discharge	Once quarterly during Discharge	Monthly during Discharge
Sampling Parameters:	Flow, pH, temperature, TDS (measured and calculated ⁸), major ions ¹ , nutrients ² , TSS, turbidity, conductivity, faecal coliforms, total petroleum hydrocarbons	Acute toxicity tests ⁵	Chronic toxicity tests ⁵	TDS (measured and calculated ⁸), nutrients ² , TSS, turbidity, conductivity, faecal coliforms, CCMS scan ³ (total and dissolved), major ions ¹ , total petroleum hydrocarbons, oil and grease, BTEX ⁴ , <i>E. Coli</i> , CBOD,
Rationale:	<p>Water Licence compliance monitoring prior to actively pumping Water from the East Influent Storage Pond to Snap Lake. Monitoring data from this station will inform the EQC Re-evaluation Report.</p> <p>After breaching the East Influent Storage Pond, to evaluate Water quality (by comparison to EQC) from the North Pile that is retained in the East Influent Storage Pond prior to passively draining to Snap Lake.</p>			
Status:	Active once the Construction of East Influent Storage Pond is complete, and Water is actively pumped into Snap Lake during Active Closure and Post-Closure.			

SNP station 02-17d:

Description:	Discharge from West Influent Storage Pond to Northwest arm of Snap Lake. Monitoring to characterize the quality of Water from the West Influent Storage Pond to Snap Lake.			
Location:	Outflow from the West Influent Storage Pond to Snap Lake			
Sampling Frequency:	Weekly during Discharge	Once monthly during Discharge	Once quarterly during Discharge	Monthly during Discharge
Sampling Parameters:	Flow, pH, temperature, TDS (measured and calculated ⁸), major ions ¹ , nutrients ² , TSS, turbidity, conductivity, faecal coliforms, total petroleum hydrocarbons	Acute toxicity tests ⁵	Chronic toxicity tests ⁵	TDS (measured and calculated ⁸), nutrients ² , TSS, turbidity, conductivity, faecal coliforms, major ions ¹ , CCMS scan ³ (total and dissolved), total petroleum hydrocarbons, oil and grease, BTEX ⁴ , <i>E. Coli</i> , CBOD,
Rationale:	<p>Water Licence compliance monitoring prior to actively pumping Water from the West Influent Storage Pond to Snap Lake. Monitoring data from this station will inform the EQC Re-evaluation Report.</p> <p>After breaching the West Influent Storage Pond, to evaluate Water quality (by comparison to EQC) from the North Pile that is retained in the West Influent Storage Pond prior to passively draining to the Northwest Arm of Snap Lake.</p>			
Status:	Active once the Construction of West Influent Storage Pond is complete, and Water can be actively pumped into Snap Lake during Active Closure; Active during Post-Closure			

SNP station 02-20d,02-20e,02-20f:

Description:	In Snap Lake, one of three stations located in a radius of 120 degrees at 200 m from the diffuser, on the edge of the mixing zone around the diffuser.	
Location:	More than one location: 02-20d: N 7052845, E 0507411; 02-20e: N 7052607, E 0507158; 02-20f: N 7052949, E 0507316;	
Sampling Frequency:	Monthly during Discharge.	Once annually
Sampling Parameters:	At the depth of maximum conductivity: measurements of temperature, dissolved oxygen, pH, and conductivity Samples taken from the depth of maximum conductivity shall be analyzed for: turbidity, TDS (measured and calculated ⁸), TSS, pH, conductivity, major ions ¹ , nutrients ² , CBOD, CCMS scan ³ (total only), total mercury If no conductivity gradient is observed, a sample shall be taken at mid-depth between surface and bottom.	At depth of maximum conductivity (or mid-depth if no conductivity peak is observed) for chronic toxicity tests ⁶
Rationale:	Closure Monitoring to evaluate whether Water Quality Objectives are being met at the edge of the mixing zone.	
Status:	Active: SNP 02-20d, 02-20e, 02-20f during Discharge from the diffuser. Inactive during Post-Closure	

SNP station 02-20h, i:

Description:	In Snap Lake main basin, two stations located on the edge of the mixing zone 200 m from the East Influent Storage Pond Discharge location		
Location:			
Sampling Frequency:	Weekly during Discharge; Once in the fall prior to freeze-up	Once annually	Once annually
Sampling Parameters:	turbidity, TDS (measured and calculated ⁸), nutrients ² , TSS, pH, conductivity, major ions ¹ , CCMS scan ³ (total only) and, CBOD	Acute toxicity; ⁷ Chronic toxicity ⁶	Surficial sediment sample
Rationale:	Once the East Influent Storage Pond is established confirm that Water quality within Snap Lake, at the edge of the mixing zone, is acceptable. This station will determine if AEMP benchmarks are met and will inform the EQC Re-evaluation Report.		
Status:	Active during Discharge from the East Influent Storage Pond; Active during Post-Closure. The SNP requirements including mixing zone, sampling frequency, and parameters for Post-Closure will be determine via the Plume Delineation Study.		

SNP station 02-20j, k:

Description:	In Northwest arm of Snap Lake, two stations located on the edge of the mixing zone 200 m from the West Influent Storage Pond Discharge location		
Location:			
Sampling Frequency:	Weekly during Discharge; Once in the fall prior to freeze up	Once annually	Once annually
Sampling Parameters:	turbidity, TDS (measured and calculated ⁸), nutrients ² , TSS, pH, conductivity, major ions ¹ , CCMS scan ³ (total only) and, CBOD	Acute toxicity; ⁷ Chronic toxicity ⁶	Surficial sediment sample
Rationale:	Once the West Influent Storage Pond is established to confirm that Water quality within Snap Lake, at the edge of the mixing zone is acceptable. This station will determine if AEMP benchmarks are met and will inform the EQC Re-evaluation Report.		
Status:	Active during Discharge from the West Influent Storage Pond; Active during Post-Closure. The SNP requirements including mixing zone, sampling frequency, and parameters for Post-Closure will be determined via the Plume Delineation Study.		

Footnotes:

¹ Major Ions shall include the following parameters: Magnesium (Mg), Fluoride (F), Calcium (Ca), Chloride (Cl), Alkalinity, Hardness, Sulphate (SO₄²⁻), Sodium (Na), Potassium (K), Total Dissolved Solids (TDS).

² Nutrients shall include the following parameters: Ammonia (NH₃), Nitrite (NO₃-N), Nitrate (NO₂-N), Total Kjeldahl Nitrogen (TKN), total Phosphorus (P), dissolved Phosphorous (P), Orthophosphate (PO₄³⁻), Dissolved Organic Carbon (DOC)

³ Collision Cell Inductively Coupled Plasma Mass Spectrometry (CCMS) or equivalent shall include at a minimum, the following parameters: Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Cesium (Cs), Iron (Fe), Lead (Pb), Lithium (Li), Manganese (Mn), Molybdenum (Mo), Nickel (Ni), Rubidium (Rb), Selenium (Se), Strontium (Sr), Titanium (Ti), Thallium (Tl), Uranium (U), Vanadium (V), Zinc (Zn). Total metals shall be analyzed in an unfiltered sample and dissolved metals shall be analyzed after passing an unpreserved sample through a 0.45 micron filter.

⁴ BTEX shall include the following parameters: Benzene, Toluene, Ethylene, Xylene

⁵ Acute and chronic toxicity tests for Surveillance Network Program station 02-17b, 02-17c, 02-17d shall include: (a) Acute lethality to rainbow trout *Oncorhynchus mykiss* (as per Environment Canada's Environmental Protection Series Biological Test Method *EPS/1/RM/13*); (b) Acute lethality to the cladoceran crustacean *Daphnia magna* (as per Environment Canada's Environmental Protection Series Biological Test Method *EPS/1 IRM/14*); (c) Chronic toxicity to the cladoceran crustacean *Ceriodaphnia dubia* (as per Environment Canada's Environmental Protection Series Biological Test Method *EPS/1/RM/21*); and (d) Chronic toxicity to the alga *Pseudokirchneriella subcapitata* (as per Environment Canada's Environmental Protection Series Biological Test Method *EPS/1/RM/25*).

⁶ Chronic toxicity tests for Surveillance Network Program station 02-20d, 02-20e, 02-20f, 02-20h, 02-20i, 02-20j, 02-20k shall include: Chronic toxicity to the cladoceran crustacean *Ceriodaphnia dubia* (as per Environment Canada's *Environmental Protection Series Biological Test Method EPS/1/RM/21*); and (b) Chronic toxicity to the alga *Pseudokirchneriella subcapitata* (as per Environment Canada's *Environmental Protection Series Biological Test Method EPS/1/RM/25*).

⁷ Annual toxicity tests for Surveillance Network Program station 02-20d, 02-20e, 02-20f, 02-20h, 02-20i, 02-20j, 02-20k shall be conducted in accordance with Environment Canada's Methods *EPS/1/RM/28* (Rainbow Trout) and *EPS/1/RM/22* (Fathead Minnow).

⁸ Total dissolved solids (calculated) shall be calculated as per the American Public Health Association's *Standard Methods for the Examination of Water and Wastewater, 21st Edition (2005)*:

$$\text{TDS}_{\text{calc}} \text{ (mg/L)} = (0.6 \times \text{Total Alkalinity as CaCO}_3) + \text{Na}^+ + \text{Mg}^+ + \text{K}^+ + \text{Ca}^{2+} + \text{SO}_4^- + \text{Cl}^- + \text{NO}_3^- + \text{F}^- + \text{SiO}_3^{2-}$$

2. The location of sampling sites is subject to approval of an Inspector.
3. More frequent sample collection may be required at the request of an Inspector.
4. All sample collection, preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of American Public Health Association's (APHA) *Standard Methods for the Examination of Water and Wastewater* at the time of analysis, or by such other methods approved by an Analyst.
5. All analyses shall be performed in a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) for the specific analyses to be performed or as approved by an Analyst.
6. A **Quality Assurance/Quality Control Plan (QA/QC Plan)** which includes both field and laboratory requirements shall be submitted to an Analyst, for approval, not less than sixty (60) days in advance of any sampling conducted.
7. The Licensee shall act in accordance with the approved QA/QC Plan and shall review the Plan annually or as directed by the Board and make any necessary revisions to reflect changes in operations. Revisions to the Plan shall be submitted to an Analyst, for approval.
8. If the Quality Assurance and Quality Control Plan is not approved by the Analyst, the Licensee shall revise the Plan according to the Analyst's direction and re-submit it to the Analyst for a decision.

Part B: Flow and Volume Measurements

1. All flow and volume measurements shall be measured and recorded continuously (i.e., using electronic data storage chips or equivalent) during periods of flow or pumping and reported on a monthly basis in cubic metres (m³) as per Annex A, Part D, Condition 1 of this Annex:
 - a) The daily volume of Water pumped from Snap Lake for all purposes (Surveillance Network Program station 02-15);
 - b) The daily volume of Water pumped from the Water Management Pond (Surveillance Network Program station 02-14);
 - c) The daily volume of Water pumped from the controlled Runoff sites (Surveillance Network Program station 02-02) to the Water treatment plant;
 - d) Spot measurements of flow made during sampling at uncontrolled Runoff sites (Surveillance Network Program stations 02-05, 02-06);
 - e) The daily volume of Water discharged from the Sewage treatment plant to the main outfall (Surveillance Network Program station 02-16j);
 - f) The daily volume of Water discharged from the combined outfall from the Water treatment plant and the Sewage treatment plant to Snap Lake during active pumping (Surveillance Network Program station 02-17b);
 - g) The daily volume of Water discharged from the East Influent Storage Pond (Surveillance Network Program station 02-17c) during periods of active pumping;
 - h) The daily volume of Water discharged from the West Influent Storage Pond (Surveillance Network Program station 02-17d) during periods of active pumping;
 - i) Volumes of solids (in tonnes) and liquid Wastes (in cubic metres) discharged to the North Pile;
2. The following Water level measurements shall be made and recorded:
 - a) Monthly Water level in Snap Lake during periods of occupancy; and
 - b) Monthly Water levels in monitoring wells at Surveillance Network Program stations 02-11 whenever Water is present during Water quality sampling.

Part C: Other Monitoring Requirements

1. The Licensee shall measure and record the following meteorological data during periods of occupancy:
 - a) Precipitation, measured and recorded in hourly and daily totals;
 - b) Evaporation, as calculated from the parameters listed below with hourly and daily averages;
 - c) Wind speed including daily minima and maxima;
 - d) Wind direction on an hourly basis and air temperature including daily minima and maxima;
 - e) Relative humidity at approximately 0.75 and 2.0 metres above the Water surface;
 - f) Water temperature at one (1) and two (2) metre depths below surface;
 - g) Net solar radiation over the Water surface; and
 - h) Water level.

Weather data for evaporation calculations shall be measured and recorded at a site on Snap Lake near mine operations and away from any manmade structures.

2. The Licensee shall submit to the Board, for approval, the location, methods and frequency for measuring and recording the **meteorological data** identified in Part C, Condition 1(a) of this Annex.
3. The methods and frequency referred to in Part C, Condition 1(a) of this Annex shall be implemented as and when approved by the Board.
4. The volumes of solids, measured daily, in tonnes, and liquid Wastes, measured daily in cubic metres, which are discharged to the North Pile shall be recorded and reported monthly during Discharge as per Part D, Condition 1 of this Annex.

Part D: Reporting Requirements

1. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board and an Inspector, in electronic formats acceptable to the Board, all data and information required by the Surveillance Network Program, including the results of the approved QA/QC program and any interpretive comments and calculations. Monthly **Surveillance Network Program Reports** should also include:
 - a) For parameters regulated under Part F, Conditions 17 of this Licence, graphs showing trends in parameter concentrations in the Effluent compared to Effluent Quality Criteria.

Annex B – Concordance Table of Items Requiring Submission

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

Part of Licence	Item	Date
Part B	Annual Water Licence Reports	March 31 st each year
Part C	Security	Within 90 days following the effective date of this Licence
Part D	Water Use Fee	June 14 th each year
Part E	Structure Description and Construction Plan	A minimum 90 days prior to commencement of Construction of all structures, excluding Engineered Structures
Part E	Design and Construction Plan	A minimum of 90 days prior to the commencement of Construction of any Engineered Structures
Part E	Design Drawings	A minimum of 90 days prior to the commencement of Construction of any Engineered Structures
Part E	As-Built Report	Within 90 days of the completion of the Construction of each Engineered Structure
Part F	Waste Management Plan	Within 90 days following the effective date of this Licence
Part F	Water Management Plan	Within 90 days following the effective date of this Licence
Part F	North Pile Management Plan	A minimum of 90 days prior to commencement of activities
Part F	Acid Rock Drainage and Geochemical Characterization and Management Plan	A minimum of 90 days prior to commencement of blasting, earthworks activities, or placing of cover material
Part F	Erosion and Sedimentation Management Plan	Within 90 days following the effective date of this Licence
Part F	Explosives Management Plan	Within 90 days following the effective date of this Licence
Part F	Geotechnical Inspection Report	Within 60 days of completing the inspection
Part F	Dam Safety Review Report	Prior to January 31 of the year following the year in which the Dam Safety Review was conducted
Part F	Plume Delineation Study Design	A minimum of 90 days prior to conducting the Plume Delineation Study
Part F	Plume Delineation Study Report	Within 90 days of the completion of the Plume Delineation Study
Part F	EQC Re-evaluation Report	A minimum of 180 days prior to breaching the Influent Storage Ponds and proceeding to a Passive Water Treatment System Discharge
Part G	AEMP Design Plan	Within 90 days of the effective date of this Licence
Part G	AEMP Re-evaluation Report	Within 90 days of the effective date of this Licence; Three years following implementation of AEMP Design Plan
Part G	AEMP Annual Report	May 1 each year; May be submitted as part of the AEMP Re-evaluation Report
Part G	AEMP Response Plan	Within the timeframe identified in the approved AEMP Design Plan
Part H	Spill Contingency Plan	Within 60 days following the effective date of this Licence

Part I	Closure and Reclamation Plan	Within 90 days following the effective date of this Licence; Every three years during Closure and following the previous approval, or as directed by the Board
Part I	Closure and Reclamation Completion Report	Within 90 days of completing Closure and Reclamation of any specific component of the Project
Part I	Table of Contents or draft schedule Post-Closure and Reclamation Monitoring and Maintenance Plan	A minimum of one year prior to completing Closure and Reclamation of the Project, or as otherwise directed by the Board
Part I	Post-Closure and Reclamation Monitoring and Maintenance Plan	Within 90 days of completing Closure and Reclamation of the Project, or as otherwise directed by the Board
Part I	Performance Assessment Report	Within five years of completing Closure and Reclamation of any specific component of the Project; Subsequent Reports as directed by the Board

Annex C – Table of Revision History

Table 1: Updates and changes that have been made to the Water Licence:

Date	Location of change	Description of change