



**NUNAVUT WATER BOARD**

**WATER LICENCE NO: 1AR-NAN2030**

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## NUNAVUT WATER BOARD WATER LICENCE

Pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

CANZINCO MINES LTD.

(Licensee)

c/o Nyrstar, Tessinerplatz 7, 8002 Zurich, Switzerland

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water or dispose of waste for a period subject to restrictions and conditions contained within this Licence amendment:

Licence Number/Type: 1AR-NAN2030 TYPE "A"

Water Management Area: ADMIRALTY INLET WATERSHED (47)

Location: NANISIVIK MINE, QIKIQTANI REGION, NUNAVUT

Purpose: POST-CLOSURE MONITORING AND MAINTENANCE ACTIVITIES

Description: INDUSTRIAL UNDERTAKING

Quantity of Water use not to be Exceeded USE OF WATER (Other than sampling of Water to support the monitoring) IS NOT AUTHORIZED UNDER THIS LICENCE

Licence Issuance: JANUARY 09, 2020

Expiry of Licence: JANUARY 08, 2030

This Licence issued (**Motion Number 2019-A1-012**) and recorded at Gjoa Haven, Nunavut. The Licence includes and is subject to the annexed conditions.

**Lootie Toomasie**  
**Nunavut Water Board**  
**Chair**

**APPROVED**  
**BY: Daniel Vandal**  
**Minister of Northern Affairs**

**DATE LICENCE APPROVED:** \_\_\_\_\_

## **PART A: SCOPE, DEFINITIONS AND ENFORCEMENT**

### **1. SCOPE**

- a. This Licence authorizes Canzinc Mines Ltd. (the “Licensee” or “Canzinc”) to conduct post-closure monitoring and maintenance activities at the former Nanisivik Mine site, located approximately 33 kilometres by road from the Hamlet of Arctic Bay in the Qikiqtani Region, Nunavut, at the following general geographical coordinates: Longitude: 73<sup>0</sup> 02’ N and Latitude: 84<sup>0</sup> 32’ W.

The terms and conditions of this Licence authorize the Licensee to undertake continued post-closure monitoring, maintenance and related activities including the following:

- i. Monitoring of water quality;
  - ii. Monitoring of geotechnical conditions; and
  - iii. Maintenance activities that may be needed to ensure the continued integrity and functionality of completed reclamation works.
- b. This Licence is issued subject to conditions contained herein with respect to the taking of Water and the depositing of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Act, or other statutes imposing more stringent conditions relating to the quantity, type or manner under which any such Waste may be so deposited, this Licence shall be deemed to be subject to such requirements.
- c. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with all applicable legislation, guidelines and directives.

### **2. DEFINITIONS**

- a. The Licensee shall refer to [Schedule A](#) for definitions of terms used in this Licence.

### **3. ENFORCEMENT**

- a. Failure to comply with this Licence may be a violation of the Act, subjecting the Licensee to the enforcement measures and the penalties provided for in the Act.
- b. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the Act.
- c. For the purpose of enforcing this Licence and with respect to the use of Water and deposit of Waste by the Licensee, Inspectors appointed under the Act, hold all powers,

privileges and protections that are conferred upon them by the Act or by other applicable laws.

**PART B: GENERAL CONDITIONS**

1. The Licensee shall file an Annual Monitoring Report with the Board no later than March 31<sup>st</sup> of the year following the calendar year in which monitoring occurred. The Report shall be developed in accordance with [Schedule B](#) of the Licence.
2. The Licensee shall file a report with the Board, within sixty (60) days of receipt of an Inspector's inspection report, that presents a summary of the work done, or to be done (complete with an action plan), to address concerns or deficiencies listed in the inspection report and/or compliance reports.
3. The Licensee shall maintain a copy of this Licence at the Licensee's corporate office and on site while carrying out the field work associated with the Licence.
4. Any communication with respect to this Licence shall be made in writing to the attention of:  
Manager of Licensing Nunavut Water Board  
P. O. Box 119  
Gjoa Haven, NU X0B 1J0  
Telephone: (867) 360-6338  
Fax: (867) 360-6369  
Email: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)
5. Any notice made to an Inspector shall be made in writing to the attention of:  
Water Resources Officer  
Nunavut District, Nunavut Region  
P.O. Box 100  
Iqaluit, NU X0A 0H0  
Telephone: (867) 975-4295  
Fax: (867) 979-6445
6. The Licensee shall submit one (1) electronic copy of all reports, studies, and Plans. Reports and/or studies and Plans submitted to the Board by the Licensee shall include an executive summary in English and Inuktitut.
7. The Licensee shall confirm that document(s) or correspondence submitted by the Licensee to the Board under this Licence is received and acknowledged by the Manager of Licensing.
8. The Licensee shall, for all plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted cannot be undertaken without subsequent Board approval and direction in writing.

9. The Licensee shall, for all plans submitted under this Licence, implement the plan as approved by the Board in writing.
10. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan. For Plans submitted for Board approval, the Board will notify the Licensee in writing of the Board's approval, rejection or alteration of these Plans. Plans or drawings submitted to the Board for information purposes only generally do not require Board's approval prior to implementation; however, the Board reserves the right to accordingly request revisions to those plans or drawings.
11. In the event that a Plan is determined not acceptable to the Board, the Licensee shall provide a revised version of the plan to the Board for review within sixty (60) days following notification by the Board or within any timeframe specified in Board's notification.
12. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall, once approved, become a part of this Licence and any additional terms and conditions imposed upon approval of a Plan by the Board shall become part of this Licence. All terms and conditions of the Licence shall be contemplated in the development of a Plan where appropriate.
13. This Licence is assignable as provided for in section 44 of the Act.
14. The Licensee shall notify the NWB of any changes in development Plans or conditions associated with this project at least sixty (60) days prior to such change.
15. The Schedules attached to this Licence provide details regarding the requirements associated with specific items in the main body of the Licence and are included in the Schedule to provide greater clarity and as an aid to interpretation for the Licensee. If the Board subsequently determines that an item in any of the Schedules requires revision in order to better reflect the intent and objectives of the Licence, the Board may at its discretion, and upon consulting and providing written notice to the Licensee and interested parties, revise the Schedule accordingly. Unless the Board directs otherwise, such revision may not necessarily be considered as an "Amendment" to the Licence.
16. Unless otherwise stated, references in the Licence to any specific legislation, policy, guideline or other regulatory requirement are deemed to refer to the regulatory requirement as may be amended or as may be expressly replaced by successor legislation, policy, guidelines or other regulatory requirements after the Licence is approved by the Minister.
17. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, as provided in section 45 of the Act, or any other regulatory requirement.

## **PART C:        CONDITIONS APPLYING TO SECURITY**

1. The Licensee shall, within sixty (60) days following approval of the Licence by the Minister, furnish and maintain financial reclamation security with the Minister, in the amount of \$1,000,000 in the form that is satisfactory to the Minister.
2. The Licensee shall furnish and maintain such further or other amounts as may be required by the Board based on updated estimates of current mine reclamation security.
3. The Licensee may submit to the Board for approval in writing, a request to reduce the amount of reclamation security under this Licence. The submission shall include supporting evidence to justify the request.
4. Subject to Part C, Items 2 and 3, the reclamation security referred to in Part C, Item 1, shall be maintained until such time as it is fully or partly refunded by the Minister pursuant to subsection 76(5) of the Act. This clause shall survive the expiry of this Licence and until Reclamation has been completed to the satisfaction of the Minister.
5. At any time during the term of this Licence, the amount of reclamation security shall not be less than the estimated cost of any work required by the Board to implement corrective measures in the event of proof of detrimental effects of Reclamation activities at Project site.
6. The Board reserves the right at any time, to modify the amount of reclamation security upon the submission of any party. The decision to adjust security amounts remains within the discretion of the Board and must be based upon evidence that the Licensee has failed for whatever reason to perform monitoring and /or reclamation and/or remediation as stated in this Licence, or it is determined that further reclamation/remediation of the undertaking is required.

## **PART D:        CONDITIONS APPLYING TO WATER USE AND MANAGEMENT**

1. Water use, other than the sampling of water required to support the approved monitoring under the Licence, is not authorized under this Licence.
2. Surface water runoff being discharged from the West Twin Disposal Area at Monitoring Program Station 159-4 shall be directed to Twin Lakes Creek and shall not exceed the following water quality limits:

Parameter	Maximum Authorized Concentration (mg/L)
Total Arsenic (As)	0.25
Total Copper (Cu)	0.10
Total Lead (Pb)	0.10
Total Nickel (Ni)	0.50

Total Zinc (Zn)	0.25
Total Suspended Solids (TSS)	15.0
Total Cadmium (Cd)	0.005
pH	6.0-9.5 (pH units)

- Where a visible sheen is observed in Water under Part H, Item 3, the Maximum Authorized Concentration of Oil and Grease shall not exceed 15.0 mg/L.
- The Licensee shall not remove any material from below the ordinary High Water Mark of any waterbody unless authorized by the Board in Writing.
- The Licensee shall implement measures to prevent the generation and deposition of dust and/or sediment into Water arising from road use.

#### **PART E:        CONDITIONS APPLYING TO WASTE MANAGEMENT**

- The Licensee shall provide to the Board for review, documented authorization obtained from the Hamlet of Arctic Bay prior to backhauling and disposal of any Waste generated by the Project.
- The Licensee shall maintain records of waste (if any) backhauled and records of confirmation of proper disposal of backhauled Waste and include this information within the Annual Monitoring Report, under Part B, Item 1. These records shall be made available to an Inspector upon request.
- The Licensee shall register with the Government of Nunavut as a waste generator prior to transporting any Hazardous Waste generated by or associated with the Project and shall utilize the prescribed manifests.
- The Licensee shall not practice on-site landfilling of Domestic Waste, unless otherwise approved by the Board in writing.
- The Licensee is authorized to contain Greywater, generated by the Project in a Sump located at least thirty-one (31) metres above the ordinary High Water Mark of any waterbody, at a site where direct flow into a waterbody is not possible and no additional impacts are created.
- The Licensee is authorized to contain Sewage or toilet waste in latrine pits or portable or composting toilets. Latrine pits shall be located at a distance of at least thirty-one (31) metres above the ordinary High Water Mark of any waterbody, and upon seasonal closure, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment.
- The Board has reviewed and accepted the following documents submitted previously under Water Licence 1AR-NAN1419:



- a. *Waste Management Plan, Former Nanisivik Mine Site*, dated March 2015;
- b. *Engineering Drawings and Specifications, Non-Hazardous Waste Landfill Design, Former Nanisivik Mine*. SRK Consulting, dated 28 August 2015; and
- c. *Nanisivik Mine, Landfill Closure, Construction Summary Report*. SRK Consulting, dated October 2017.

**PART F: CONDITIONS APPLYING TO MODIFICATIONS**

1. The Licensee may, without written consent from the Board, carry out Modifications provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
  - a. The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
  - b. Such Modifications do not place the Licensee in contravention of the Licence or the Act;
  - c. Such Modifications are consistent with the NIRB Screening Determination;
  - d. The Board has not, within sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
  - e. The Board has not rejected the proposed Modifications.
2. Modifications for which any of the conditions referred to in Part F, Item 1 have not been met can be carried out only with approval from the Board in writing.
3. Applications for modifications shall contain:
  - a. A description of the facilities and/or works to be constructed;
  - b. The proposed location of the structure(s);
  - c. Identification of any potential impacts to the receiving environment;
  - d. A description of any monitoring required, including sampling locations, parameters measured, and frequencies of sampling;
  - e. Schedule for construction;
  - f. Drawings of Engineered Structures stamped by a Professional Engineer; and
  - g. Proposed sediment and erosion control measures.
4. The Licensee shall provide to the Board, within ninety (90) days of completion of the Modification, as-built Plans and drawings of the Modifications referred to in this Part. These Plans and drawings shall be stamped by an Engineer.

**PART G:        CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING**

1. The Licensee shall implement the Plan entitled *Spill Contingency Plan, Former Nanisivik Mine Site, dated March 2015* that was previously approved by the Board.
2. The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the project from entering Water.
3. All sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent water body and inspected on a regular basis.
4. The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.
5. Licensee shall conduct any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage monitor fluids and other waste in order to contain and prevent potential spills.
6. If during the period of this Licence an unauthorized Discharge of Waste and/or Effluent occurs, or if such Discharge is foreseeable, the Licensee shall:
  - a. Employ as required, Emergency Response and Spill Contingency measures;
  - b. Report the incident immediately via the NWT/NU 24-Hour Spill Reporting Line (867) 920-8130 and to the Inspector at (867) 975-4295; and
  - c. For each discharge occurrence, submit a detailed report to the Inspector, no later than thirty-one (31) days after initially reporting the event, which includes the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain, clean up and restore the spill site.
7. The Licensee shall, in addition to Part G, Item 6, regardless of the quantity of release of a harmful substance, report to the NWT/NU 24-Hour Spill Reporting Line, if the release is near or into a water body.

**PART H:        CONDITIONS APPLYING TO THE MONITORING PROGRAM**

1. The Board has approved, with the issuance of this Licence, the following Plans submitted as additional information with the Application:
  - a. *Water Quality Monitoring Beyond 2019, Nanisivik Mine (Stantec Consulting Ltd., June 18, 2019); and*
  - b. *Geotechnical Monitoring Beyond 2019 – Nanisivik Mine, NU (BGC Engineering Inc., April 24, 2019).*

2. The Licensee shall undertake the Monitoring Programs in accordance with Schedule H, Tables 1, 2, 3 and 4.
3. The Licensee shall, upon observing a visible sheen of Oil and Grease during a water quality sampling event, obtain additional samples to be analyzed for Oil and Grease to comply with Part D, Item 3.
4. The Licensee shall undertake a geotechnical inspection during the years set out in Schedule H, Table 1. The inspection shall be carried out by a Geotechnical Engineer and the results of the inspection shall be documented in a report. The inspection shall be conducted in accordance with the *Canadian Dam Safety Guidelines* (2007) where applicable and be consistent with the previous Geotechnical Inspection reports submitted by BGC Engineering Inc. for the project, and shall take into account all major earthworks and any changes to the Project.
5. The Licensee shall submit to the Board for review, within the Annual Monitoring Report required by Part B, Item 1, a copy of the report generated from the Geotechnical Engineer's Inspection carried out under Part H, Item 4. The Report shall include a cover letter from the Licensee, outlining an implementation plan to address the relevant recommendations of the Geotechnical Engineer.
6. The Licensee shall submit to the Board for review, within the Annual Monitoring Report required by Part B, Item 1, a "Water Quality Review" which includes an analysis of all results and comparison to regulatory standards, approved Plans, and demonstration of stability for the termination of the post-closure monitoring program where merited.
7. All sampling, sample preservation and analyses shall be conducted in accordance with the methods prescribed in the current edition of "*Standard Methods for the Examination of Water and Wastewater*" or by other such methods approved by an Analyst.
8. All analyses shall be performed in an accredited laboratory according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
9. The Licensee shall submit to the Board for review, within sixty (60) days following the approval of the Licence, an updated "Quality Assurance/Quality Control (QA/QC) Plan" that reflects changes made to the monitoring requirements in the Licence. The QA/QC Plan shall be modified to include up-to-date sampling methods to all applicable standards, acceptable to an accredited laboratory as required by Part H, Items 7 and 8.
10. The Licensee shall submit to the Board for review, within sixty (60) days following the approval of the Licence, updates to the following Plans to reflect changes to the monitoring requirements in the Licence:
  - a. *Updated Post Closure Geotechnical Monitoring Contingency Plan, dated March 19, 2015;*
  - b. *Contingency Plan for Water Quality Exceedances, former Nanisivik Mine site, dated*

- March 24, 2015; and*
- c. *Geotechnical Monitoring Instrument Installation Record and Contingency Plan, dated March 17, 2015.*

11. Additional monitoring may be required at the request of an Inspector. The results of these monitoring shall be submitted to the Board within the Annual Monitoring Report required by Part B, Item 1.

**PART I: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE**

1. The Licensee shall continue to implement the *Nanisivik Mine 2004 Reclamation Plan and Closure Plan that was previously approved* by the Board, including monitoring requirements to confirm objectives, or as subsequently revised to incorporate design changes and adaptive engineering required and implemented during Construction and on the basis of actual site conditions and monitoring results over the implementation period, or as otherwise required by this Licence.
2. The Licensee shall continue to implement the following documents, when and if applicable, that were previously found acceptable by the Board:
  - a. *Soil Toxicity Testing and the Derivation of Site Specific Soil Remediation Objectives (SSROs) for the Nanisivik dock site*, Hemmera, dated 6 March 2015;
  - b. *Update to Soil Quality Remediation Objectives for the Former Nanisivik Mine*, SRK Consulting, dated 20 March 2015.
3. The Licensee shall update the reclamation cost estimate for the undertaking on an annual basis and include a copy of the updated estimate in the Annual Monitoring Report required under Part B, Item 1.

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## **SCHEDULES**

Schedule A: Scope, Definition, and Enforcement

Schedule B: Reporting Requirements

Schedule H: Conditions Applying to the Monitoring Program

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## **SCHEDULES**

### **Schedule A: Scope, Definitions, and Enforcement**

#### **Definitions**

In this Licence: 1AR-NAN2030

“**Act**” means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Addendum**” means the supplemental text that is added to a full Plan or report, usually included at the end of the document and is not intended to require a full resubmission of the revised report. It may also be considered as an appendix or supplement;

“**Amendment**” means a change to a term and condition of this Licence, not considered as a modification, through application to the NWB, requiring the change, addition, or deletion of specific terms and conditions of the Licence;

“**Analyst**” means an Analyst designated by the Minister under section 85 (1) of the *Act*;

“**Annually**” means, in the context of monitoring frequency, one sampling event occurring every 365 days with a minimum of 200 days between sampling events;

“**Application**” means the Type “A” Water Licence renewal-amendment application submitted by Canzinc Mines Ltd on June 20, 2019;

“**Bi-weekly**” means, in the context of monitoring frequency, one sampling event occurring every two (2) weeks with a minimum of eight (8) days between sampling events;

“**Board**” means the Nunavut Water Board (NWB) established under Article 13 of the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada* and under section 14 of the *Act*;

“**Canadian Council of the Ministers of Environment (CCME)**” means the organizations of Canadian Ministers of the Environment that sets guidelines for environmental protection across Canada such as the Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life;

“**Chief Executive Officer**” means the Chair or Chairperson of the Nunavut Water Board;

“**Closure**” means when an Operator ceases operations at a facility without the intent to resume mining activities in the future;

“**Construction**” means any activities undertaken to construct or build or remediate any component of, or associated with, the undertaking Nanisivik Mine post-closure;

“**Dam Safety Guidelines**” means the *Canadian Dam Association (CDA) Dam Safety Guidelines (DSG)*, (2007) or subsequent approved editions;

“**Discharge**” means the release of any water or waste to the receiving environment;

“**Domestic Waste**” means solid waste generated by personnel and/or facilities associated with the former Nanisivik Mine site project, excluding hazardous wastes;

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from all site water and waste management facilities;

“**Engineer**” means a professional engineer registered to practice in Nunavut in accordance with the *Consolidation of Engineers and Geoscientists Act S. Nu 2008, c.2* and the *Engineering and Geoscience Professions Act S.N.W.T. 2006, c.16 Amended by S.N.W.T. 2009, c.12*;

“**Engineered Structure**” means any facility, which was designed and approved by a Professional Engineer registered with the Association of Professional Engineers, Geologists and Geophysicists of Nunavut;

“**Fuel Tank Farm**” comprises the dock area where the fifteen steel tanks of various sizes and all associated facilities including, piping, pumping equipment, containment structures, liners, and berms were located;

“**Geotechnical Engineer**” means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments;

“**Greywater**” means the component of effluent produced from domestic use (i.e. washing, bathing, food preparation and laundering), excluding sewage;

“**Grab Sample**” means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected;

“**Hazardous Waste**” means materials or contaminant which are categorized as dangerous goods under the *Transportation of Dangerous Good Act* (1992) and/or that is no longer used for their original purpose and is intended for recycling, treatment, disposal or storage;

“**High Water Mark**” means the usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land (ref. *Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities*);

“**ICP Metals Scan**” means for the purpose of the Licence elements detected using Inductively Coupled Plasma (ICP) mass spectrometer. Metal parameters should be consistent with baseline data previously collected and include any other metals of concern or interest;

“**Inspector**” means an Inspector designated by the Minister under section 85 (1) of the Act;

“**Landfill**” consists of the facilities described in s. 5.4 as identified in the Nanisivik Mine Closure and Reclamation Plan (February 2004), Figures 1-4, and described in Nanisivik Mine, Landfill Closure, Construction Summary Report, SRK Consulting, dated October 2017, Drawings 1CB002.002-01-04;

“**Licence**” means this Type “A” Water Licence, 1AR-NAN2030, issued by the Nunavut Water Board in accordance with the *Act*, to Canzinc Mines Ltd. for continued post-closure monitoring and maintenance activities at the former Nanisivik Mine Site;

“**Licensee**” means the entity to which Licence 1AR-NAN2030 is issued or assigned;

“**Metal Leaching**” means the mobilization of metals into solution under neutral, acidic or alkaline conditions;

“**Minister**” means the Minister of Northern Affairs and/or Minister of Crown-Indigenous Relations designated as the Minister responsible under the Act;

“**Modification**” means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work;

“**Monitoring Program**” means the program to collect data on surface water quality to assess impacts to the environment of an appurtenant undertaking;

“**Monthly**” means, in the context of monitoring frequency, one sampling event occurring every thirty (30) days with a minimum of twenty one (21) days between sampling events;

“**Nunavut Agreement**” means the “*Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*,” including its preamble and schedules, and any amendments to that agreement made pursuant to it;

“**Quality Assurance/Quality Control (OA/OC)**” Quality Assurance means the system of activities



designed to better ensure that quality control is done effectively; Quality Control means the use of established procedures to achieve standards of measurement for the three principle components of quality: precision, accuracy and reliability;

“**Quarterly**” means, in the context of monitoring frequency, one sampling event occurring every three months with a minimum of ninety days between sampling events;

“**Receiving Environment**” means both the aquatic and terrestrial environments that receive any discharge resulting from the Project;

“**Reclamation**” means the process of returning the mine site and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities;

“**Regulations**” means the *Nunavut Waters Regulations* sor 2013/669 18th April, 2013;

“**Soil Quality Remediation Objectives (SOROs)**” means the numerical concentration established as target value for soil quality remediation for contaminated sites as determined with guidance provided by the *Canadian Council of Ministers of the Environment (CCME)*;

“**Surface Cell**” means the tailings, dyke, shale and armor cover in the West Twin Disposal Area Surface Cell as detailed in the document *Surface Reclamation Covers As-Built Report; Nanisivik Mine, NU; Final Report*. BGC Engineering Inc. dated, April 14, 2008;

“**Sump**” means an excavation in impermeable soil for the purpose of catching or storing water or waste;

“**Seepage**” means any water that drains through or escapes from any site structure designed to contain, withhold, divert or retain water or waste. Seepage also includes any flows that have emerged through open pits, runoff from waste rock and ore stockpile areas, quarries, Landfill, Landfarm and other facilities;

“**Sewage**” means all toilet wastes and greywater;

“**Test Cell**” means the tailings, shale and armour cover in the West Twin Disposal Area Test Cell as detailed in the document *Surface Reclamation Covers As-Built Report; Nanisivik Mine, NU; Final Report*. BGC Engineering Inc., dated, April 14, 2008;

“**Upper Dump Pond**” means the tailings, shale and armour cover in the West Twin Disposal Area Upper Dump Pond as detailed in the document *Surface Reclamation Covers As-Built Report; Nanisivik Mine, NU; Final Report*. BGC Engineering Inc., dated, April 14, 2008;

“**Use**” means use as defined in section 4 of the Act;

“**Waste**” means waste as defined in section 4 of the Act;

“**Waste Management Facilities**” means all facilities designated for the storage, treatment and disposal of all waste generated by the project;

“**Water**” means water as defined in section 4 of the Act;

“**Water Supply Facility**” comprises of any infrastructure including intake pump, lines, and treatment facility used to treat potable water for the former Nanisivik Mine Project;

“**West Twin Disposal Area**” means the facility consisting of the tailings impoundment area known as the Surface Cell, the structures designed to contain tailings, and West Twin Reservoir and Test Cell Area as identified in the West Twin Disposal Area Closure Plan, dated March 4, 2004”.

## **Schedule B: General Conditions**

The Annual Monitoring Report referred to in Part B, Item 1, shall include:

- a. An executive summary in terms understandable to the general public, in English and Inuktitut, of all Plans, reports or studies conducted under this Licence;
- b. A Geotechnical Engineer's report, with a covering letter from the Licensee, where applicable, outlining an implementation Plan to respond to the Engineer's recommendations;
- c. A summary of work done to address concerns or deficiencies listed in the inspection report and/ or compliance reports;
- d. A report on the water quality monitoring conducted during the year, including additional monitoring as may be requested by an Inspector;
- e. A revision of any studies or Plans requested by the Board under this Licence; and
- f. A list of unauthorized discharges and summary of follow-up actions taken.

## **Schedule H: Conditions Applying to the Monitoring Program**

**Table 1: Frequency of Monitoring for Water Quality and Geotechnical Conditions**

<b>Licence Year</b>	<b>Year</b>	<b>Monitoring Frequency</b>
1	2020	1 monitoring event
2	2021	1 monitoring event
3	2022	1 monitoring event
4	2023	No site monitoring
5	2024	1 monitoring event
6	2025	No site monitoring
7	2026	1 monitoring event
8	2027	No site monitoring
9	2028	No site monitoring
10	2029	1 monitoring event

**Table 2: Water Quality Monitoring Groups**

<b>Group</b>	<b>Parameters</b>
NAN-1	<ul style="list-style-type: none"><li>• Metal analysis: Total cadmium, lead, zinc;</li><li>• Major cations: calcium, magnesium, sodium, potassium, ammonia and hardness;</li><li>• Major anions: chloride, sulphate, bicarbonate, carbonate, nitrate + nitrite, and alkalinity);</li><li>• Total Suspended Solids;</li><li>• Field parameters: specific conductivity temperature, pH, and visual observations for hydrocarbon sheen.</li></ul>
NAN-2	<ul style="list-style-type: none"><li>• Petroleum Hydrocarbon Analysis of F2 –F4 hydrocarbons.</li></ul>

**Table 3: Water Quality Monitoring Program Stations 2020-2029**

<b>Monitoring Program Station</b>	<b>Description</b>	<b>Parameters to be Measured</b>
<i>Twin Lakes Creek Watershed</i>		
NML-23	Outflow from East Twin Lake	NAN-1
159-4	Outflow from West Twin Disposal Area	NAN-1
159-6	Outlet of Twin Lakes Creek into Strathcona Sound	NAN-1 NAN-2
<i>Chris Creek Watershed</i>		
159-14	Chris Creek downstream of K- Baseline	NAN-1
<i>Landfill Watershed</i>		
NML-29	Downstream of landfill – East Drainage System	NAN-1 NAN-2
NML-30	Downstream of landfill – West Drainage	NAN-1 NAN-2

**Note**

Monitoring to be carried out during periods of flow, typically in August, and in conjunction with the geotechnical inspections.

### Table 4: Geotechnical Monitoring Program 2020-2029

[illegible]

[illegible]