

File No: 1AR-NAN1419

December 23, 2014

By Courier, Email and Regular Mail

Honourable Bernard Valcourt, PC, QC, MP Minister of Aboriginal Affairs and Northern Development Canada 21<sup>st</sup> Floor, 10 Wellington Gatineau, Quebec K1A 0H4

Email: Bernard.valcourt@parl.gc.ca

Subject: Type "A" Water Licence No. 1AR-NAN1419 Renewal, CanZinco Mines Ltd.;

**Former Nanisivik Mine Site** 

#### Dear Honourable Minister Valcourt:

Please find attached a copy of the Type "A" Water Licence, 1AR-NAN1419, duly issued by the Nunavut Water Board to CanZinco Mines Ltd. for an Industrial undertaking in accordance with Schedule 1 of the *Nunavut Waters Regulations*. The Licence authorizes CanZinco Mines Ltd. to use Water and deposit Waste in support of continued closure and reclamation, and post-closure monitoring activities at the former Nanisivik Mine site, located approximately 33 kilometres by road from the Hamlet of Arctic Bay, in the Qikiqtani Region, Nunavut.

It should be noted that the original undertakings associated with the project pre-dated existence of both the NWB and the Nunavut Impact Review Board (NIRB). As such, a certificate has never been issued by the NIRB to the project. The NIRB has, however, issued several screening determinations to the project, and relevant recommendations in the most recent determination have been considered in the renewed Licence.

In accordance with section 56 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, the above referenced Licence requires your approval in order to take effect and to be valid. As such, the NWB submits the attached Reasons for Decision Including Records of Proceedings rendered by the Board, and a copy of Licence 1AR-NAN1419 for your consideration.

If you have any questions with regards to the above, please contact the undersigned in writing.

Sincerely,

Thomas Kabloona

Nunavut Water Board, Chair

Cc: Qikiqtani Distribution List

Enclosures: Water Licence 1AR-NAN1419

Reasons for Decision Including Record of Proceedings



# NUNAVUT WATER BOARD

**WATER LICENCE NO: 1AR-NAN1419** 



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# Licence No. 1AR-NAN1419

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)						
2900 – 550 Burrard Street, Vancouver, B.C. V6C 0A3						
(Mailing Address)	,					
hereinafter called the Licensee, the for a period subject to restrictions a						
Licence Number/Type:	1AR-NAN1419 TYPE "A"	.,				
Water Management Area:	ADMIRALTY INLET WA	ATERSHED (47)				
Location:	NANISIVIK MINE QIKIQTANI REGION, NUNAVUT					
Purpose:	WATER USE AND DEPOSIT OF WASTE					
Description:	INDUSTRIAL UNDERTAKING: CLOSURE AND RECLAMATION AND POST-CLOSURE MONITORING					
Quantity of Water not to be Exceeded:	ONE HUNDRED (100) CUBIC METRES PER DAY					
Date Licence Issuance:	DECEMBER 23, 2014					
Expiry of Licence:	DECEMBER 22, 2019					
This Licence issued (Motion Numbincludes and is subject to the annex		corded at Gjoa Haven, Nunavut				
Thomas Kabloona Nunavut Water Board Chair	APPROVED BY:	Minister of Aboriginal Affairs and Northern Development Canada				
	DATE:					



# PART A SCOPE, DEFINITIONS AND ENFORCEMENT

#### 1. SCOPE

a. This Licence authorizes CanZinco Mines Ltd. (the "Licensee" or "CanZinco") to use Water and deposit Waste in support of an Industrial undertaking 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° 02' N and Latitude: 84° 32' W.

The terms and conditions of this Licence authorize the Licensee to undertake continued closure and reclamation, post-closure monitoring, and related activities that generally include the following:

- Five (5) year renewal of Licence 1AR-NAN0914, to allow for Water use and Waste deposit activities in support of continued closure and reclamation, post-closure monitoring and related activities at the former Nanisivik Mine site;
- Continued discharge of effluent from water retaining structures/facilities;
- Continued remediation of Petroleum Hydrocarbon Contaminated (PHC) soil associated with the former Fuel Tank Farm area and any other project areas;
- Continued sampling and analysis to confirm whether or not treated soil and/or water meet established treatment objectives;
- Establishment of a Non-Hazardous Waste Landfill (NHWL) facility to dispose of scrap metal and inert waste accumulated during closure and reclamation and monitoring activities;
- Changes to geotechnical monitoring requirements to include discontinuation of monitoring at defective stations, discontinuation of water quality and water level monitoring at specific stations, and changes to monitoring frequency;
- Changes to water quality monitoring requirements to include reduction in regulated monitoring parameters, discontinuation of monitoring for specific stations, reduction in monitoring of specific test groups, and changes to monitoring frequency and monitoring stations description;
- On-site disposal of Sewage to sump or latrine pit;
- Backhauling of specific waste types to the Hamlet of Arctic Bay following authorization from the Hamlet;
- Supply of potable water from the Hamlet of Arctic Bay following authorization from the Hamlet; and
- Studies aimed at developing Tier 3 Soil Quality Remediation Objectives.
- 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 water use fees, payable to the Receiver General for Canada, shall be sent to the Board annually for the right to the use of Waters in accordance with section 12 of the *Regulations*.
- 2. The Licensee shall file an Annual Report with the Board no later than the 31<sup>st</sup> of March, of the year following the calendar year being reported. Annual Reports for the project shall be developed and submitted in accordance with Schedule B of the Licence.
- 3. The Licensee shall maintain a copy of the Licence at the site during times of operations or field work as permitted or required under this 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

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) paper copy and 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 ensure that any document or correspondence submitted by the Licensee to the Board is received and acknowledged by the Manager of Licensing.
- 8. The Licensee shall install and maintain signs that identify any Water Supply Facility, and Waste Management Facilities associated with the Project. The signs shall be posted in English and Inuktitut.
- 9. 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.
- 10. Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
- 11. 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.
- 12. 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.
- 13. 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.
- 14. 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/approval within sixty (60) days following notification by the Board or within any timeframe specified in Board's notification.
- 15. Licence is assignable as provided in section 44 of the Act.
- 16. 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
- 17. 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.
- 18. The Licensee shall refer to the Schedules included as appendices in this Licence for instructive details regarding relevant requirements associated with specific terms and conditions in the main body of the Licence as well as assist with clarity and interpretation of respective Licence terms and conditions.

# 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 security with the Minister, in the amount of \$2,000,000 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 annual estimates of current mine reclamation liability.
- 3. The Licensee may submit to the Board for approval in writing, any request to change 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 sub-section 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.



### PART D CONDITIONS APPLYING TO CONSTRUCTION AND OPERATIONS

- 1. The Licensee shall prevent any chemicals, fuel or wastes associated with the undertaking from entering any Water body.
- 2. The Licensee shall minimize disturbance to terrain, permafrost and drainage during movement of contractors' equipment and personnel around the site during construction activities.
- 3. The Licensee shall not store material on the surface of frozen streams or lakes except what is for immediate use.
- 4. The Licensee shall locate equipment storage areas on gravel, sand or other durable land, at a distance of at least thirty-one (31) metres above the ordinary High Water Mark of any water body in order to minimize impacts on surface drainage and water quality.
- 5. The Licensee shall undertake necessary corrective measures to mitigate impacts on surface drainage resulting from the Licensee's activities and undertakings.
- 6. The Licensee shall limit any in-stream activity to low water periods. In-stream activity is prohibited during periods when fish migration may be expected.
- 7. Prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain Water or Wastes, final design and construction drawings, signed and stamped by an Engineer, shall be submitted to the Board for review and acceptance in writing.
- 8. The construction of all engineered earthworks shall be supervised and field checked by a qualified Engineer. Construction records shall be maintained and made available at the request of the Board.
- 9. The Licensee is authorized to construct a Non-Hazardous Waste Landfill facility to dispose of acceptable inert material including bulky waste/scrap metal generated by the project.
- 10. The Licensee shall submit to the Board for review, for-construction design drawings and specifications at least sixty (60) days prior to construction of the facility referred to in Part D, Item 9.
- 11. The Licensee is allowed to conduct studies designed to develop Tier 3 soil remediation objectives based on the Canadian Council of Ministers of the Environmental (CCME) Soil Quality Guidelines for the Protection of Environmental and Human Health (2006) or other relevant guidelines as long as the studies involved are within the scope of the Licence's terms and conditions with respect to Water use, Waste generated and potential impact on the Receiving Environment.



- 12. The Licensee shall submit a Construction Summary Report, to the Board for review, within ninety (90) days following completion of all new structures designed to contain, withhold divert or retain Water or Wastes. The Report shall be prepared by a qualified Engineer in accordance with <a href="Schedule D">Schedule D</a>, <a href="Item1">Item 1</a>.
- 13. The Licensee shall use fill material for construction from an approved source demonstrated to be free of Acid Rock Drainage or Metal Leaching properties.
- 14. The Licensee shall implement sediment and erosion control measures, where necessary, prior to, during, and after construction and operations to prevent entry of sediment into Water.
- 15. The Licensee shall inspect daily all construction activities for signs of erosion.
- 16. The Licensee shall implement measures to minimize disturbance to terrain, permafrost and drainage during movement of the Licensee's and/or its contractors' equipment and personnel around the site during construction activities.

# PART E CONDITIONS APPLYING TO WATER USE AND MANAGEMENT

- 1. The Licensee shall obtain all Water for domestic use from East Twin Lake and Water for purposes of mitigation or industrial activities from East Twin Lake, West Twin Creek and/or Chris Creek.
- 2. The total volume of Water for all purposes under Part E, Item 1 in this Licence shall not exceed one-hundred (100) cubic metres *per* day.
- 3. The Licensee shall equip all Water in-take hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw Water at a rate such that fish do not become impinged on the screen.
- 4. The Licensee shall submit to the Board for approval in writing, at least thirty (30) days prior to commencing Water use activities where the use of Water of a sufficient volume would likely result in drawdown of the Water body involved, a document containing the following information:
  - a. Volume of water required;
  - b. Hydrological overview of the water body;
  - c. Details of impacts; and
  - d. Proposed mitigation measures.
- 5. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless authorized by the Board in Writing.



6. The Licensee shall implement measures to prevent the generation and deposition of dust and/or sediment into Water arising from road use.

### PART F CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT

1. Effluent being discharged from the West Twin Disposal Area at monitoring station 159-4 shall be directed to Twin Lakes Creek and not exceed the following Effluent 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)		

- 2. Where a visible sheen has been observed in Effluent under Part I, Item 3, the Maximum Authorized Concentration of Oil and Grease shall not exceed a limit of 15.0 mg/L.
- 3. The Licensee shall manage Hazardous Waste in accordance with the Government of Nunavut's *Environmental Guidelines for the General Management of Hazardous Waste* (2010) and in a manner that is consistent with applicable regulations.
- 4. The Licensee shall remove from the project site, all Hazardous Wastes generated through the course of the undertaking, for disposal offsite at an approved Hazardous Waste disposal facility.
- 5. The Licensee shall implement appropriate measure to ensure that Hazardous Waste is transported in accordance with Transport Canada's *Transportation of Dangerous Goods Regulation* (SOR/85-77) and other applicable regulations.
- 6. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste and include this information within the Annual Report, under Part B, Item 2. These records shall be made available to an Inspector upon request.



- 7. 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.
- 8. The Licensee shall submit to the Board for review, at least sixty (60) days prior to commissioning of the facility authorized in Part D, Item 9, an Operations and Maintenance Plan developed in accordance with relevant sections of the *Guidelines for the Planning, Design, Operations and Maintenance of Solid Waste Sites in the Northwest Territories* (2003).
- 9. The Plan referenced in Part F, Item 8 shall include as-built drawings, stamped by an Engineer, of the facility authorized in Part D, Item 9.
- 10. The Board has approved the Plan entitled *Former Nanisivik Mine Site Waste Management Plan*, dated April 2014 that was submitted as additional information with the Licence.
- 11. The Board has reviewed and accepted the following documents submitted as additional information under the Application:
  - a. Remediation Confirmatory Soil Sampling Methodology, dated September 5, 2014;
  - b. Overview of methodology/approach involved in developing Site Specific Remediation Objectives for pre-determined project areas at the Nanisivik Docksite, dated September 4, 2014;
  - c. Nanisivik Mine Non-Hazardous Waste Landfill, dated September 4, 2014; and
  - d. Concrete Pad Soil Movement Management Plan, dated August 13, 2014.
- 12. Licensee shall update the document referenced in Part F, Item 10(b) prior to August 1, 2015 and submit to the Board for review within thirty (30) days following the update. The updated plan shall include or address the following:
  - a. Details on the results obtained from transplant trials to determine petroleum hydrocarbon, F2 toxicity as well as information on associated evaluation of ecological risk to Arctic plants from residual petroleum hydrocarbon concentration in soils as determined from trials;
  - b. Comments and recommendations provided by AANDC during the Public Hearing for the Application including:
    - i. Details related to the physical and chemical description of soil types used to conduct toxicity testing and rationale for using sweet crude oil as an acceptable indicator for gasoline/diesel contaminants;
    - ii. Explanation of consideration given to the most recent analytical result (from petroleum hydrocarbon contaminated soil samples received by the



- laboratory on September 3, 2014) in determining the basis for the proposed approach;
- iii. Details on potential bioaccumulation of contaminants in biota relying on plants that may be impacted; and
- iv. Details of insect response to potential contaminants in the approach being considered.
- 13. The Licensee shall provide to the Board, for review, updated versions of the documents referenced in Part F, Items 8 and 10, at least thirty (30) days following revision to any of the documents or unless otherwise directed by the Board.
- 14. 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.
- 15. 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 Water body, at a site where direct flow into a Water body is not possible and no additional impacts are created.
- 16. The Licensee is authorized to contain Sewage or toilet wastes 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 water body, 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.
- 17. The Licensee shall not practice on-site landfilling of Domestic Waste, unless otherwise approved by the Board in writing.
- 18. The Licensee shall not open-burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of waste materials of incomplete combustion and/or any leachate from ash from impacting any Water bodies.
- 19. The Licensee shall submit a written request to the Board to obtain appropriate authorization from the Board in writing, prior to carrying out any open-burning of acceptable waste generated by or associated with the project.

### PART G 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 G, 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 H CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING

- 1. The Board has approved the updated Plan entitled *Former Nanisivik Mine Site*, *Spill Contingency Plan*, dated April 2014, which was submitted as additional information with the application.
- 2. The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.
- 3. The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the project from entering Water.
- 4. 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.



- 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. The Licensee shall implement measures to prevent or minimize any chemicals, petroleum products or wastes associated with the project from entering Water. All sumps and fuel caches shall be located at a distance of at least thirty-one (31) meters from the ordinary High Water Mark of any adjacent water body and inspected on a regular basis.
- 7. 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, the Emergency Response Plan and the Spill Contingency Plan;
  - b. Report the incident immediately via the 24-Hour Spill Reporting Line (867) 920-8130 and to the Inspector at (867) 975-4295; and
  - c. For each spill 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.
- 8. The Licensee shall, in addition to Part H, Item 7, regardless of the quantity of release of a harmful substance, report to the NWT/NU Spill Line if the release is near or into a Water body.

# PART I CONDITIONS APPLYING TO THE MONITORING PROGRAM

- 1. The Licensee shall undertake the Monitoring Program in accordance with Schedule I, Tables 1, 2, and 3.
- 2. The Licensee shall conduct monthly sampling for the monitoring as required under Part I, Item 1, such that a minimum of three equally timed sampling events are carried annually, beginning approximately the first week of July and ending approximately the first week of September, inclusively.
- 3. The Licensee shall, upon observing a visible sheen of Oil and Grease at any monitoring location, during each sampling period or otherwise, obtain additional samples to be analyzed for Oil and Grease to comply with Part F, Item 2.
- 4. The Licensee shall confirm the locations and GPS coordinates for all monitoring stations referred to in <u>Schedule I</u> with an Inspector.
- 5. The Licensee shall install and maintain signs that identify the monitoring stations. The signs shall be posted in English and Inuktitut.



- 6. The Licensee shall undertake a geotechnical inspection, to be carried out annually by a Geotechnical Engineer, during the months of July, August or September and provide a report as set out in Part I, Item 7. The inspection shall be conducted in accordance with the *Canadian Dam Safety Guidelines* (2007) where applicable and be consistent with the previous Annual Geotechnical Inspection reports submitted by BGC Engineering Inc. for the project, and shall taking into account all major earthworks and any changes to the project.
- 7. The Licensee shall submit to the Board for review, within the Annual Report required by Part B, Item 2, a copy of the report generated from the Geotechnical Engineer's Inspection carried out under Part I, Item 6. The Report shall include a cover letter from the Licensee, outlining an implementation plan to address the relevant recommendations of the Geotechnical Engineer.
- 8. The Licensee shall submit to the Board, within the Annual Report required by Part B, Item 2, a detailed "Annual 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.
- 9. 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.
- 10. All analyses shall be performed in an accredited laboratory according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
- 11. 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 I, Items 9 and 10. The updated Plan shall include a cover letter from the accredited laboratory confirming acceptance of the Plan for analyses to be performed under this Licence.
- 12. 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. *Post Closure Geotechnical Monitoring Contingency plan*, dated September 28, 2009:
  - b. Contingency Plan for Water Quality Exceedances, former Nanisivik Mine site, September 9, 2007; and
  - c. *Instrument Installation and Contingency Plan*, dated November 17, 2004.



# PART J CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE

- 1. The Licensee shall continue to implement the *Nanisivik Mine 2004 Reclamation Plan and Closure Plan* as approved by the Board on July 6, 2004, 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. The Plan included:
  - a. Nanisivik Mine 2004 Reclamation Plan and Closure Plan;
  - b. Engineering Design of Surface Reclamation Covers Report;
  - c. Surface Cell and Test Cell Taliks Report;
  - d. Quarry Development and Reclamation Plan;
  - e. Detailed Design of the West Twin Dyke Spillway Report;
  - f. Rock Piles and Open Pits Closure Plan;
  - g. Closure Monitoring Plan;
  - h. 2003 Phase III Environmental Site Assessment Report;
  - i. Human Health and Ecological Risk Assessment Report;
  - j. West Twin Disposal Area Closure Plan;
  - k. Waste Disposal Plan; and
  - 1. Landfill Closure Plan.
- 2. The Licensee shall submit to the Board, for approval in writing, a revised Nanisivik Mine reclamation and closure plan referred to in Part J, Item 1, as part of any renewal and/or Amendment application to this Licence.
- 3. The Board has approved the plan entitled *Abandonment and Reclamation Plan for Treatment of Contaminated Soil at the Former Nanisivik Mine*, dated September 2014 that was submitted as additional information with the Application.
- 4. The Licensee shall submit to the Board for approval a closure plan for the Non-Hazardous Waste Landfill facility at least ninety (90) days prior to closure of the facility.
- 5. 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 Report required under Part B, Item 2.



# **SCHEDULES**

Schedule A: Scope, Definition, and Enforcement

Schedule B: Reporting Requirements

Schedule D: Conditions Applying to Construction

Schedule I: Conditions Applying to the Monitoring Program



# PART K SCHEDULES

# Schedule A Scope, Definitions, and Enforcement

#### **Definitions**

In this Licence: 1AR-NAN1419

"Act" means the Nunavut Waters and Nunavut Surface Rights Tribunal Act;

"<u>Addendum</u>" 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;

"<u>Amendment</u>" 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;

"<u>Application</u>" means the Type "A" Water Licence renewal-amendment application submitted by Nyrstar Canada (Holdings) Ltd. on behalf of CanZinco Mines Ltd on November 13, 2013;

"<u>Bi-weekly</u>" 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 *Nunavut Land Claims Agreement* 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;



- "<u>Dam Safety Guidelines</u>" 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;
- "<u>Domestic Waste</u>" means solid waste generated by personnel and/or facilities associated with the former Nanisivik Mine site project, excluding hazardous wastes;
- "Effluent" means the liquid discharge from any site water 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;
- "<u>Fuel Tank Farm</u>" compromises 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;
- "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;
- "<u>High Water Mark</u>" 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 2002), Figure 1-2 titled "Mine General Arrangement";
- "<u>Licence</u>" means this Type "A" Water Licence, 1AR-NAN1419, issued by the Nunavut Water Board in accordance with the *Act*, to CanZinco Mines Ltd. for continued closure, reclamation, and post-closure monitoring of the former Nanisivik Mine Site;
- "Licensee" means the entity to which Licence 1AR-NAN1419 is issued or assigned;
- "Metal Leaching" means the mobilization of metals into solution under neutral, acidic or alkaline conditions:
- "Minister" means the Minister of Indian and Northern Affairs Canada (AANDC) also referred to as Aboriginal Affairs and Northern Development Canada (AANDC);
- "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 and Ground 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;
- "<u>Nunavut Land Claims Agreement</u>" (NLCA) 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;
- "Non-Hazardous Waste Landfill" means the proposed, new landfill facility designed and constructed to dispose of inert waste including bulky waste and scrap metal as described in the Application dated November 13, 2013;
- "Quality Assurance/Quality Control (QA/QC)" 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;
- "<u>Receiving Environment</u>" means both the aquatic and terrestrial environments that receive any discharge resulting from the Project;
- "<u>Reclamation</u>" 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 (SQROs)" 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;
- "<u>Test Cell</u>" 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;
- "<u>Water Supply Facility</u>" comprises of any infrastructure including intake pump, lines, and treatment facility used to treat potable water for the former Nanisivik Mine site 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 Reporting Requirements**

#### PART B – GENERAL CONDITIONS

The Annual Report referred to in Part B, Item 2 shall include:

1. An executive summary of the Annual Report in English and Inuktitut to summarize the activities and reclamation progress achieved under this Licence.

#### PART D – CONDITIONS APPLYING TO CONSTRUCTION AND OPERATIONS

- 2. For the dykes, dams or structures constructed to withhold waste or water:
  - a. As-built drawings of all mitigation works undertaken;
  - b. Any changes in the design and/or as-built condition and respective consequences thereof:
  - c. any changes to safety, water balance and water quality; and
  - d. A summary of maintenance work undertaken as a result of settlement or deformation of dykes and dams.

#### PART E – CONDITIONS APPLYING TO WATER USE AND MANAGEMENT

3. A summary of all water use activities in relation to the purpose of use and volumes required.

#### PART F - CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT

4. A summary of all general and hazardous Wastes generated through the course of the undertaking and their removal for disposal at an approved disposal facility.

#### PART G – CONDITIONS APPLYING TO MODIFICATIONS

5. A summary of all modifications and/or major maintenance work carried out on all water use and waste disposal related structures and facilities.

# PART H – CONDITIONS APPLYING TO EMERGENCY RESPONSE AND SPILL CONTINGENCY PLANNING

6. A summary list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken as reported under Part H, Item 7(c).

#### PART I – CONDITIONS APPLYING TO THE MONITORING PROGRAM

- 7. Tabular summaries of all results of the Monitoring Program in accordance with Part I and Schedule I, Tables 2 and 3 including:
  - a. Water quality data; and



b. Data collected from instrumentation used to monitor earthworks and an interpretation of that data.

### FOR DYKES, DAMS AND COVERS

- 8. An overview of methods and frequency used to monitor deformations, Seepage and geothermal responses.
- 9. A comparison of measured versus predicted performance.
- 10. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk.
- 11. Provide detailed map(s) of all geotechnical and water quality monitoring stations to accompany the reporting and interpretation of results.
- 12. The Geotechnical Engineer's Inspection Report required by Part I, Item 7, including the Annual Water Quality Review, required by Part I, Item 8.

# PART J – CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE

- 13. A summary of any closure and reclamation work undertaken on the Fuel Tank Farm, including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.
- 14. An updated estimate of the current reclamation liability, as required by Part J, Item 6, based on project development monitoring, results of reclamation research and any changes or modifications to the Appurtenant Undertaking. This estimate is to include a summary of expenditures during the year in relation to the ongoing mine site reclamation.
- 15. A summary of general remediation and reclamation work completed to date including details on the integrity of the remaining berm in the Fuel Tank Farm area.
- 16. A revised implementation schedule.

#### GENERAL and PLANS/ REPORTS/ STUDIES

- 17. A summary of any studies requested by the Board that relate to Water use, Waste deposit or Reclamation activities, and a brief description of any future studies planned.
- 18. Where applicable, submission of Addendums, with a revisions summary table giving an indication of the change, where they have been made and the date, for all plans, reports, and manuals.



- 19. An executive summary in English, Inuktitut of all plans, reports, or studies conducted under this Licence.
- 20. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.

#### **OTHER**

- 21. A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.
- 22. A detailed workplan of activities to be carried out in the subsequent year including dates of planned onsite inspection and sampling activities.
- 23. Any other details on Water use or Waste Disposal requested by the Board by November 1<sup>st</sup> of the year being reported.

# **Schedule D** Conditions Applying to Construction

- 1. The Construction Monitoring Report referred to in Part D, Item 12 shall include:
  - a. A summary of construction activities including photographic records before, during and after construction;
  - b. As-built drawings;
  - c. Documentation of field decisions that deviate from original plans and any data used to support these decisions;
  - d. Discussion of mitigation measures implemented during construction and effectiveness;
  - e. Monitoring undertaken in accordance with Part D;
  - f. Blast vibration monitoring for quarrying activity carried out in close proximity to fish
  - g. bearing waters; and
  - h. Monitoring for sediment release from construction areas.



# Schedule I Conditions Applying To General Monitoring: Tables 1, 2, and 3

**Table 1: Water Quality Monitoring Groups** 

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Group	Parameters		
NAN-1	<ul> <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, an visual observations for hydrocarbon sheen in accordance with Part I, Item 2</li> </ul>		
NAN-2	Petroleum Hydrocarbon Analysis of F2 –F4 hydrocarbons		
NAN-4	ICP metal scan (trace metal) scan to be at a minimum consistent with background water quality data previously collected including any other metals of concern or interest		



**Table 2: Post – Closure Water Quality Monitoring Program for 2015 - 2019** 

Station	Description	Phase	Monitoring Parameters	Frequency	
Twin Lakes	Creek Watershed				
NML-23 (159-20)	Outflow from East Twin Lake	Post-closure	NAN-1	Monthly	
159-4	Outflow from West	Post-closure	NAN-1	Monthly	
	Twin Disposal Area		NAN-4	Once Annually	
159-10	Twin Lakes Creek upstream of West Townsite Tributary		Discontinued		
159-6	Mouth of Twin Lakes Creek	Post-closure	NAN-1 NAN-2	Monthly	
139-0		Post-closure	NAN-4	Once Annually	
Chris Cree	k Watershed				
159-15	Chris Creek upstream of Area 14	Discontinued			
159-14	Chris Creek downstream of K- Baseline	Post-closure	NAN-1	Monthly	
159-17	Mouth of Chris Creek	Discontinued			
Landfill					
NML-29 (159-21)	East side of landfill	Post-closure	NAN-1 NAN-2	Monthly	
NML-30	West side of landfill	Post- Closure	NAN-1 NAN-2	Monthly	

 $\underline{\textit{Note}}$  Monthly monitoring to be carried out during periods of flow or July 1 - September 1, annually



**Table 3: Post –Closure Geotechnical Monitoring Program for 2015-2019** 

Summary of Instrumentation for Post-Closure Monitoring Requirements					
Instrument ID	Instrument Type	Location	Monitoring Frequency	Monitoring Nodes	Status
West Twin Dy					
TC12	Thermocouple	Dyke Face	Not Functioning		
TC13A	Thermocouple	Dyke Face	Not Fu	nctioning	
TC31	Thermocouple	Dyke Face	Not Fu	nctioning	
TC32	Thermocouple	Dyke Face	i	nctioning	
TC33	Thermocouple	Dyke Face	Not Fu	nctioning	
BGC03-33	Thermistor	Dyke Crest	Monthly	10	Active
BGC03-34	Thermistor	Dyke Crest	Monthly	10	Active
BGC05-09	Thermistor	Dyke Crest	Bi-Weekly	12	Active
BGC05-15	Thermistor	Dyke Crest	Bi-Weekly	12	Active
BGC03-17	Thermistor	Dyke Crest	Monthly	1	Active
Surface Cell			,	1	
BGC02-03	Thermistor	Surface Cell	Not Fu	nctioning	
BGC03-07	Thermistor	Surface Cell	Monthly	9	Active
BGC03-09	Thermistor	Surface Cell	Monthly	10	Active
BGC03-10	Thermistor	Surface Cell	Bi-weekly	8	Active
BGC03-11	Thermistor	Surface Cell	ž	nctioning	
BGC03-12	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC03-14	Vibrating wire Piezometer	Surface Cell	Monthly	1	Active
BGC03-15	Thermistor	Surface Cell	Bi-weekly	10	Active
BGC03-20	Thermistor	Surface Cell	Bi-weekly	10	Active
BGC03-21	Thermistor	Surface Cell	Not Fu	nctioning	
BGC03-32	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC03-35	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC03-36	Thermocouple	Surface Cell	Monthly	5	Active
BGC03-37	Thermistor	Surface Cell	Not Functioning		
BGC05-05	Thermistor	Surface Cell	Monthly	12	Active
BGC05-06	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC05-07	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC05-08	Contingency	Surface Cell	-	-	-
BGC05-10	Vibrating Wire Piezometer	Surface Cell	Monthly	1	Active
BGC05-11	Monitoring	Surface Cell	Not Fu	nctioning	



	Well				
BGC05-12	Monitoring Well	Surface Cell	Not F	unctioning	
BGC05-13	Vibrating wire	Surface Cell	Monthly	1	Active
BGC05 -14	Contingency	Surface Cell	-	_	Inactive
BGC05 -16	Contingency	Surface Cell	-	_	Inactive
FG-1	Frost Gauge	Surface Cell	Bi-weekly	_	Active
FG-2	Frost Gauge	Surface Cell	Bi-weekly	_	Active
FG-3	Frost Gauge	Surface Cell	Bi-weekly	_	Active
FG-4	Frost Gauge	Surface Cell	Bi-weekly	_	Active
FG-5	Frost Gauge	Surface Cell	Bi-weekly	_	Active
FG-6	Frost Gauge	Surface Cell	Bi-weekly	-	Active
Toe of West T	win Dyke				
BGC03-18	Thermocouple	Toe of West Twin Dyke	Not F	unctioning	
BGC03-19	Thermistor	Toe of West Twin Dyke	Biweekly	8	Active
BGC05-26	Thermistor	Toe of West Twin Dyke	Bi-weekly	10	Active
Test Cell					
BGC05-04	Thermistor	Test Cell	Bi-weekly	10	Active
BGC05-18	Vibrating Wire Piezometer	Test Cell	Monthly	1	Active
BGC05-19	Thermistor	Test Cell	Bi-weekly	_	Active
BGC05-20	Vibrating Wire Piezometer	Test Cell	Monthly	1	Active
BGC05-21	Monitoring Well	Test Cell	Not F	unctioning	
BGC05-22	Vibrating Wire Piezometer	Test Cell	Monthly	1	Active
BGC05-23	Monitoring Well	Test Cell	-	-	Inactive
BGC05-24	Vibrating Wire Piezometer	Test Cell	Monthly	1	Active
BGC05-25	Contingency	Test Cell	-	_	-
FG-7	Frost Gauge	Test Cell	Bi-weekly	-	Active
FG-8	Frost Gauge	Test Cell	Bi-weekly	-	Active
Test Cell Dyk	e	,			
BGC02-09	Thermistor	Test Cell Dyke	Not Functioning		
BGC03-22	Thermistor	Test Cell Dyke	Monthly	8	Active
BGC05-29	Thermistor	Test Cell Dyke	Bi-weekly	12	Active
Toe of Test Cell Dyke					



	I					
BGC05-27	Thermistor	Toe Test Cell Dyke	Bi-Weekly	10	Active	
BGC05-28	Vibrating Wire Piezometer	Toe Test Cell Dyke	Monthly	1	Active	
FG-9	Frost Gauge	Toe Test Cell Dyke	Bi-weekly	-	Active	
FG-10	Frost Gauge	Toe Test Cell Dyke	Bi-weekly	-	Active	
Oceanview P	it					
BGC05-01	Thermistor	Oceanview Pit	Bi-weekly	12	Active	
FG-16	Frost Gauge	Oceanview Pit	Bi-weekly	-	Active	
East Open Pi	t	<u>.                                    </u>				
BGC05-02	Thermistor	Open Pit	Bi-weekly	12	Active	
BGC05-03	Thermistor	East Open Pit	Bi-weekly	12	Active	
FG-13	Frost Gauge	East Open Pit	Bi-weekly	-	Active	
FG-14	Frost Gauge	East Open Pit	Bi-weekly	-	Active	
Landfill		<del>,</del>				
BGC05-30	Thermistor	Landfill	Bi-weekly	10	Active	
FG-11	Frost Gauge	Landfill	Bi-weekly	-	Active	
Area 14						
TC7	Thermocouple		Monthly	4	Active	
FG-15	Frost Gauge		Bi-weekly	-	Active	
Upper Dump	Road					
FG-17	Frost Gauge	Upper Dump Road	Biweekly	-	Active	
West Open Pit						
BGC08-01	Thermistor	West Open Pit	Bi-weekly	-	Active	
Mill Cover						
BGC08-02	Thermistor	Mill Cover	Bi-weekly	-	Active	
Water Level/Quality						
159-4	Water Level	-	Weekly	-	Active	
159-4	Water Quality	-	Bi-Weekly	-	Active	
Spillway Inlet	Water Quality	-	Bi-Weekly	-	Active	