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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

File No.: **8BC-EUR1621**

August 11, 2016

Mr. Jean Philippe Cloutier  
Property Management Division  
Environment Canada (ECCC)  
335 River Road  
Ottawa, ON, K1V 1C7

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[marc.stemarie@canada.ca](mailto:marc.stemarie@canada.ca)

**RE: NWB Renewal Amendment Licence No. 8BC-EUR1621**

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Dear Mr. Cloutier:

Please find attached Licence No. **8BC-EUR1621** issued to Environment and Climate Change Canada (ECCC) by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada (Nunavut Land Claims Agreement or NLCA)*. The terms and conditions of the attached Licence related to water use and waste disposal are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then water use and waste disposal must cease, or the Licensee may be in contravention of the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least three (3) months prior to the Licence expiry date.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public's interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment; however, a **minimum of sixty (60) days is required from time of acceptance by the NWB**. It is the responsibility of the Licensee to ensure that all application materials have been received and are acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by Fisheries and Oceans Canada (DFO) and Indigenous and Northern Affairs Canada (INAC) on issues identified. This information is attached for your consideration.<sup>1</sup>

Sincerely,

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Thomas Kabloona  
Nunavut Water Board  
Chair

TK/sa/ip

Enclosure: Licence No. **8BC-EUR1621**  
Comments – INAC, DFO

Cc: Qikiqtani Region Distribution List

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<sup>1</sup> Indigenous and Northern Affairs Canada (INAC), June 27, 2016  
Fisheries and Oceans Canada (DFO), February 19, 2016

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## DECISION

### RENEWAL / AMENDMENT Licence No. 8BC-EUR1621

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated June 7, 2016 for the renewal and amendment of a Water Licence made by:

#### ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

to allow for the use of water and the deposit of waste during operations and routine maintenance, runaway surface repair and construction of a new multi-purpose building at the Environment and Climate Change Canada's Eureka High Arctic Weather Station (HAWS), located on Ellesmere Island within the Qikiqtani Region, Nunavut, generally located at the geographical coordinates as follows:

Weather Station	Latitude: 79° 59' 41" N	Longitude: 85° 48' 48" W
Temporary Construction Camp	Latitude: 79° 59' 40" N	Longitude: 85° 50' 01" W

## DECISION

After receiving confirmation from the Nunavut Planning Commission (NPC)<sup>2</sup> that the Application is for a project proposal that Conforms to the North Baffin Regional Land Use Plan and that the Application is exempt from the requirement for Screening pursuant to Section 12.4.3 of the NLCA by the Nunavut Impact Review Board (NIRB), the NWB decided that the application could proceed through the regulatory process. In accordance with S.55.1 of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSTRA) and Article 13 of the NLCA, public notice of the application was given and interested persons were invited to make representations to the NWB

After reviewing the submission of the Applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the NLCA and of the Act, waived the requirement to hold a public hearing, and determined that:

Renewal / Amendment Licence Number 8BC-EUR1621 be issued subject to the terms and conditions contained therein (Motion #: 2016-B1-009).

SIGNED this 11<sup>th</sup> day of August, 2016 at Gjoa Haven, NU.

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Thomas Kabloona  
Nunavut Water Board Chair  
TK/sa/ip

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<sup>2</sup> NPC Letter Re: NPC File #148241 Eureka Weather Station Water Licence Renewal, dated April 14, 2016

## INTRODUCTION

The Eureka High Arctic Weather Station (HAWS) was established in 1947. The Eureka HAWS is located on the northern shore of Slidre Fiord, at the northwestern tip of Fosheim Peninsula, Ellesmere Island, approximately 425 km northwest of the Hamlet of Grise Fiord. The Project extents as provided in the Application are as follows:

NW: Latitude: 79° 58' 36.93" N	Longitude: 85° 42' 26.34" W
NE: Latitude: 79° 58' 42.46" N	Longitude: 85° 40' 57.37" W
SE: Latitude: 79° 58' 12.56" N	Longitude: 85° 39' 26.86" W
SW: Latitude: 79° 58' 4.69" N	Longitude: 85° 40' 19.11" W

The Eureka HAWS is sited on crown land with the Station is operated by Environment Canada (now Environment and Climate Change Canada) since April 7<sup>th</sup> 1947.

The primary purpose of the Eureka station is to collect weather information in order to produce public weather forecasts. The station also serves as a staging location for other science based activities in the High Arctic and provides support to the Arctic aviation community.

Facilities at Eureka include operations, shops, accommodations and other buildings, maintenance garage, warehouses, pump-house, power-house, fuel storage facility, electrical-plumbing-carpentry facilities, water reservoir, incinerator, sewage lagoon, several landfills and a landfarm.

Waste disposal and treatment facilities at Eureka include a sewage lagoon, four landfills, and a landfarm.

### I. PROCEDURAL HISTORY

On February 6, 2005 the Nunavut Water Board issued a type "B" Water Licence 3BC-EUR0611 to Environment Canada (EC) to allow for the use of Water, the disposal of waste and handling or storage of petroleum products or hazardous materials for the Eureka Weather Station. The Licence expired on January 30, 2011.

On June 7, 2011 the NWB issued a type "B" Water Licence 3BC-EUR1116 to EC to allow for the use of water and the disposal of waste for the Eureka High Arctic Weather Station (HAWS). The Licence expired on June 7, 2016.

On July 14, 2015 Environment and Climate Change Canada (ECCC) sought to make amendments to the original scope of the Licence and submitted an amendment application for Water Licence 3BC-EUR116. On January 20, 2016 the NWB distributed this application for a thirty (30) day review by interested parties.

However, given the facts that the Licence was close to its expiration date, and the length of the time required of the review process, which is preceded by the NPC and NIRB review processes the Licensee was advised to withdraw the amendment application and submit a new, combined amendment – renewal application.

On June 7, 2016 a combined amendment –renewal application (the Application) for the type “B” Water Licence 3BC-EUR116 was filed by ECCC.

### **Requirements of the NWSRTA and the NLCA:**

On April 14, 2016 the Nunavut Planning Commission (NPC) issued a correspondence<sup>3</sup> which indicated that the activities associated with the Project were previously reviewed by the NPC and a Conformity Decision was issued on December 17, 2010 which still applies. In addition, the activities were previously screened by the Nunavut Impact Review Board (NIRB) and therefore the Project does not require further review by the NPC or further screening by the NIRB and that the file may proceed to water licensing review under the NWB.

On this basis, the NWB considered the requirements of the NWSRTA and the NLCA to be fulfilled such that the NWB could process the Application

On June 10, 2016 the NWB distributed the Application to interested parties for a twenty-day comment and review period.

As stated above, there was a previous review period, one for the amendment application and then the second review period for the combined amendment – renewal application. During the review periods, comments were provided by Indigenous and Northern Affairs Canada (INAC) and Fisheries and Oceans Canada (DFO). Comments and recommendations provided by INAC and DFO were related to measures that the proponent could implement to enhance protection of the environment within the project’s footprint.

In addition to the comments received during the review period, ECCC responded via email to comments and questions raised during the review period and provided clarification on a number of issues.

The following documents were submitted to the NWB in support of the renewal / amendment of water licence 8BC-EUR1116:

- NWB Application for Amendment Renewal, dated June 7, 2016;
- Summary of Application for Amendment – Renewal in English and Inuktitut;
- Quarry Operation Plan, Black Top Creek, Eureka, Nunavut, prepared by Nuna East Ltd. dated June 9, 2015;
- Quarrying Permit Application dated June 12, 2015.

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<sup>3</sup> Nunavut Planning Commission (NPC) Re: NPC File #148241 – Eureka Weather Station Water Licence Renewal, dated April 14, 2016

On previous submissions and following the requirements of the Licence conditions, the Licensee submitted the following Plans:

- “Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities, Eureka High Arctic Weather Station”, Environment Canada, dated March 2012;
- “Emergency Plan for Petroleum and Allied Petroleum Products – Eureka High Arctic Weather Station”, Environment Canada, dated 2013.

## **II. GENERAL CONSIDERATIONS**

In addition to its general operations, ECCC is planning to work on a 3-year-project intended to repair the runaway surface and to construct a new multi-purpose building near the main station building. In order to reach these objectives, additional activities are planned which are not included under the scope of the current water licence, including 1) the setting up and running of a camp for contractors, 2) the exploitation of a new quarry, and 3) the installation of a mobile wash-car at the Black Top Creek quarry location along with a QA/AC office. The amendment application submitted by ECCC sought to include these new activities as they relate to water use and waste disposal under the scope of the amended Licence.

An amendment of the water licence is required whenever new proposed activities trigger changes to terms and conditions established under the licence. Among other things, an amendment may involve a change to water source, the volume of water authorized for use, a new activity related to water use or waste disposal, a new component related to water use or waste disposal, and/or a change in predicted environmental impacts(s).

With respect to the use of water, the Applicant has indicated that the amount of actual water use will be increased as result of the contractor’s camp domestic use, runaway compacting and the wash-car use. It has also been indicated that the source of water will remain unchanged and water will be in all cases obtained from Station Creek, the authorized source of Water under the current licence. With respect to quarrying, there is no plan to use water in the quarrying or crushing operations. The expected water usage is as mentioned above, for domestic camp use, for wash-car use and water required to meet compaction specifications for the airstrip resurfacing construction. Accordingly, the planned modifications will not affect the water source although it will increase the overall volume consumed. It is anticipated that the overall annual water use will always be maintained under 10,000 m<sup>3</sup> per year, the current volume of water use authorized by the Licence.

With respect to waste, an increase in the volume of waste is expected due to the increased activity at the site during the planned construction. This additional volume of waste will be managed following the Eureka organization and maintenance procedures for waste disposal and the authorized Eureka waste facilities will be the final place for disposal, with the exception of any hazardous wastes produced. The following is a summary of the way that this additional waste will be managed at Eureka Station.

- A vacuum truck will be used to remove the effluent generated at the Blacktop Creek wash-car and discharge into the authorized Sewage Lagoon;
- The wastewater resulting from the temporary construction camp operations will also be discharged into the Eureka Sewage Lagoon; and
- Regarding the quarry, any water due to runoff will be collected in collector ditches and passed through, a filter blanket collector basin and weir.

### *Quarry*

In the Northwest Territories and Nunavut, quarry developments require a quarry permit under the Territorial Quarrying Regulations and if activities include the use of equipment that exceeds the thresholds of the applicable land-use regulations, a land-use permit will be required. Other permits may be required depending on the nature of work being conducted<sup>4</sup>.

In addition, the removing of granular resources from riverbeds, lakeshores or ocean shorelines may require a water licence from the NWB and approval or authorization from the Department of Fisheries and Oceans.

*Schedule 3* of the *Regulations* states that quarrying activities requires a NWB Authorization Without Licence for:

*“any deposit of waste that is not made to surface water and that results from quarrying above the ordinary High Water Mark (HWM).”*

And, that quarrying activities requires a NWB Licence type “B” for:

*“any deposit of waste resulting from quarrying below the ordinary HWM”.*

The Applicant submitted the Quarry Operation Plan (Nuna, 2015), it was followed by emails clarifying some points on the proposed quarrying activities at site. The exploitation method does not require either drilling or blasting, therefore there will be no nitrates generated from this type of operation. All quarrying operations will maintain a 100 metre buffer zone. And any water due to runoff will be collected in collector ditches and filtered. Although no additional water use has been requested, water use may be required for dust suppression and moisture control for compaction of materials at the airstrip. In addition, waste may be discharged from the quarry operations due to surface water runoff. Therefore, a change in the scope of the licence has been made to accommodate the activities taking place with the current undertaking.

### *Management Plans*

Lastly, the NWB observes that the activities related to the recapitalization of the runway and the construction of the multi-purpose building will likely require changes to the Licensee’s Management Plans (e.g. Operation and Maintenance, Emergency Plan, Abandonment and Reclamation Plan and Spill Contingency Plan) to accommodate the construction and operations of the temporary worker’s camp, and the wash-car operations. Consequently, the NWB expects the Licensee to reflect any such changes in the form of addendums or full revisions to the Plans, to be submitted as indicated in the respective conditions of the Licence.

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<sup>4</sup> Northern Land Use Guidelines Pits and Quarries INAC, October 2008

Finally, a re-classification of the Water Licence has been made by the NWB to reflect changes based on the coming into force of the Nunavut Waters Regulations (NWR or Regulations), as of April 18, 2013. Originally, the water licence for Eureka Station was classified as a 3BC where the ‘3’ as per *Schedule 3 of the NWT Waters Regulations* corresponded to a ‘municipal activity including camps’. However, the Nunavut Regulations now restrict municipal undertakings to those involving a waste disposal or water system for a Municipality. Following the review of the file an application, it was determined that the file would be more appropriately addressed as 8BC, where ‘8’ according to the *Regulations* corresponds to “other undertaking” which includes research projects and similarly the ‘B’ represents a Type “B” licence and the ‘C’ represents a “camp”.

The following section outlines the issues identified by the NWB and raised by interested parties and provides the background and reasons for the terms and conditions imposed within the body of the licence.

#### **A. Term of Licence**

The Water Licence 3BC-EUR1116 expired on June 7, 2016 and as such the Board wishes to remind the Licensee that the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (Act) Section 46 states:

*The expiry or cancellation of a Licence does not relieve the holder from any obligations imposed by the Licence.*

With regard to the Licence’s term, the Licensee has requested a period of 5 years. In accordance with s. 45 the Nunavut Waters and Nunavut Surface Right Tribunal Act (NWNSTRA), the NWB may issue a licence for a term not exceeding twenty-five years. In determining an appropriate term of a water licence, the Board considers a number of factors including, but not limited to; the results of Indigenous and Northern Affairs Canada (INAC) site inspections and the corresponding compliance record of the Applicant, as well as intervener comments provided during the application review process. INAC provided comment on the licence term and recommended that a renewed licence include a licence term of five to ten years.

The Board agrees with INAC’s comments regarding the licence term and the Applicant’s request, and views as appropriate to grant a five (5) year term based on the compliance history of the Licensee and the need to reassess the project activities upon completion of the planned site work which has resulted in the need to expand the scope of the Licence and related activity conditions. The Licence duration will also allow the Licensee to properly carry out the terms and conditions of the Licence for the proposed activities during this time.

#### **B. Annual Reporting**

The NWB has imposed on the Licensee, the requirement to produce an Annual Report. These Reports, which have been standard requirements for most licences, are for the purpose of ensuring that the NWB has an accurate annual update of the Licensee’s activities related to the use of water and the deposit of waste during a calendar year. Most recently, the new

Regulations, under s.14, include a legislated requirement for all licensees to submit an annual report to the Board, with minimal requirements as set out through sec.14(a) through 14(k) and subject to additional requirements and a form acceptable to the Board. This information is maintained at the NWB Public Registry and is available to interested parties upon request. A “Standardized Form for Annual Reporting” may be used by the Licensee and is available from the NWB file transfer protocol (FTP) site under the Public Registry link at the NWB Website.

Website Public Registry:

<ftp://ftp.nwb-oen.ca/other%20documents/Standardized%20Forms/>

This form provides the basis for annual reporting and format, however individual licences with project specific reporting requirements may need to provide information in addition to that of the standard form.

### **C. Water Use**

The Eureka HAWS obtains its water for domestic purposes from nearby Station Creek. The water is pumped from Station Creek into the water reservoir using a submersible pump in order to reduce the transfer of silt from the creek to the reservoir which had been an issue with previous methods of ‘diverting’ the water stream directly to the reservoir. The water is then transferred from the water reservoir to holding tanks within the Eureka complex building and chlorinated. The potable water is further treated by filtration and Reverse Osmosis prior to use for drinking and food preparation.

The Eureka HAWS water reservoir is also the source of water for the Department of National Defense (DND)’s Canadian Force Station (CFS) Eureka. Water from the Eureka HAWS reservoir is trucked to the DND CFS-Eureka station and discharged into a cistern system.

The volume of water in the impoundment must be sufficient to supply the Eureka HAWS and the Eureka CFS needs throughout the year. It is estimated that the impoundment holds approximately 12,000 m<sup>3</sup> of water. The Licensee has requested a volume of 10,000 m<sup>3</sup> per year, consisted with the previous licence, with no change.

### **D. Waste Facilities**

Waste facilities at Eureka include a sewage lagoon, four solid waste disposal sites (landfills/dumps) and a landfarm.

#### *Sewage Lagoon Facility*

The wastewater and sewage lagoon at the Eureka HAWS is a single cell, engineered retention lagoon and is located to the south of the complex in the immediate vicinity of the Fjord. The volume of the lagoon was estimated to be of 2.23 x10<sup>6</sup> L or 2.2<sup>3</sup>x10<sup>3</sup> m<sup>3</sup> based on the information provided in the operations and maintenance procedures manual<sup>5</sup>. The lagoon is

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<sup>5</sup> Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities – Eureka High Weather Station, 2012

forecasted to have sufficient capacity to hold wastewater from 21 people at a rate of 290 L per person, per day for the duration of the year.

The Station wastewater is collected in a storage tank where the wastewater is pumped to the lagoon where solids are allowed to settle and limited decomposition takes place. The sewage lagoon is usually discharged twice a year, once at the beginning of July as capacity has been reached and again at the end of August in order to provide sufficient capacity to hold wastewater over the following winter months.

The decanting process normally takes about 48 hours. Wastewater samples are collected at the discharge pipe. Samples are analyzed for biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), ammonia, fecal coliforms, pH, conductivity, metals, major cations, sulphates, oil and grease and total phenol.

Concentrations of certain parameters (aluminium, cadmium, copper, iron, lead, manganese, selenium, silver and zinc) in the lagoon samples have been reported in exceedance in 2006. A study performed by EC via Franz Environmental showed that such exceedances may be due to the elevated background concentrations of those parameters in the Station soils and waters. The study indicates that elevated concentrations of those metals may be naturally occurring and not the result of human activity.

Also, samples from the lagoon effluent from 2008 - 2014 reported exceedances in Biochemical Oxygen Demand (BOD<sub>5</sub>), the 2014 Annual Report provides explanation for these exceedances and informs that the construction of a new sewage treatment plant is planned in order to remediate this issue.

#### *Solid Waste*

In general, solid waste is disposed of in four different landfills which include the *East Landfill*, *Ash Landfill*, *Asbestos Landfill*, *West Landfill* and *Crushed Barrel Landfill*. The geographic coordinates of these landfills in Latitude and Longitude as well as a description of them are provided in the Licensee's Summary of Operations and Maintenance Procedures, for the Eureka Station.

#### *East Landfill*

This landfill is used to contain non-organic/non-hazardous waste that cannot be incinerated. Ash from the incinerator is also landfilled at this location.

#### *Ash Landfill*

The ash landfill used to receive ash from the incineration of kitchen wastes although since 2000 there has been no ash deposited at this site, which has been diverted to the East Landfill.

#### *Asbestos Landfill*

This landfill receives any asbestos removed from buildings on site.

#### *West Landfill*

This site is closed. It contains kitchen waste and buried fuel drums.

### *Crushed Barrel Landfill*

This site is closed. Barrels are no longer buried but sent south as per INAC recommendations.

### *Operation and Maintenance (O & M) Manual for Eureka Waste Facilities:*

Under Part H, Item 1 of the 3BC-EUR1116 the Licensee was required to submit to the Board for approval, within ninety (90) days of issuance of the Licence, a revised version of the Station Operations and Maintenance (O&M) Manual entitled “*Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities*”. Following the Licence approval, the Licensee has submitted revised versions of the Procedures in 2011 and in 2012, incorporating updates as required by INAC’s Inspector and the recently issued Licence.

Taking into consideration the information submitted and the licence requirements, the Board has decided to approve the “*Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities*” with the issuance of the Licence. The Licensee is required to submit, as an addendum to the document, a Quality Assurance / Quality Control Plan (QA/QC Plan) to be submitted within ninety (90) days of issuance of the Licence.

## **E. Modifications and Construction**

The Licensee reported, in the 2014 Annual Report, that the design of a new sewage treatment plant and lagoon was to be awarded to a consultant. It also indicated that the current sewage lagoon would become storage for treated wastewater prior to discharge to the marine environment.

The NWB reminds the Licensee that in accordance with Part F, Item 1, the Licensee shall submit to the Board for approval, for Construction drawings at least sixty (60) days prior to commencing the construction or modification of any water or waste facility, and in accordance with Part F, Item 4, provide as-built plans and drawings of the construction and/or Modifications. These plans and drawings shall be stamped and signed by an Engineer.

Also, the Licensee is reminded that an amendment of the water licence is required whenever a new component related to the use of water or the deposit of waste is planned; in this case, a new sewage treatment facility. The NWB also recommends that the Licensee be aware of the timelines associated with the NWB licence amendment process to ensure that the application can be processed accordingly with adequate time allowed prior to the activity taking place.

## **F. Spill Contingency Planning**

Under Part G, Item 1 of the 3BC-EUR1116 the Licensee was required to submit to the Board for approval, within ninety (90) days of issuance of the Licence, a revised version of the Station Operations and Maintenance (O&M) Manual entitled “*Emergency Plan for Petroleum and Allied Petroleum Products – Eureka High Arctic Weather Station*”, dated April, 2010. The

Licensee has submitted a revised version of the Manual in 2013 with updates as required by the NWB's Licence.

Taking into consideration the information submitted and the licence requirements, along with the approval of the licence, the Board has approved the "*Emergency Plan for Petroleum and Allied Petroleum Products – Eureka High Arctic Weather Station*". The Licensee is required to submit an addendum to the document addressing potential for spills at the temporary construction camp, the quarry operations and the mobile wash-car at Blacktop Creek, to be included in the 2016 Annual Report.

#### **G. Abandonment and Reclamation**

Under Part I, Item 1, the Licensee is required to submit an addendum to the Abandonment & Reclamation Plan addressing the abandonment and reclamation of the temporary construction workers camp, the quarrying operations and mobile wash-car at Blacktop Creek



## NUNAVUT WATER BOARD WATER LICENCE RENEWAL / AMENDMENT

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### Licence No. 8BC-EUR1621

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

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#### ENVIRONMENT AND CLIMATE CHANGE CANADA

(Licensee)

335 RIVER ROAD, OTTAWA, ON K1V 1C7

(Mailing Address)

Herein after 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 renewal:

Licence Number/Type: 8BC-EUR1621 / TYPE "B"

Water Management Area: NANSEN AND EUREKA SOUNDS WATERSHED No.59

Location: QIKIQTANI REGION, NUNAVUT

Classification: OTHER UNDERTAKING

Purpose: USE OF WATER AND DEPOSIT OF WASTE

Quantity of Water use not to Exceed: TEN THOUSAND CUBIC METRES *PER* ANNUM AT A MAXIMUM RATE OF 299 CUBIC METRES *PER* DAY

Date of Licence Issuance: AUGUST 11, 2016

Expiry of Licence: AUGUST 10, 2021

This Licence renewal / amendment, issued and recorded at Gjoa Haven, Nunavut, includes and is subject to the annexed conditions.

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**Thomas Kabloona,**  
**Nunavut Water Board, Chair**

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

### **1. Scope**

This Licence allows for the use of Water and the deposit of Waste for an undertaking classified as ‘Other’ as per Schedule I of the *Regulations*, at the Eureka High Arctic Weather Station (HAWS) Project, located approximately 425 km north northwest of Grise Fiord within the Qikiqtani Region, Nunavut.

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the 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 *Nunavut Waters and Nunavut Surface Rights Tribunal 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 subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

### **2. Definitions**

“**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;

“**Amendment**” means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

“**Appurtenant Undertaking**” means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;

“**Board**” means the Nunavut Water Board established under the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Fuel Storage Product Transfer Area**” means the area around the connection point between a delivery truck, railcar, or vessel and bulk fuel storage with a capacity of 2500 liters or more as described in the water licence application dated October 21, 2011;

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond, landfarm or a treatment plant;

“**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*;

“**Greywater**” means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

“**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 Scan**” means the laboratory method for determining trace metals in water through Emission Spectroscopy using inductively coupled plasma (including from approximately 22 to 32 elements, depending on the laboratory performing the analysis);

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

“**Landfarm Facility**” means the facility for the petroleum hydrocarbon contaminated soil treatment situated adjacent to the main complex area as referenced in document Appendix B - Maps of Undertaking, October 21, 2010;

“**Landfill**” means the facility designed to contain non-hazardous solid waste as described in the application dated November 16, 2009;

“**Licensee**” means the holder of this Licence;

“**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, but does not include an expansion;

“**Nunavut Land Claims Agreement (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;

“**Quarry or Quarries**” means the area of surface excavation for extracting rock material for use as construction materials in the development of infrastructure and facilities for the project;

**“Regulations”** means the *Nunavut Waters Regulations* SOR/2013-69 18<sup>th</sup> April, 2013;

**“Secondary Containment”** means an impermeable structure, external to and separate from primary containment, which prevents unplanned spills of hazardous materials and provides a minimum capacity of 110% of the original vessel. Where multiple vessels are stored within the containment, it must provide a minimum capacity equal to the sum of the largest vessel and 10% of the aggregate volume of all other vessels located in the containment. This structure shall also provide containment and control of hoses and nozzles;

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

**“Sewage Treatment Facility”** means the single stage sewage lagoon described in the water licence application dated October 21, 2010;

**“Solid Waste Disposal Facilities”** means comprises the area and associated structures designed to contain solid waste as described in the Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities, January 2011;

**“Spill Contingency Plan”** means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

**“Sump or Sumps”** A structure or depression that collects, controls, and filters liquid waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid waste;

**“Toilet Wastes”** means all human excreta and associated products, but does not include greywater;

**“Waste”** means, as defined in S.4 of the *Act*, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

**“Waste Disposal Facilities”** means the Sewage Treatment Facility, Landfill and Landfarm facilities;

**“Water” or “Waters”** means waters as defined in section 4 of the *Act*;

**“Water Supply Facility”** means the area and associated intake infrastructure at Station Creek, the reservoir, storage tanks and piping as described in the application submitted October 21, 2011.

### **3. Enforcement**

- a. Failure to comply with this Licence will 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*; and
- c. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge 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 law.

### **PART B: GENERAL CONDITIONS**

1. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
  - a. A summary report of water use and waste disposal activities;
  - b. Quantity of waste backhauled to approved facility for disposal;
  - c. A list of unauthorized discharges and a summary of follow-up actions taken;
  - d. A list of seeps originating from quarry activities, water quality monitoring results, and measures taken to prevent the flow of seep water into nearby water bodies;
  - e. Any revisions to the Spill Contingency Plan, Abandonment and Restoration Plan, and any other Plans as required by Part B, Item 5, submitted in the form of an Addendum;
  - f. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
  - g. A summary of all information requested and results of the Monitoring Program including a map of the monitoring program locations; and
  - h. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.
2. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
3. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of Water volumes as required under Part J, Item 2.
4. The Licensee shall, for all Plans submitted under this Licence, include a proposed

timetable for implementation. Plans submitted, cannot be undertaken without subsequent written Board approval and direction. 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.

5. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
6. The Licensee shall review the Plans referred to in this Licence, as required by changes in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans shall be submitted in the form of an Addendum to be included with the Annual Report.
7. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
8. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:
  - a. **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)
  - b. **Inspector Contact:**  
Manager of Field Operations, INAC  
Nunavut District, Nunavut Region  
P.O. Box 100  
Iqaluit, NU X0A 0H0  
Telephone: (867) 975-4295  
Fax: (867) 979-6445
9. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
10. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the NWB is received and acknowledged by the Manager of Licensing.
11. This Licence is assignable as provided for in Section 44 of the *Act*.

12. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, or any other regulatory requirement.

**PART C: CONDITIONS APPLYING TO THE USE OF WATER**

1. The Licensee shall obtain all fresh Water for all purposes under this Licence, including the temporary construction camp, through the Water Supply Facility and shall not exceed ten thousand (10,000) cubic metres *per year*, at a rate not exceeding two hundred and ninety-nine (299) cubic metres *per day*.
2. If the Licensee requires water in sufficient volume that the source water body may be drawn down, the Licensee shall, at least thirty (30) days prior to commencement of use of water, submit to the Board for approval in writing, the following; volume required, hydrological overview of the water body, details of impacts and proposed mitigation measures.
3. The Licensee shall equip all water intake 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. A freeboard of 1.0 metre, or as recommended by a qualified geotechnical Engineer and as approved by the Board, shall be maintained at all dykes and earth-fill structures associated with the Water Supply Facilities.
5. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless authorized.
6. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
7. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL**

1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.
2. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.

3. 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 leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.
4. The Licensees shall ensure that all hazardous wastes generated through the course of operation are backhauled and disposed of at an approved waste disposal site or as otherwise approved by the Board.
5. The Licensee shall dispose of and contain all non-combustible solid wastes at the appropriate landfill of the Solid Waste Disposal Facilities or as otherwise approved by the Board
6. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.
7. The Licensee shall direct all Sewage to the Sewage Treatment Facility or as otherwise approved by the Board in writing.
8. Effluent discharged from the Sewage Treatment Facility at monitoring station EUR-3 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
Biochemical Oxygen Demand BOD <sub>5</sub>	100 mg/L
Total Suspended Solids	120 mg/L
Fecal Coliforms	1 x 10 <sup>6</sup> CFU/100 mL
pH	between 6.0 and 9.0
Oil and grease	No visible sheen

9. Effluent discharge from the Landfarm Facility at monitoring station EUR-4 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
Benzene	370 (µg/L)
Toluene	2 (µg/L)
Ethylbenzene	90 (µg/L)
Lead	1(µg/L)
Phenols	20 (µg /L)
Oil and Grease	15 (mg/L) and no visible sheen
pH	Between 6.0 and 9.0

10. If Effluent does not meet the Effluent quality limits of Part D, Items 8 and 9 it shall be considered hazardous waste and disposed of off-site at an approved facility.

11. A freeboard of 1.0 metre, or as recommended by a qualified geotechnical Engineer and as approved by the Board in writing, shall be maintained at all dams, dykes and earth-fill structures associated with the Sewage Treatment Facility or Landfarm Facility.
12. The Licensee shall provide at least ten (10) days written notification to an Inspector, prior to initiating any Effluent discharge from the Sewage Treatment Facility or Landfarm Facility.
13. The Licensee shall maintain the Sewage Treatment Facility to the satisfaction of the Inspector and operate in such a manner as to prevent structural failure.
14. A Sewage Sludge Disposal Plan shall be revised and submitted to the Board for approval in writing, at least ninety (90) days prior to commencing the removal of the sludge from the Sewage Treatment Facility.

**PART E: CONDITIONS APPLYING TO INFRASTRUCTURES, ACCESS AND OPERATIONS**

1. The Licensee shall implement the Plan entitled “*Quarry Operation Plan, Black Top Creek, Eureka, Nunavut*”, Nuna East Ltd., dated June 9, 2015, having been approved by the Board with the issuance of this Licence.
2. The Licensee shall revise the Plan referred to in Part E, Item 1, through the submission of an addendum to the Plan, within sixty (60) days of the issuance of this Licence, with respect to comments provided during the public review of the plan and as follows:
  - a. Clearly identify measures to prevent ponding within the quarry site, ensure proper drainage and mitigate as practical permafrost melt;
  - b. A description of how runoff collected in the collector ditches and basin will be assessed to assure that the runoff meets the criteria for CCME Water Quality Guidelines for the Protection of Aquatic Life;
  - c. Measures to be taken to prevent/mitigate dust generation and migration to nearby streams and water bodies.
3. All surface runoff and/or discharge from quarry development, at Monitoring Program Station EUR-5, referred to in Part J, Item 1, shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
Total Suspended Solids	50 mg/L
Oil and Grease	15 (mg/L) and no visible sheen
pH	between 6.0 and 9.5

4. The Licensee shall only use aggregate for construction of infrastructure or facilities under this Licence that is demonstrated to be not potentially acid generating, non-metal leaching and free of contaminants by, carrying out appropriate analyses and retaining the results and reports for reference for submission on request by the NWB or an Inspector, or have the results submitted with the annual report.
5. The Licensee shall not store material on the surface of frozen streams or lakes including the adjacent banks except what is for immediate use.
6. The Licensee shall not conduct any land based activity within thirty-one (31) metres of the ordinary High Water Mark of any water body, unless otherwise approved by the Board.
7. The Licensee shall conduct all activities in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake corrective measures in the event of any impacts on surface drainage.
8. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the water.
9. The Licensee shall not mobilize heavy equipment or vehicles for trenching or other activities unless the ground surface is capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles shall be suspended if rutting occurs.

**PART F: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION**

1. The Licensee shall submit to the Board for approval, design drawings stamped and signed by a qualified Engineer, ninety (90) days prior to the construction or Modification of any Water Supply Facilities, Sewage Treatment Facility or any Solid Waste Facilities.
2. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facility, Sewage Treatment Facility and the Solid Waste Disposal Facilities 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 Decision;
  - d. The Board has not, during the 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.
3. Modifications for which all of the conditions referred to in Part F, Item 2 have not been met can be carried out only with written approval from the Board.
  4. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

## **PART G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING**

1. The Board has approved, with the issuance of this Licence, the Plan entitled “*Emergency Plan for Petroleum and Allied Petroleum Products, Eureka High Arctic Weather Station*”, Version 6.0, dated July 2016.
2. The Licensee shall submit as part of the 2016 Annual Report for the Project an addendum to the Plan referred to in Part G, Item 1, to address spill contingency planning at the temporary construction camp, quarrying operations and mobile wash-car at Black Top Creek.
3. The Licensee shall prevent 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) metres from the ordinary High Water Mark of any adjacent water body and inspected on a regular basis.
4. The 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 motor fluids and other waste and contain potential spills.
5. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - a. Employ the approved Spill Contingency Plan;
  - b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
  - c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.
6. The Licensee shall, in addition to Part H, Item 5, regardless of the quantity of releases of

harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.

## **PART H: CONDITIONS APPLYING TO OPERATIONS AND MAINTENANCE**

1. The Board has approved the Plan entitled “*Summary of Operations and Maintenance Procedures for Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities*”, Eureka High Arctic Weather Station, dated March 2012.
2. The Licensee shall submit to the Board for review, as part of the 2016 Annual Report, an Addendum to the manual referred to in Part H, Item 1, to address the following
  - a. Construction workers camp water and wastewater management, solid waste handling, incinerator operations and ash disposal procedures;
  - b. Black Top Creek mobile washcar water and wastewater management; and
  - c. An options analysis for the current, undersized sewage lagoon;
3. A Geotechnical inspection of all engineered facilities related to the management of water and waste shall be carried out upon request of an Inspector. The Engineer’s report shall be submitted to the Board within sixty (60) days of the inspection, including a covering letter from the Licensee outlining an implementation plan addressing each of the Engineer’s recommendations.
4. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.

## **PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING**

1. The Licensee shall submit to the Board for approval in writing, in conjunction with the 2016 Annual Report, a revised Interim Abandonment and Restoration (A&R) Plan - Eureka High Arctic Weather Station (2011), to address changes in infrastructure, operations and technology. This revision is to include sections on the closure of temporary facilities including at a minimum:
  - a. Further updates on the plans for reclamation of infrastructure and waste materials associated with the Department of National Defence (DND) as indicated in Addendum 1 of the 2011 Interim A&R Plan;
  - b. An A&R Plan for the Blacktop Creek quarry and mobile wash-car; and
  - c. An A&R for the Construction Worker Camp.
2. At least one (1) year prior to final abandonment, the Licensee shall submit to the Board for approval in writing, a Final Abandonment and Restoration Plan. The Plan shall include, in addition to the content of the Interim Plan, the following:

- a. A description of contaminated soils identified at the site through a completed Phase III Environmental Assessment and the procedures to mitigate the contamination;
  - b. A summary of existing data for background levels of metals in the area, and identification of needs for verification of data;
  - c. A description of restoration activities outlined in the Interim Abandonment and
  - d. Restoration Plan:
  - e. An implementation schedule for the completion of restoration; and
  - f. A detailed monitoring program.
3. The Licensee shall implement the Final Abandonment and Restoration Plan as approved by the Board.
4. The Licensee shall complete the restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board in writing.
5. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
6. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, 2010. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.
7. All disturbed areas shall be contoured and stabilized upon completion of work and restored to a pre-disturbed state

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

1. The Licensee shall maintain Monitoring Stations at the following locations:

Monitoring Program Station ID	Description	Status
EUR-1	Raw water supply prior to treatment	Active (Volume)
EUR-2	Runoff from the Solid Waste Disposal Facilities Facility	Active (Quality)
EUR-3	Effluent discharge from the Sewage Lagoon to the ocean	Active (Quality, Volume)
	Quantity in cubic metres of sludge removed from the Sewage Lagoon	

EUR-4	Effluent Discharge from the Landfarm	Active (Quality)
EUR-5	Runoff from the quarry development at the exit point of ditches designed to collect and hold runoff water prior to release.	Active (NEW) (Quality)

2. The Licensee shall measure and record in cubic metres, the daily, monthly and annual quantities of water pumped from Station Creek during the annual recharge of the Eureka water reservoir at monitoring Program Station EUR-1.
3. The Licensee shall measure and record in cubic metres the monthly quantities of water utilized for facility operations, for all purposes.
4. The Licensee shall measure and record in cubic metres the daily quantities of effluent pumped from the Sewage Treatment Facility during release to the environment.
5. The Licensee shall analyze samples prior to the release of Effluent from the Sewage Treatment Facility at EUR-3, for the purpose of demonstrating compliance with the parameters listed under Part D, Item 8.
6. The Licensee shall sample monthly at Monitoring Program Stations EUR-2, EUR-3 and EUR-4 during periods of observed flow and annual discharges. Samples shall be analyzed for the following parameters:

BOD <sub>5</sub>	Fecal Coliforms
Total Suspended Solids	pH
Conductivity	Nitrate-Nitrite
Oil and Grease (visual)	Ammonia Nitrogen
Total Phenols	Total Alkalinity
Total Hardness	Calcium
Magnesium	Potassium
Sodium	Sulphate
Chloride	Total Organic Carbon (TOC)
Total Cadmium	Total Zinc
Total Cobalt	Total Iron
Total Chromium	Total Manganese
Total Copper	Total Nickel
Total Aluminum	Total Lead
Total Mercury	Total Arsenic

7. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.

8. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
9. Licensee shall submit for review of the Board, within ninety (90) days of issuance of this Licence, a revised Quality Assurance / Quality Control Plan that includes field and laboratory procedures for sampling and analysis. The Plan shall include up to date sampling methods to all applicable standards, acceptable to an accredited laboratory as required by Part J, Item 8. The Plan submission shall include a cover letter from an accredited laboratory confirming acceptance of the Plan for analyses to be performed under this Licence.
10. The Licensee shall annually review the QA/QC plan submitted under Part J, Item 9 and modify it as required by changes in operations and technology. Revised plans shall be submitted to the NWB for review, with an approval letter from an accredited lab that meets standards set in Part J, Items 7 and 8.
11. Modifications to the Monitoring Program may be made only upon written approval from the Board. Requests for changes to the Monitoring Program should be forwarded to the NWB in writing, and shall include justification and appropriate evidence to support the change.
12. The Licensee shall include in the Annual Report required under Part B, Item 1 all data, monitoring results and information required by this Part.