



Contaminants and Remediation Directorate  
P.O. Box 1500  
Yellowknife NT X1A 2R3

March 31, 2016

To: Sabrina Sturman  
Regulatory Specialist  
Sahtu Land and Water Board  
(867) 598-2413 ext 224

From: Alison Heslep  
Project Manager  
Aboriginal Affairs and Northern Development Canada  
(867) 669-2769

Dear Ms. Sabrina Sturman

**Re: Great Bear Lake (GBL) Sites Water Licence S15L8-001 Report 2015/16**

Aboriginal Affairs and Northern Development Canada – Northwest Territories Region – Contaminant and Remediation Directorate received a Water Licence renewal from the Sahtu Land and Water Board effective July 24, 2015. The Water Licence entitles the use of water in remediation and restoration activities of the Great Bear Lake Mine Sites. Table 1 outlines the Licence information.

**Table 1: Licence Information**

Licensee	Aboriginal Affairs & Northern Development Canada – NT Region Contaminant and Remediation Division
Licensee Mailing Address	Box 1500, Yellowknife, NT X1A 2R3
Licence Number	S15L8-001
Licence Type	B
Location	Great Bear Lake Mine Sites: Sawmill Bay, Silver Bear Mines, El Bonanza/Bonanza Mines and Contact Lake Mine
Purpose	Water use during reclamation and remediation activities of old mining sites
Effective Date of Licence	July 24, 2015
Expiry Date of Licence	July 23, 2017

In 2015, personnel were on site carrying out various field programs. On June 26<sup>th</sup> and August 26<sup>th</sup> a land use inspection was carried out at Terra Mine and Sawmill Bay. From September 4<sup>th</sup> to 12<sup>th</sup>, personnel were on site to carryout care and maintenance activities at the Terra Mine Site. There were three people on site for approximately 9 days. From September 15<sup>th</sup> to 17<sup>th</sup>, several activities were carried out via individual day trips from Yellowknife. On September 15<sup>th</sup> & 16<sup>th</sup>, a Site Wide Hazard Assessment, Mill Assessment, Drum Reconnaissance, and Water Quality Sampling program was carried out at the Terra Mine site. As well, work was carried out at Sawmill Bay to address contaminated soil associated with an order of inspector issued for the site. Three overpack drums were filled with PHC contaminated soil, and left on site containerized. On September 17<sup>th</sup>, a drum reconnaissance survey was carried out at the Norex, Northrim, and El Bonanza Mine Sites.

## **Part B: Reporting Requirements**

### **a) The Monthly and Annual Quantities of Fresh Water Obtained**

Approximately 2.8 m<sup>3</sup> (2,800 L) from Camsell River was used for the care and maintenance activities at Terra Mine Site for the 9 field days in September. No water (0 m<sup>3</sup>) from Great Bear Lake or other sources were used for any purpose in 2015.

### **b) The Monthly and Annual Quantities of Waste(s) Discharges**

Care and Maintenance activities on site involved engine oil change for heavy equipment with old engine oil 0.02 m<sup>3</sup> (20 L) discharged into a container. All sewage and grey water was discharged into a septic tank, so no quantities (0 m<sup>3</sup>) of waste discharges to report.

### **c) Itemized List of Substances used during Remediation**

An itemized list of substances used during the field programs are presented in Table 2.

**Table 2: List of Substances used at Terra Mine Site, 2015**

<b>Substance</b>	<b>Use</b>
Engine oil	0.02 m <sup>3</sup> (20 L)
Diesel	0.82 m <sup>3</sup> (820 L)
Oxygen	0 m <sup>3</sup>
Acetylene	0 m <sup>3</sup>
Propane	0.02 m <sup>3</sup> (60 L)
A-1 jet fuel	Charter flights to site
Drinking water	0.54 m <sup>3</sup> (540 L)
Grease	3.54 m <sup>3</sup> (3,540 L)
Gasoline	0.205 m <sup>3</sup> (205 L)
Activated charcoal	0 m <sup>3</sup>
Detergent and soaps	0.0005 m <sup>3</sup> (0.5 L)
Absorbent pads	3 pieces
Plumbing antifreeze	0.024 m <sup>3</sup> (24 L)

#### d) Remediation Activity Summary

Regulatory requirement and care and maintenance activities during the field trips included:

- From September 4<sup>th</sup> to 12<sup>th</sup>, personnel were on site to carryout care and maintenance activities at the Terra Mine Site. Care and Maintenance activities on site involved site inspection of buildings, maintenance and repair of heavy equipment on site, and maintenance of site roadways. There were three people on site for approximately 9 days.
- On September 15<sup>th</sup>, PHC contaminated soil from the Sawmill Bay airstrip were removed and containerized in 3 overpack drums left on site (drums could not be transferred off-site with chartered aircraft). The remaining PHC contaminated soil by the airstrip will be removed before September 1<sup>st</sup>, 2016. These activities are summarized in the enclosed field report and soil lab results, *Field Report – Draft* (Arcadis, 2015); and *Certificate of Analysis* (Maxxam, 2015); and
- On September 16<sup>th</sup> a one day water quality sampling program was conducted at the Terra Mine Site. Sampling was undertaken at Little Ho Hum Lake, Ho Hum Lake and Moose Bay. The results are summarized in the enclosed report, *2015 Water Quality Monitoring of Terra Mine. treat*

#### e) Surveillance Network Program

The Surveillance Network Programs (SNP) consists of a specific sampling location within the site at which water quality and quantity are measured. The SNP program is a requirement of the water license. The document entitled '*Water and Effluent Quality Management Policy*' prepared by the Sahtu Land and Water Board, dated March 31, 2011, states that the SNP program is designed to ensure that the effluent quality criteria (EQC) are being and will continue to be consistently met. Typically, one of the SNP stations is assigned to the end-of-pipe and is the point at which the licensee must comply with the EQC.

Table 3 presents the Station Numbers but there was no treated sewage disposal, grey water or treated process water to report this year.

**Table 3: Surveillance Network Program Station**

<b>Station Number</b>	<b>Description</b>	<b>Location at Terra Mine</b>	<b>Location at Sawmill Bay, El Bonanza, Contact Lake</b>
S09L8-001(1)	Treated sewage effluent prior to disposal	Not applicable	Not applicable
S09L8-001(2)	Grey water end-of-pipe, prior to disposal	Not applicable	Not applicable
S09L8-	Treated process water	Not applicable	Not applicable

001(3)	prior to disposal		
S09L8-001(4)	Camsell River (intake)	Not applicable	Not applicable
S09L8-001(5)	Great Bear Lake (intake)	Not applicable	Not applicable

#### **f) Unauthorized discharges**

There were no unauthorized discharges.

#### **g) Annual Summer Site Inspection**

A land use inspection by AANDC Inspector, Tim Morton of Yellowknife was carried out at Sawmill Bay and Terra Mine Site on June 26<sup>th</sup>. At Sawmill Bay, the inspector was pleased with the compliance of the Inspectors Order, with the exception of the removal of contaminated soil for the site. Most of the PHC contaminated soil from the Sawmill Bay airstrip were removed on and containerized in 3 overpack drums left on site. The Inspector acknowledged the clean-up efforts and authorized an extension until September 1<sup>st</sup>, 2016 to remove the remaining PHC contaminated soil. These activities are summarized in the enclosed field report and soil lab results, *Field Report – Draft* (Arcadis, 2015); and *Certificate of Analysis* (Maxxam, 2015). A follow up land use inspection by AANDC Inspector, Tim Morton was carried out at Terra Mine on August 26<sup>th</sup> and the Inspector noted two ongoing hydrocarbon releases during the inspection. The identified hydrocarbon releases included an oil leak from a drainage pipe that was plugged with several absorbent pads, and a leaky drum in proximity to the shoreline that was placed in an overpack drum along with the hydrocarbon stained surface material. Additionally, a drum reconnaissance was conducted on September 15<sup>th</sup> at the Terra Mine Site to evaluate against the 2004/2005 drum inventory (Golder, 2006). Based on the outcome of the reconnaissance it was determined that the drums have leaked/seeped an estimated 16,750 L over time. The spill was immediately reported to the AANDC Inspector and to Northwest Territories Hazardous Materials Spills.

#### **h) Water Quality Monitoring Plan**

A one day water quality sampling program was conducted at the Terra Mine Site on September 16<sup>th</sup>. Sampling was undertaken at Little Ho Hum Lake, Ho Hum Lake and Moose Bay. The results are summarized in the enclosed report, *2015 Water Quality Monitoring of Terra Mine*. The Sahtu Land and Water Board required an updated Water Quality Monitoring Plan as per Section E, Item 1 of the Water Licence S15L8-001, but given the scope of the Great Bear Lake Project being re-evaluated the Board granted an extension on AANDC's letter request, dated November 4<sup>th</sup>, 2015 for a revised deliverable date of March 31<sup>st</sup>, 2017 to allow for the development of the Site Stabilization Plan and potential development of a Risk Management Plan and associated Long Term Monitoring Plans.

#### **i) Camp Schematic**

A camp was used for the care and maintenance activities undertaken at Terra Mine Site from September 4<sup>th</sup> to 12<sup>th</sup>. As in previous years the crew members at the Terra Mine Site stayed at

the onsite administrative building for approximately 9 days. Roughly 2.8 m<sup>3</sup> (2,800 L) of water was taken from the Camsell River and placed into 2.46 m<sup>3</sup> (2,460 L) holding tanks for domestic water supply. All sewage and grey water were discharged into a septic tank, so no quantities (0 m<sup>3</sup>) of waste discharges to report.

No camp was used for the September 15<sup>th</sup> to 17<sup>th</sup> activities undertaken at Sawmill Bay and Terra Mine Site. The crew members overnighted in Yellowknife. All domestic wastes were removed from site during the field program.

#### **j) Remediation Activities**

Regulatory requirement and care and maintenance activities took place as explained above under Section D.

#### **k) Engagement Plan**

The engagement activities for 2015/16 are summarized in the enclosed, *Great Bear Lake Project Engagement Plan and Engagement Log*.

#### **l) Spill Contingency Plan**

There are no changes to the current Spill Contingency Plan. A detailed Spill Contingency Plan will be provided to Sahtu Land and Water Board for approval upon the successful award of the remediation contract.

#### **m) Waste Management Plan**

There are no changes to the current Waste Management Plan. A detailed Waste Management Plan will be provided to Sahtu Land and Water Board for approval upon the successful award of the remediation contract.

#### **n) Remedial Action Plan**

There are no changes to the current Remedial Action Plan. Any revisions to the Remedial Action Plan will be submitted to Sahtu Land and Water Board for approval.

#### **o) Other Details requested by Board**

The Board requested an updated Water Quality Monitoring Plan as per Section E, Item 1 of the Water Licence S15L8-001 but given the scope of the project being re-evaluated the Board granted an extension on Contaminants and Remediation Division's letter request, dated November 4<sup>th</sup>, 2015 for a revised deliverable date of March 31<sup>st</sup>, 2017 to allow for the development of the Site Stabilization Plan and potential development of a Risk Management Plan and associated Long Term Monitoring Plan.

#### **p) Map of SNP Stations with GPS Coordinates**

A map showing the SNP Stations with GPS coordinates will be provided to Sahtu Land and Water Board upon the successful award of the remediation contract.