



August 31, 2013

Ms. Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
P.O Box 119  
Gjoa Haven, NU  
X0B 1J0

**Attention: Ms. Phyllis Beaulieu, Manager of Licensing**

**Re: Former Polaris Mine Long Term Monitoring Program:**  
**Application to renew and amend Teck Metals Ltd.'s Water Licence 1AR-POL0911, Polaris Mine**  
**Closure and Reclamation as a new Type 'B' Water Licence**

I am pleased to submit the enclosed water licence application package (Application) to the Nunavut Water Board (NWB) to renew and amend Teck Metals Ltd.'s (Teck) Water Licence 1AR-POL0911, Polaris Mine Closure and Reclamation (Licence) as a new type 'B' water licence. The new type 'B' water licence is requested as a regulatory instrument for maintaining reclamation security from Teck and as a means for structuring a Long Term Monitoring Program for the former Polaris Mine. The application package includes the following supporting attachments:

**Standard Application Form Requirements**

1. Completed and signed Amendment Application Form;
2. Certificate of Name Change to address **Block 1** of the Application Form;
3. Map to address **Block 5** of the Application Form;
4. Email correspondence from NPC regarding land use planning requirements under Article 11 of the NLCA to address **Block 7** of the Application Form;
5. Original NPC Land Use Plan Conformity Determination dated November 9, 2002;
6. Email correspondence from NIRB regarding development impact assessment requirements under Article 12 of the NLCA to address **Block 8** of the Application Form;
7. Original NIRB Screening Determination dated December 5, 2002;
8. Description of Proposed Long Term Monitoring Program to address **Block 9** of the Application Form including:
  - a. Proposed Long Term Geotechnical Monitoring Program Report prepared by Golder Associates dated May 28<sup>th</sup>, 2013;
  - b. Darrin Johnson, Golder Associates, Resumé;

- c. Ross Hammett, Golder Associates, Resumé;
- d. Proposed Long Term Monitoring Program at Garrow Creek Report prepared by Azimuth Consulting Group Partnership, dated April 4, 2013;
- e. Randy Baker, Azimuth Consulting Group Partnership, Resumé;
- 9. Former Polaris Mine Decommissioning and Reclamation Public Engagement Report 2003 – 2013, dated April 2013, to address Block 20 of the Application Form;
- 10. Updated Financial Security Assessment to address **Block 21** of the Application Form;
- 11. Financial Information to address **Block 22** of the Application Form;
- 12. Compliance Assessment and detailed amendment requests including the following supporting attachments to address **Block 23** of the Application Form;
  - a. Email correspondence Re: Polaris testing -sub lethal tests missed, dated September 12, 2009 including pictures;
  - b. Letter Report from Azimuth Consulting Group Partnership to Teck Metals, Re: Implications of Sub-lethal Toxicity Testing Results at Polaris Mine, dated April 3, 2013;
  - c. Former Polaris Mine Decommissioning and Reclamation Summary of Reporting 2003 – 2011, dated April 2013 (note – due to number and sizes of these documents, submission will be on cd mailed with the paper copy of this submission);
  - d. Correspondence with NWB between September 1, 2009 and October 18, 2009;
- 13. Executive Summary in English to address **Block 27** of the Application Form;
- 14. Executive Summary in Inuktitut to address **Block 27** of the Application Form ;
- 15. Application fee of \$30 to address **Block 27** of the Application Form;
- 16. Water use fee deposit of \$30 to address **Block 27** of the Application Form;

#### **Supporting Technical Documents**

- 17. Evaluation of Limnological and Chemical Conditions of Garrow Lake and Chemistry of Garrow Creek, Nunavut 2002-2011, prepared by Azimuth Consulting Group Partnership (Azimuth), October 17, 2011;
- 18. Letter Report- Assessment of Total and Dissolved Metals Concentrations in the Water Column of Garrow Lake, prepared by Azimuth Consulting Group Partnership, December 8, 2011;

#### **Supporting Administrative Documents**

- 19. Correspondence regarding Environmental Effects Monitoring Interpretive Report Review and release from Metal Mining Effluent Regulations July 2006 – September 2006;
- 20. Correspondence regarding procedural approach Oct 2011 – Jan 2012; and
- 21. Proposed Type 'B' Water Licence.

In this Application, Teck is requesting the following:

**1. Long Term Water Quality Monitoring**

Prior to the development of the Polaris Mine, Garrow Lake was classified as a Tailings Impoundment Area and listed under Schedule 2 of the *Metal Mining Effluent Regulations* (MMER) and permission was granted by Environment Canada to use Garrow Lake as a repository for tailings from the mine. As the mine was operating in 2002 when revised MMER came into law, comprehensive environmental monitoring and environmental effects monitoring requirements were applicable to the Polaris Mine.

Monitoring of site effluent discharge consistent with the MMER requirements was also imposed through the Water Licence in accordance with section 73 of *Northwest Territories Waters Act*. Water quality monitoring in Garrow Lake, downstream Garrow Creek, and downstream Garrow Bay have has been conducted for over thirty (30) years throughout the mine operating period and for nine (9) years since mine production ended.

This monitoring has shown that there are no environmental effects of the effluent from Garrow Lake to the receiving environment. Environment Canada accepted the Project's Final Environmental Effects Monitoring (EEM) Interpretive Report and subsequently on July 27, 2006 confirmed that the mine has no further obligations under the MMER. Environment Canada's correspondence is attached as part of the water licence application package (Attachment #19).

Given the consistently positive monitoring results obtained to date and the outdated relevance of the comprehensive MMER monitoring requirements to the Project, Teck requests simplification and reduction of the water quality monitoring program requirements of the Water Licence. Due to the remote location of the site, a reduction in monitoring also reduces the overall substantial costs and potential safety risks to the personnel conducting the monitoring at the site.

Azimuth Consulting Group has been involved with the water quality monitoring program during the implementation of the MMER, conducted all of the environmental effects monitoring studies under the MMER, and managed or reviewed stratigraphic sampling of Garrow Lake since mine closure. Based on their extensive experience working at Polaris, Azimuth has reviewed data trends and made recommendations for future monitoring of Garrow Creek at the 'Final Discharge Point' and in Garrow Lake including adaptive management measures.

Please see the attached Long Term Monitoring Program at Garrow Creek Report prepared by Randy Baker M.Sc., R.P. Bio., Azimuth Consulting dated, July 2012 outlining and supporting the proposed Monitoring Program (Attachment 8(d)). Mr. Baker's resume is also attached outlining his qualifications and experience with the Project (Attachment 8(e)).

## **2. Long Term Geotechnical Monitoring**

The potential for and limits of long term subsidence over the underground mine workings have been reviewed and assessed by Golder Associates including the type of monitoring that is appropriate, identification of recommended mitigation measures should additional subsidence occur, and an estimation of potential long term associated costs for financial assurance purposes. In addition, Golder prepared recommendations for the long term monitoring of engineered works on surface including primary landfills, mine portal seals, decommissioned dam structures at Garrow Lake, and the marine foreshore adjacent to the former dock. Golder Associates have extensive geotechnical experience with Polaris through their involvement in underground rock mechanic reviews during operations, and surface inspections over the past number of years.

Please see the attached *Proposed Long Term Geotechnical Monitoring Program* report prepared by Darrin Johnson, P.Eng., and Ross Hammett, P.Eng., Golder Associates dated May 28<sup>th</sup>, 2013 outlining and supporting the proposed Monitoring Program (Attachment 8(a)). Mr. Johnson's and Mr. Hammett's resumes are also attached outlining their qualifications and experience with the Project (Attachments 8(b) and (c)).

## **3. Long Term Monitoring Program Schedule**

The Department of Indian and Northern Affairs Canada (INAC, 2009) Contaminated Sites Program released a document entitled "Abandoned Military Site Remediation Protocol" which lays out the rationale and schedule for long-term monitoring of northern Canadian contaminated sites, in particular the abandoned, remediated Distant Early Warning (DEW) line sites.

This guidance document presents a reasonable long term monitoring frequency for remediated, stable sites in the high arctic. This same approach is considered reasonable to determine a post closure frequency of monitoring for the decommissioned Polaris Mine given its high Arctic location, and stable physical/chemical conditions post-remediation.

Post-closure monitoring of DEW line sites have been agreed to take place during two phases; Phase 1 from years 1 – 5 and Phase 2 during years 7, 10, 15, and 25. Given that monitoring of the Polaris site has already occurred for 7 years since remediation was completed in 2004 (year 0) to 2011, it is reasonable to propose that Phase 1 monitoring has been completed and that the Polaris site is now partially into Phase 2 monitoring. If 2004 was Year 0, 2011 was Year 7. Thus the next monitoring period would occur in Year 10 or 2014, year 15 (2019) and Year 25 (2029).

Subsequent to the 2029 monitoring event, the results from the Long Term Monitoring Program would be reviewed and the ongoing monitoring frequency and scope would be re-evaluated.

#### **4. Licence Term**

Teck requests a licence term of 17 years beginning approximately January, 2014 and expiring January 2031.

This licence term would allow for submission of the 2029 monitoring results in the Monitoring Report required by March 31, 2030 and determination of the appropriate means to either continue or terminate regulatory involvement with the site.

In proposing this Licence term, Teck acknowledges that its Water Licence 1AR-POL0311 expired on December 31, 2011 and that by that time Teck had successfully achieved the objectives of its Decommissioning and Reclamation Plan jointly approved by the NWB and INAC in 2002. Since expiry of its Licence, Teck has actively consulted with NWB and INAC regarding the most appropriate means to regulate the site post closure and reclamation despite evidence to show that the site is in an environmentally sound and stable state. In addition, Teck has been engaged with its consultants to prepare this Application.

#### **5. Proposed Regulatory Approach**

In consideration of the most appropriate approach to address the unique regulatory circumstances governing the monitoring of development sites post closure and reclamation, Teck referred to previous correspondence between the NWB and interested parties dated back to October, 2011 at which time Teck proposed to cancel its existing water Licence and apply for a new Type B Water Licence. At the NWB's request for comments from interested parties regarding Teck's proposed approach, written submissions were provided by AANDC and EC. Both parties generally supported Teck's proposed approach noting various procedural issues for the NWB to consider as well as technical information requirements.

Teck has taken measures to address parties' information requests including provision of a summary of all reporting; geotechnical monitoring plan; water quality monitoring plan; assessment of the subsidence area; reassessment of financial security; and community engagement report summarizing the results of public meetings held in Resolute Bay and Grise Fiord on March 19<sup>th</sup> and 21<sup>st</sup>, 2013 respectively.

By way of submission of this water licence application package, Teck maintains its original proposal of amendment and renewal of water Licence 1AR-POL0311 as a new Type 'B' Water Licence. If the NWB determines that cancellation of the type 'A' licence is necessary, Teck requests deferral of the cancellation of its Type 'A' Water Licence to the NWB as an issue to be dealt with through the Type 'B' licensing process where the Board may consider the cancellation to be in the public interest in accordance with section 43 (c)(iii) of the *Nunavut Waters Nunavut Surface Rights Tribunal Act* (NWNSRTA).

Finally in accordance with section 52 (2)(a) of the NWNSRTA, Teck consents to the disposition of its application without a public hearing understanding that a public hearing may not be held if no other person informs the Board by the tenth day before the day of the proposed hearing of the person's intention to make representations.

If you have any questions, please feel free to contact me at (250) 427-8405 or [bruce.donald@teck.com](mailto:bruce.donald@teck.com).

Sincerely,



Bruce Donald  
Manager Dormant Properties, Environment  
Teck Resources Limited

C.c. Amanda Hanson, Nunavut Impact Review Board  
Christopher Tickner, Nunavut Planning Commission  
Murray Ball, Aboriginal Affairs and Northern Development Canada  
Ian Parsons, Aboriginal Affairs and Northern Development Canada  
Paula Smith, Environment Canada