



Water Resources Division
Nunavut Regional Office
Iqaluit, NU
X0A 0H0

NWB File: 1AR-POL0311
CIDMS #: 868497

November 7, 2014

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: 1AR-POL0311 – Technical Review Memorandum on Additional Information for Water Licence Renewal/Amendment – Polaris Mine Property – Teck Metals Ltd. (Teck).

Dear Ms. Beaulieu,

Thank you for your email on October 7, 2014 concerning the above mentioned water licence renewal/amendment application.

A technical review memorandum is provided for the Nunavut Water Board's (Board or NWB) consideration. Comments have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4282 or email at ian.parsons@aandc-aadnc.gc.ca for further comments or any questions.

Sincerely,

Original signed by

Ian Parsons
Regional Coordinator

Cc. Karen Costello, Director, Resource Management – Aboriginal Affairs and Northern Development Canada (AANDC), Nunavut Regional Office (NRO)
Bruce Donald, Manager, Dormant Properties, Environment – Teck Metals Ltd.
Erik Allain, Manager Field Operations, AANDC, NRO



Technical Review Memorandum

TO	Phyllis Beaulieu Manager of Licensing Nunavut Water Board	AANDC reference CIDM# 868497
FROM	Ian Parsons Regional Coordinator Aboriginal Affairs and Northern Development Canada	NWB reference #1AR-POL0311 DATE November 7, 2014

**Re: 1AR-POL0311 – Technical Review Memorandum for Water Licence
Renewal/Amendment – Polaris Mine Property – Teck Metals Ltd. (Teck).**

The following documents have been reviewed as part of this submission:

1. Report dated August 29, 2013, prepared by Teck Resources Limited titled "*Polaris Mine Projected Site Monitoring Costs 2014 to 2031*" (this document is included in the water licence application package submitted to the NWB on August 13, 2013);
2. Report dated May 28, 2013, prepared by Golder Associates Ltd. titled "*Proposed Long-Term Geotechnical Monitoring Program*";
3. Letter dated March 21, 2014, prepared by BGC Engineering Inc. titled "*Review of Two Technical Reports, Water Licence Renewal for Polaris Mine Closure, NU*";
4. Letter dated August 29, 2014, prepared by Damien Cote (NWB) titled "*Type 'A' Water Licence 1AR-POL0311: Pre-Hearing Conference Decision Regarding Application for Renewal and Amendment*": summarizing the Pre-Hearing Conference and Technical Meeting conference call held on August 18, 2014;
5. Letter dated October 17, 2014, prepared by Bruce Donald (Teck Resources Limited) titled "*Technical Meeting Commitment #1 – Submission of 2014 Post Closure Monitoring Report, and Response to the Nunavut Water Board Pre-Hearing Conference Decision*";



Comments and Recommendations

Based on the review of these documents, AANDC has the following comments and recommendations.

1.	<p>2014 AANDC Site Inspection and Follow-Up Inspection by Teck</p> <p>Comment: The AANDC site inspection, conducted on July 10, 2014, found that there was visual evidence of minor subsidence in the same area as past subsidence events. The visual evidence included several holes and a few minor depressions.</p> <p>During a follow-up inspection on September 2, 2014 by Golder Associates, on behalf of Teck, it was concluded that the site appeared to be in a stable condition and the issues identified by the AANDC personnel were surficial only and were the result of thawing of ice lenses in the cover material.</p> <p>Recommendation: AANDC is satisfied with the findings from the Golder Associates September 2014 site inspection. AANDC is satisfied that the monitoring frequency proposed in the water licence is adequate.</p>
2.	<p>Security</p> <p>Comment: The licensee is requesting a reduction in Security</p> <p>Recommendation: Using the cost estimates provided for activities in the Proposed Long-term Geotechnical Monitoring Program (Golder Associates, 2013) for fencing and monitoring, the security amount as shown below in Table 1 is recommended.</p> <p>This security evaluation takes into consideration the geotechnical investigations/ recommendations by Teck's consultants (Golder Associates, 2013) and AANDC's consultant (BGC Engineering Inc., 2014).</p> <p>The hazard mitigation measures were discussed with Teck during a conference call on October 3, 2014. Fencing and boulder barriers around the subsidence zone will potentially present their own safety risks to people on snow mobiles or wildlife. Fencing, in particular, will become a long term maintenance issue at the site. The idea that signage could be installed in 2019 during the next geotechnical site investigations was also discussed. The purpose of the signage to identify the subsidence zone, would be to address concerns of the long term (beyond 20 years) potential risk of significant settlement within the subsidence zone and associated safety hazards.</p> <p>The type of signage and installation location(s) should be discussed with the residents of Resolute Bay as they are the people most likely to visit the area.</p>



The final security amount for the signage should be adjusted once the community feedback has been provided on this option.

Table 1: Long-term Monitoring 2014 – 2031 and Hazard Mitigation Measure Cost Estimates

	Activity Description	Cost Estimate*
	2019	
2.1	Geotechnical Site Investigation	\$48,499
2.2	Hazard Mitigation Measures (based on fencing cost estimates)	\$1,335,629
	2029	
2.3	Geotechnical Site Investigations	\$78,999
2.4	Garrow Creek/Lake Water Quality Investigations	\$101,867
	Total	\$1,564,994

*Cost estimates consider 5% inflation rate based on the Alberta 2014 construction industry indices range (4-6%) (BTY Group, 2014). This reference was applied in the absence of construction indices for Nunavut.

3. End of Licence / End of Mine Life

Comment:

The licensee is requesting information on the cancellation of a Type A water licence and the possibility of a “walk-away” scenario for the mine property.

Recommendation:

AANDC is currently working on a policy to address this issue. The document will be released to the NWB once the department has completed the internal review process.

Prepared By: Ian Parsons

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