



Sahtu Land and Water Board

Staff Report

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| Division: Water Program | Report No. 4 & 2 |
| Date Prepared: August 28, 2017 | File No. S15L8-001/S17L8-002 |
| Meeting Date: September 11, 2017 | |
| Subject: Great Bear Lake Mines Site Remediation – 2016 Water Quality Monitoring Plan | |

1. Purpose/Report Summary

The purpose of this Report is to present to the Sahtu Land and Water Board for consideration:

- a) The 2016 Water Quality Monitoring Plan (2016 WQMP) for the Great Bear Lake Mine Sites required under S15L8-001;
- b) A Submission Extension Request for the Water Quality Monitoring Plan (WQMP) required under S17L8-002; and
- c) A Board initiated amendment to S17L8-002.

2. Background

- July 24, 2015 – **S15L8-001 issued to INAC-Contaminants and Remediation Directorate (CARD)** with 2 year term expiring July 23, 2017.
- November 4, 2015 – Board received a **Submission Extension Request** from CARD for deadline to be extended from January 20, 2016 (180 days of the effective date of the WL) to March 31, 2017 for the WQMR required under S15L8-001 as per Part E, item 1.
- November 6, 2015 – Board staff granted requested extension based on rationale provided with the Project Status Update.
- March 2, 2017 – Board received a **Submission Extension Request** from CARD for the 2016 Water Quality Monitoring Report (WQMR) and WQMP.
- March 6, 2017 – Board staff granted requested extension of 90 days with revised deadline of June 29, 2017.
- May 25, 2017 – Board receives CARD renewal application for S15L8-001 – S17L8-002
- June 1, 2017 – S17L8-002 application deemed complete
- June 29, 2017 – Water Quality Monitoring Program Report submitted to the Board (referred to as 2016 Water Quality Monitoring Plan (2016 WQMP) moving forward).
- July 13, 2017 – **S17L8-002 issued to CARD** – renewal WL for S15L8-001.
- July 18, 2017 – **2016 WQMP circulated for public review on Online Review System.**
- August 11, 2017 – Teleconference call organized by CARD with Board staff to discuss the WQMP.
- August 15, 2017 – Reviewer comments and recommendations due and received.

- August 18, 2017 – Teleconference call organized by CARD with Board staff to discuss the 2016 WQMP reviewer comments.
- August 29, 2017 – Proponent responses due and received.
- September 1, 2017 – Erratum to 2016 WQMP received by Board from CARD with **Submission Extension Request** for the Water Quality Monitoring Plan required under S17L8-002.
- September 11, 2017 – **2016 WQMR and Submission Extension Request for WQMP presented to Board for decision.**

3. Discussion

3.1 Submission Description

An updated Water Quality Monitoring Plan (WQMP) was a requirement of S15L8-001, the renewal Water Licence (WL) for S09L8-001, which was identified as needed based on Proponent performance during the 5 year term of S09L8-001. As described in [S15L8-001 Staff Report #1](#), the primary concern was lack of follow-up on commitments made during the 2009/10 application process which included implementation of the proposed Water Quality Monitoring Plan (see Section 2.4 Monitoring, pg. 9). At that time CARD had committed to undertake follow-up monitoring and to complete a desktop review of all water quality monitoring studies from the Great Bear Lake Mine Sites dating back to 2002; which would result in submission of a revised WQMP that would include a schedule for pre-remediation monitoring, updated monitoring requirements for Sawmill Bay and identify sites for inclusion into the Surveillance Network Program. Accordingly, Part E, item 1 of S15L8-001; which was issued on July 24, 2015 required:

Within 180 days of the effective date of this Licence, the Licensee shall submit a **Water Quality Monitoring Plan** to the Board for approval. The Plan shall include, but not be limited to, the following information:

- a) A summary of all Great Bear Lake Remediation Program water quality monitoring results to date;
- b) A schedule for pre-remediation (Baseline) monitoring;
- c) Updated Construction Phase monitoring requirements;
- d) Recommended sites for inclusion into the Surveillance Network Program;
and
- e) Updated Post-Construction Monitoring Plan.

On November 4, 2015 the Board received a [Submission Extension Request](#) from CARD for the WQMP (see Attachment 1). The due date was January 20, 2016 (180 days of the effective date of the WL) and CARD requested this deadline be extended until March 31, 2017. On November 6, 2015 Board staff granted the extension based on the rationale provided which included a reevaluation of the scope of the GBL Remediation Program (see [Attachment 2](#)).

On March 2, 2017 the Board received a second [Submission Extension Request](#) from CARD for the WQMP and the 2016 Monitoring Report (see Attachment 3). The request was for an additional 90 days to complete internal review of the consultant prepared document and allow adequate time for revisions to be incorporated by the consultant (SLR Consulting Ltd.). On March 6, 2017 Board staff granted the request requiring the submission be due June 29, 2017 (see [Attachment 4](#)).

The [2016 WQMP](#) was received by the Board on June 29, 2017 and circulated for review on July 18, 2017. This report presents the results of the 2016 field program in the context of available historical water quality data and appropriate guidelines (i.e. CCME). The report also provides recommendations for future monitoring (i.e. pre-Remediation, Construction and post-Construction) and is intended to meet the requirements for a WQMP under S15L8-001. The requirement for Part E, item 1d was met during the regulatory process for the WL renewal and recommended SNP locations were included in the [S17L8-002 application](#) cover letter (Table 1, pg. 4).

The Board had received the renewal application from CARD on May 24, 2017 and the regulatory process was complete prior to the 2016 WQMR being circulated for public review on July 18, 2017. [S17L8-002](#) was issued July 13, 2017 and as per Part D, item 9 required:

Within 60 days of following issuance of this Licence, the Licensee shall submit to the Board for approval, a **Water Quality Monitoring Plan**. This Plan shall address all water quality monitoring including pre-Remediation, Construction, and post-Construction monitoring plans. The Plan shall meet the objectives listed in Part D, item 1 and be in accordance with Schedule 2, item 3.

As per Schedule 2, item 3, of S17L8-002 the WQMP submission requirements were further clarified (see Attachment 5) such that the 2016 WQMP submitted under S15L8-001 would not meet the increased scope which is considerably more robust. CARD requested a meeting with Board staff on August 11, 2017 to discuss the increased scope and identified that all requirements for the WQMP would not be able to be complete within the specified timeframe as some details required to be included in the WQMP would not be available until the Project was awarded to a contractor. The cover letter submitted with the WL renewal application had included a [Proposed Project Schedule](#) that suggests contracting/procurement would be ongoing until 2019 which is when the remediation project is anticipated to commence (Table 2, pg. 5). An approach to address deficiencies and recommendations received by the Board during the review process for the WQMP was further discussed during a teleconference on Aug 18 and proposed to the Board in the September 1 [Submission Extension Request](#) (see Attachment #6).

The approach taken to include the 2016 monitoring results in the WQMP is a deviation from previous submissions where these results have been included as part of the Annual Summer Site Inspection and/or Water Quality Monitoring Plan details required for the Annual Water Licence Report (i.e. [2015 Water Quality Monitoring of Terra Mine Report](#)). Although the inclusion of these results in the WQMP met the requirements under S15L8-001, it also complicated the presentation of information. The 2016 WQMP is the first time all available water quality data was compiled to allow for trend analyses to be undertaken.¹

3.2 Process Requirements

2016 WQMR Received: June 29, 2017

2016 WQMR Circulated for Review: July 18, 2017

Number of Review Agencies: 22²

Review Period End Date: August 15, 2017

¹ See SLWB Online Registry: [S15L8-001 – 2016 Water Quality Monitoring Report – Jun 29 17](#), Executive Summary, pg. i.

² See Online Review System (http://lwbors.yk.com/LWB_IMS/ReviewComment.aspx?appid=12266): [Distribution List](#)

Applicant Response: August 29, 2017

4. Agency Comments

The 2016 WQMP was circulated to 22 organizations, 9 of which are represented within the Sahtu Settlement Area. Review comments were received from:

- Environment and Climate Change Canada (Comment ID ECCC 1 to 8),
- GNWT Department of Environmental Resources (Comment ID ENR 1 to 16), and
- Sahtu Renewable Resource Board (Comment ID SRRB 1 to 32).

The main issues raised were:

- Clerical and typographic errors,
- Deficiencies in data presentation, interpretation and trend (spatial and temporal) analysis, and
- Uncertainty of objectives for report and whether recommendations presented are to be implemented.

Proponent responses were received August 29, 2017 and, in nearly all instances, CARD accepted the recommendations made by reviewers. CARD also included responses that proposed change in the deliverable approach. For example, CARD had responded to Comment ID ECCC 4; which recommended method to improve trend analysis, that:

“...There are several typographic errors identified by technical reviewers which will be revised in within the 2016 report. However, this recommendation will require large-scale amendment to the 2016 report. This level of effort in data analysis was considered questionable given 2017 monitoring results will be available within the month, making the 2016 report no longer current. SLWB staff was consulted to determine an appropriate approach. Consensus was reached that large-scale revisions to the 2016 report data do not provide forward looking improvements and may not be justified. Instead recommendation will be that the SLWB direct INAC CARD incorporate into the 2017 Monitoring Report. INAC CARD will also provide to the SLWB a 2017 Water Sampling Plan, which will include reporting requirements and the incorporation of such recommendations. In addition to the forthcoming 2017 Monitoring Report, INAC CARD will meet Water Licence requirements through the production of a Water Quality Monitoring Plan (WQMP) to be applied during and immediately following remediation...”

The Review Comment Table and letters submitted by ECCC and ENR are included in the attachments section of this report (7, 8, and 9). CARD submitted the [Erratum to the 2016 WQMP](#) on September 1, 2017 which resolves typographical errors as recommended by reviewers.

The [Submission Extension Request](#) for the WQMP required under S17L8-002 was received by the Board on September 1, 2017. Along with an extension, CARD is requesting Board approval for the further clarified proposed reporting approach as follows:

- “Submit a memo by Sept 11, 2017, outlining the requirements for monitoring 2017 and 2018 which includes:
 - Sampling locations

- Sampling parameters
- Sampling methodology
- Section on reporting requirements
- Submit a Water Quality Monitoring Plan by May 31, 2018, to fulfill the condition of the water licence that includes pre-remediation, Construction and post-Construction monitoring and meets the requirements of Schedule 2 Part D Section 3 of the licence.”

Board staff support the request made by CARD and recommend the Board initiate an amendment to Part D and Schedule 2 of S17L3-002 under the authority granted by Section 72.12, item 1b, iii of the *Mackenzie Valley Resource Management Act* (MVRMA).

S17L8-002 Amendment

In preparing S17L8-002 and the requirements to be included for the WQMP, Board staff had consulted recent issuances to CARD by the Mackenzie Valley Land and Water Board (MVLWB) for remediation projects in the NT. For example, in [MV2016L8-0004](#) issued on December 5, 2016 for the Bullmoose-Ruth Remediation Project, Schedule 3 describes the requirements for a Construction Monitoring Plan, Post-Construction Monitoring Plan and Long-term Monitoring Plan. These Plans are requirements of Part F (Conditions Applying to Water and Waste Management), items 7, 8, and 9 respectively with submission deadlines of 90 days post issuance, 90 days prior to demobilization and 6 months prior to Project completion. In S17L8-002 these requirements were rolled into the single WQMP document and, in consideration of the Proposed Project Schedule, should be revised to better align with those MVLWB issuances such that discrete reports are required. Board staff have prepared a draft amendment to S17L8-002 for the Board’s consideration that also includes addition of two Annex: B - Concordance Table and C - Table of Revision History, to match the format of the MVLWB issuances (see Attachment 10).

Board staff find that reviewer comments indirectly support this proposed amendment. For example, SRRB comments 1 through 5 make recommendations to reorganize and clarify the objectives of the report and state in Comment ID 1 that “...The report is too general to provide support for any decisions on monitoring”. It is the Board staff opinion that the amendment would facilitate implementation of these recommendations by having reporting requirements separated as described above.

Board staff maintain that there is merit to having a single report that analyzes all baseline/pre-remediation water quality data which would inform the development of the Construction Monitoring Plan. It is the Board staff opinion that the report include determination of the statistical power of these results to detect changes in the water chemistry during Construction/Remediation. This recommendation is also supported by reviewer comments that found the trend analyses inadequate or inappropriate (e.g. Comment ID ECCC 5). Board staff also recommend that the reevaluation should allow for improved understanding of site(s) conditions and consider whether delays in the implementation of the Project have had any environmental effect. This recommendation is supported by reviewer comments (i.e. ECCC 5 & ENR 2). Board staff recommend the Board directs CARD to submit a Baseline/pre-Remediation Water Quality Monitoring Report which would consider all applicable results as well as improved statistical analysis recommended by reviewers. Proponent responses do generally support this approach.

Board staff also recommend that the requirements for Annual Reporting in Schedule 1 under S17L8-002 be revised to provide clarity and align with recent MVLWB issuances to CARD (see Attachment 10).

Board staff also want to draw attention to the [Submission Extension Request](#) for the Geochemical Verification Program required under S17L8-002 received by the Board on September 1, 2017 (Attachment 11). Board staff have the opinion that this request fits with the proposed amendments described above and in consideration of the Proposed Project Schedule, recommend the Board supports the revision of the deadline from “90 days following issuance of the Licence” to “90 days prior to the commencement of Construction/Remediation activities”.

Board staff recommend the Board approves the proposed amendments to the S17L8-002 and have prepared a draft issuance letter for Board consideration (Attachment 12).

5. Conclusion

Board staff have compared the Water Quality Monitoring planning and reporting requirements under S17L8-002 to other DIAND-CARD Type B WL issuances and finds that the WQMP can be broken down into separate items that better align with those subsections identified under S15L8-001. Board staff recommend the Board support the proposed amendments to applicable sections of the WL.

Board staff have the opinion that revised submission deadlines will also align better with the circumstances for these types of projects where final plans are oftentimes not known until a remediation contract is awarded. Board staff support reviewer comments and recommend that the objectives intended to be met with the current WQMP requirements would be better realized if the Board amended the scope to be broken down into separate deliverables. Based on the current status of the project, which anticipates remediation commencing in 2019, Board staff recommend the Board directs CARD to also complete a Pre-construction/Baseline WQMR that informs development of the Construction Monitoring Plan and facilitates answering questions as presented by reviewers of the 2016 WQMR.

6. Recommendation

Board staff recommend that the Board:

1. Approve the 2016 WQMR as the Interim 2016 Water Quality Monitoring Report and require submission of a revised report in accordance with Board direction and the comments made during the related review;
2. Amend S17L8-002, Schedule 2 and Part D, to require submission of a Pre-Construction/Baseline Monitoring Report, Construction Monitoring Plan, Post-Construction Monitoring Plan and Long-Term Monitoring Plan which will align the water monitoring reporting requirements with recent Type B WLs issued to CARD in other regions of the NT for remediation projects; and
3. Amend S17L8-002, Schedule 1 (General Conditions) to clarify Annual Water Licence Report requirements.
4. Approve the Submission Extension Request for the Geochemical Verification Program with Amendment included in S17L8-002.

7. Reference Material Attached

1. [S15L8-001 – WQMP Submission Extension Request – November 4, 2015](#)

2. [S15L8-001 – WQMP Submission Request Granted – November 6, 2015](#)
3. [S15L8-001 – WQMP Submission Extension Request – March 2, 2017](#)
4. [S15L8-001 – WQMP Submission Extension Request – March 6, 2017](#)
5. S17L8-002 – Schedule 2
6. [S17L8-002 – WQMP Submission Extension Request – September 1, 2017](#)
7. [Review Comment Table – August 29, 2017](#)
8. ECCC Letter
9. ENR Letter
10. Draft Amendment S17L8-002
11. [S17L8-002 – Geochemical Verification Program Extension Request – September 1, 2017](#)
12. Draft Issuance letter with Board approval of 2016 Interim WQMR

Respectfully submitted,



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Executive Director Comments:



Paul Dixon
Executive Director