



Mackenzie Valley Land and Water Board
7th Floor - 4922 48th Street
P.O. Box 2130
YELLOWKNIFE NT X1A 2P6
Phone (867) 669-0506
FAX (867) 873-6610

Staff Report

Applicant: Teck Metals Ltd.	
Location: Pine Point, NT	Application: MV2017
Date Prepared: July 9, 2018	Meeting Date: July 19, 2018
Subject: Operations and Maintenance Plan, Version 3	

1. Purpose/Report Summary

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) an Operations and Maintenance Plan, version 3 (Plan v.3), submitted by Teck Metals Ltd. (Teck Metals) to fulfill Part F, condition 3 of Water Licence (Licence) MV2017L2-0007.

2. Background

- October 25, 2017 – Issuance of Licence MV2017L2-0007;
- June 1, 2018 – Plan v.3 received;
- June 4, 2018 – Plan v.3 review commenced;
- June 26, 2018 – Reviewer comments and recommendations due and received;
- July 3, 2018 – Responses due and received;
- **July 19, 2018 – Plan v.3 presented to the Board for decision.**

3. Discussion

Licence Requirements

Part F, condition 3 of Licence MV2017L2-0007 requires the following:

The Licensee shall act in accordance with the Operations and Maintenance Plan in the Accepted Application, and submit a revised Plan by February 1, 2018, for approval, which shall include the addition of the following information:

- a) A description, including detailed rationale, of the monitoring endpoints (Action Levels) for each parameter monitored in the Surveillance Network Program;*
- b) Mitigation measures for decreasing pH at SNP station 35-1b when it exceeds effluent quality criteria, as specified in Part F, item 10;*
- c) A description of response actions to be carried out if the Action Levels are exceeded; and*
- d) Any other item as directed by the Board.*

Submissions – Plan v.2 and v.3

On February 1, 2018 Teck Metals submitted the Operations and Maintenance Plan, version 2 (Plan, v.2). On April 12, 2018, the Board denied the Plan v.2 because it was not in conformity with the requirements of Part F, condition 3 (a to c) of Licence MV2017L2-0007 (attached). The Board’s decision letter required Teck Metals to submit to the Board, for approval, an updated Operations and Maintenance Plan, version 3 by June 1, 2018. As such, Teck Metals submitted the Plan v.3 on June 1, 2018 for review.

4. Comments

Board staff have reviewed the Plan v.3 to ensure all Licence requirements and comments from the previous review of the Plan v.2 have been addressed in the Plan v.3.

Table 1: Plan Completeness

	Licence Requirements	Board staff analysis of the adequacy of the Plan v.3 in addressing the component
a)	<i>A description, including detailed rationale, of the monitoring endpoints (Action Levels) for each parameter monitored in the Surveillance Network Program;</i>	Appendix E: Section 5.1.1 includes a table of proposed Action Levels for Surveillance Network Program (SNP) station 35-1b. This section also includes rationale for how and why the Action Levels were chosen.
b)	<i>Mitigation measures for decreasing pH at SNP station 35-1b when it exceeds effluent quality criteria, as specified in Part F, item 10;</i>	Appendix E: Section 5.1.2 outlines the mitigation measures that will be implemented to decrease pH in order to achieve Licence Effluent Quality Criteria (EQC). This section also outlines further mitigations that will be taken if current methods are not effective enough to meet EQC for Zinc, pH and Turbidity. The primary mitigation described to ensure pH is below 9.5 at discharge is to recirculate water back to the pre-treatment pond until such time as the elevated pH water is replaced by lower pH water from the pond. Lime addition would also be reduced during this period.
c)	<i>A description of response actions to be carried out if the Action Levels are exceeded;</i>	Appendix E: Section 5.1.3 outlines 6 response actions that are to be implemented if an Action Level is repeatedly not met.

5. Reviewer Comments

By June 26, 2018, comments and recommendations on the Plan v.3 were received from 1 reviewer (Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR)).

Teck Metals responded on July 3, 2018. The Review Summary and Attachments (attached) present a concern identified by the GNWT-ENR through this review.

GNWT-ENR indicated the updates provided in Plan v.3 largely address ENR's comments on Version 2 of the plan. However, ENR did identify some uncertainties regarding the mitigation measures to be implemented if pH at SNP 35-1b exceeds the effluent quality criteria in the Licence. ENR recommended Teck Metals explain whether other more direct methods of reducing pH in the discharge water are available, and whether these would be feasible for use at the treatment site. Teck Metals responded that there are other more direct methods of reducing pH in the discharge water,

which includes the addition of acid or the injection of CO₂. This would require a major modification to the current water treatment process and the storage of additional chemicals on site. Teck Metals also stated that, *“Prior to making any major modifications to the system, Teck is in the process of evaluating alternate water treatment methods that operate at a pH range consistent with the Water Licence requirement. Upon completion of these evaluations, it will be determined if the modifications discussed above (e.g., acid or CO₂) need to be installed, or if an alternate treatment method is safer and more effective. This evaluation will be completed during the 2018 treatment season and the necessary modifications will be included in the updated Water Treatment Manual for 2019.”*

Therefore, as new information is gathered in 2018, Teck Metals will determine if the current treatment process and mitigations in place are adequate, or if more direct methods (e.g., acid or CO₂) are required to meet Licence EQC for pH. If modifications to the water treatment process prove necessary to meet Licence EQC, Teck Metals will update and resubmit the Operations and Maintenance Plan accordingly for public review and Board consideration.

6. Security

The status of security for this project will not be affected by the Board’s decisions related to the Plan v.3.

The GNWT currently holds \$8,815,000.00 in financial liability security under Licence MV2017L2-0007 (attached).

7. Conclusion

Board staff concludes that further information was provided by Teck metals in their responses to reviewer comments. Board staff suggest this submission is in conformity with the requirements of Licence MV2017L2-0007 and there are no outstanding issues or concerns with this submission.

8. Recommendation

Board staff **recommend the Board make a motion to approve the Operations and Maintenance Plan**, version 3, as submitted June 1, 2018 under Part F, condition 3 of Licence MV2017L2-0007.

A draft decision letter is attached.

Board staff recommend including the following text in the decision letter:

- As indicated in Teck Metals’ response to GNWT-ENR comment-1, Teck Metals shall evaluate the adequacy of the current treatment process and mitigation measures for decreasing pH as described in the Operations and Maintenance Plan, version 3, and should any modifications be required, an updated Operations and Maintenance Plan shall be submitted to the Board by May 1, 2019 for public review and Board consideration.

9. Attachments

- [Operations and Maintenance Plan, Version 3](#)
- [April 12, 2018 – Board Decision Letter: Denial of Plan V.2](#)
- Review Summary and Attachments
- [Security Receipt](#)
- Draft Decision Letter from the Board

Respectfully submitted,



Kierney Leach
Technical Regulatory Specialist

Review Comment Table

Board:	MVLWB
Review Item:	Teck Metals Ltd. - Operations and Maintenance Plan, Version 3 (MV2017L2-0007)
File(s):	MV2017L2-0007
Proponent:	Teck Metals Ltd.
Document(s):	The Board's April 12, 2018 Decision Letter to Teck Metals (700 KB) Operations and Maintenance Plan, Version 3 (12 MB)
Item For Review Distributed On:	June 4 at 10:37 Distribution List
Reviewer Comments Due By:	June 26, 2018
Proponent Responses Due By:	July 3, 2018
Item Description:	<p>Teck Metals Ltd. (Teck Metals) submitted its Operations and Maintenance Plan, Version 3, on June 1, 2018. The Operations and Maintenance Plan, version 2 was not approved by the Board, and in the Board's April 12, 2018 decision letter they directed Teck Metal's to re-submit the Operations and Maintenance Plan version 3 for review and approval by June 1, 2018 to address reviewer comments and to ensure Licence conformity. This Plan is required by Part F, item 3 of Licence MV2017L2-0007.</p> <p>Reviewers are invited to submit questions, comments, and recommendations on this submission using the Online Review System (ORS) by Tuesday June 26, 2018 at 5pm MST.</p> <p>All documents that have been uploaded to this review are also available on our public registry. If you have any questions or comments regarding this Plan or using the Online Review System, please contact Kierney Leach at 867-766-7470 or kleach@mvlwb.com.</p>
General Reviewer Information:	<p>In addition to the email distribution list, the following organizations received review materials by fax:</p> <ul style="list-style-type: none"> • Fort Simpson Métis Local #52 - Marie Lafferty, President: (867)695-2040; • Northwest Territory Métis Nation - Tim Heron, NWTMN IMA Coordinator: (867)872-3586.
Contact Information:	Jen Potten 867-766-7468 Kierney Leach 867-766-7470

Comment Summary

GNWT - ENR: Central Email GNWT				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
2	General File	Comment (doc) ENR Letter with Comments and Recommendations Recommendation		Noted.
1	Topic 1: Action Level Updates	Comment Water Resources Division, ENR has reviewed Version 3 of the Teck Metals Ltd. (Teck) Operations and Maintenance Plan, and the provided updates largely address ENR's comments on Version 2 of the plan. However, ENR remains uncertain regarding available mitigations for "decreasing pH at SNP station 35-1b when it exceeds effluent quality criteria". ENR understands that reducing the lime addition rate in the event that pH reaches a level of 9.3 should prevent the pH from reaching the Water Licence limit. If a single grab sample exceeds the maximum grab limit, then discharge is ceased, and the notification procedures in Section 5.5 are initiated. If Action Levels are repeatedly not met, then water is recirculated either to the head of the serpentine channel or back to the pre-treatment pond facility. As such, it appears to ENR that the primary mitigation in the event that pH at SNP 35-1b exceeded the discharge criterion would be to recirculate water back to the pre-treatment pond until such time as the elevated pH water	July 3: Yes there are more direct methods of reducing pH in the discharge water which includes the addition of acid or the injection of CO ₂ . This would require a major modification to the water treatment process that is currently in place, including the installation of additional equipment and process control measures. It also adds the storage of another chemical which increases the risk of spills and requires mitigation steps for safe operation. Prior to making any major modifications to the system, Teck is in the process of evaluating alternate water treatment methods that operate at a pH range consistent with the Water Licence requirement. Upon completion of these evaluations, it will be determined if the modifications discussed above (e.g., acid or CO ₂) need to be installed or if an alternate treatment method is safer and more effective. This evaluation will be completed during the 2018 treatment season and the necessary modifications will be included in the updated	Acceptable response. Board staff recommend that Teck Metals continue to evaluate the adequacy of the current treatment process and mitigation measures for decreasing pH as described in the Operations and Maintenance Plan, version 3, and should any modifications be required, an updated Operations and Maintenance Plan shall be submitted to the Board for public review and Board consideration.

	<p>was replaced by lower pH water from the pond. Lime addition would also be reduced during this period. ENR notes that in the event that pond water levels were elevated, such as occurred this past spring, re-circulating water back to the pond might not be possible.</p> <p>Recommendation 1) ENR recommends Teck comment on whether other more direct methods of reducing pH in the discharge water are available and whether these would be feasible for use at the treatment site.</p>	Water Treatment Manual for 2019.	
--	--	----------------------------------	--



June 26, 2018

Jen Potten
Regulatory Officer
Mackenzie Valley Land and Water Board
7th Floor – 4910 50th Avenue
P.O. Box 2130
Yellowknife, NT
X1A 2P6

Dear Ms. Potten,

**Re: Teck Metals Ltd.
Water Licence – MV2017L2-0007
Operations and Maintenance Plan - Version 3
Request for Comment**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the plan at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

Topic 1: Action Level Updates

Comment(s)

Water Resources Division, ENR has reviewed Version 3 of the Teck Metals Ltd. (Teck) Operations and Maintenance Plan, and the provided updates largely address ENR's comments on Version 2 of the plan. However, ENR remains uncertain regarding available mitigations for "decreasing pH at SNP station 35-1b when it exceeds effluent quality criteria".

ENR understands that reducing the lime addition rate in the event that pH reaches a level of 9.3 should prevent the pH from reaching the Water Licence limit. If a single grab sample exceeds the maximum grab limit, then discharge is ceased, and the

notification procedures in Section 5.5 are initiated. If Action Levels are repeatedly not met, then water is recirculated either to the head of the serpentine channel or back to the pre-treatment pond facility.

As such, it appears to ENR that the primary mitigation in the event that pH at SNP 35-1b exceeded the discharge criterion would be to recirculate water back to the pre-treatment pond until such time as the elevated pH water was replaced by lower pH water from the pond. Lime addition would also be reduced during this period.

ENR notes that in the event that pond water levels were elevated, such as occurred this past spring, re-circulating water back to the pond might not be possible.

Recommendation:

- 1) ENR recommends Teck comment on whether other more direct methods of reducing pH in the discharge water are available and whether these would be feasible for use at the treatment site.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the South Slave Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick.clancy@gov.nt.ca.

Sincerely,



Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories