Québec City March 27, 2020 **BY EMAIL**

Jean-Sébastien Lavallée
Chief Executive Officer
Critical Elements Lithium Corporation
1080 Beaver Hall Hill
Suite 2101
Montréal, Quebec H2Z 1S8

SUBJECT: Rose Lithium-Tantalum Mining Project – Second Information Request (Part 1)

Dear Mr. Lavallée:

On February 7, 2020, the Joint Assessment Committee formed by the Impact Assessment Agency of Canada and the Cree Nation Government (the Committee) received all the responses to the first Information Request sent to you on June 27, 2019. Those responses are available in the following documents:

- WSP (December 2019). Projet Rose Lithium-Tantale. *Réponses aux questions et commentaires de l'ACÉE*. Rapport produit pour Corporation Lithium Éléments Critiques. 222 pages + appendices.
- WSP (February 2020). Projet Rose Lithium-Tantale. *Réponses à la non-concordance de la première demande d'information de l'AEIC*. Rapport produit pour Corporation Lithium Éléments Critiques. 25 pages.

After reviewing these documents, the Committee, in consultation with the experts on the Federal Environmental Assessment Committee, prepared a second Information Request to obtain the information and clarification required to continue its analysis of the project's Environmental Impact Statement.

The information is requested in compliance with the requirements in the *Environmental Impact Statement Guidelines* (December 2012) and the *Informations complémentaires aux lignes directrices finales du projet minier Rose* (August 2016) and also takes into account the other documents provided by the proponent concerning the Environmental Impact Statement:

- Critical Elements Corporation, WSP Canada Inc., February 2019. Projet minier Rose Lithium-Tantale, *Mise à jour de l'étude d'impact sur l'environnement*, Rapport (version finale), Volume 1.

- Critical Elements Corporation, WSP Canada Inc., December 2017. Projet minier Rose Lithium-Tantale, *Mise à jour de l'étude d'impact sur l'environnement*, Volume 2 : Études sectorielles et Volume 3 : Annexes.

- Critical Elements Corporation, WSP Canada Inc., February 2019. Projet minier Rose Lithium-Tantale, *Renseignements demandés par l'ACÉE pour la concordance de l'étude d'impact environnemental*, Version finale.

- Critical Elements Corporation, WSP Canada Inc., December 2019. Projet minier Rose Lithium-Tantale, *Réponses aux questions et commentaires complémentaires du MELCC*, Version finale.

The second Information Request consists of two parts. Part 1, attached, covers the following subjects: scope of project, alternative means of carrying out the project, methodology for assessing effects on the environment, air quality and noise environment, groundwater quality, hydrogeology, hydrology, fish and fish habitats, water quality, soil quality, wetlands and wildlife, health and well-being of Indigenous communities, follow-up and environmental monitoring, and accidents and malfunctions.

Part 2 will be sent to you at a later date. It will deal with the subject of Indigenous Peoples and may contain other questions.

Other comments

Further investigation by the Federal Environmental Assessment Committee regarding the geochemistry and the hydrology has raised additional questions which have been added to this second Information Request (Part 1). The answers to those questions will help the Joint Assessment Committee and the experts to continue with their analysis of the project's effects.

For further details about this Information Request, please contact Véronique Lalande at *veronique.lalande@canada.ca* or 418-455-4116.

Yours truly,

Benoît Dubreuil
Co-Chair, Joint Assessment Committee
Impact Assessment Agency of Canada

John Paul Murdoch
Co-Chair, Joint Assessment Committee
Cree Nation Government

Enclosure: Second Information Request (Part 1)

c.c. [by email]: Anne Gabor, Critical Elements Lithium Corporation
Jacqueline Leroux, Critical Elements Lithium Corporation
Brian Craik, Cree Nation Government
Véronique Lalande, Impact Assessment Agency of Canada
Isabelle Vézina, Health Canada
Peter Unger, Natural Resources Canada
Joanie Carrier, Fisheries and Oceans Canada
Karine Gauthier, Environment and Climate Change Canada
Catherine Gaudette, Transport Canada

Information Request No. 2 (Part 1)

Environmental Assessment of the Rose Lithium-Tantalum Mining Project

Table of Contents

Important information to consider when responding to the request for information

Justification for missing information

The proponent must answer all the questions to allow the Joint Assessment Committee (the Committee) to continue its analysis. Referring to sector studies is not a sufficient response. These studies support the impact study. The proponent must clearly indicate how it has taken these studies into account in its environmental analysis and decisions.

If the proponent chooses to provide a single answer for several questions, it must clearly identify to which questions the answer relates.

Justification must be provided by the proponent if no information is submitted for any of the elements requested in this application.

Review of the Environmental Impact Assessment

For any issues that require a review of the analysis of the environmental effects of the project, the proponent must also update the following:

- Description of potential environmental effects
- Mitigation measures
- Description and assessment of significance of residual environmental effects
- Analysis of cumulative environmental effects
- Monitoring and follow-up program

Mitigation measures:

In its answers to the questions in this request for information, the proponent must outline mitigation practices, policies and commitments that constitute mitigation measures, that is, measures to eliminate, reduce or limit the technically and economically feasible environmental effects of the project. In its analysis of the significance of the effects, the Committee assesses whether the mitigation measures proposed by the proponent are adequate to mitigate the anticipated effects on the various valued environmental components. In the absence of adequate mitigation measures proposed by the proponent, the Committee could conclude that the environmental effects are significant and present its conclusions in the environmental assessment report submitted to the Minister.

Scope of the Project

Request for information to the proponent

CCE 1 Effects of the Workers' Camp

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 6 (Scope of the Project) and 10.1 (Environmental Effects).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Answers to questions CEAA-1 and CEAA-3.

Background

In response to question CEAA-1, the proponent explains that the preferred choice of camp for housing workers is the Eastmain camp located 25 km from the mine site. However, "if this option fails, Critical Elements Lithium Corporation (CEC) has identified a site 4 km from the pit on which a permanent camp could be installed. *There is currently no infrastructure in place."* In response to question CEAA-3, the proponent provides a brief comparative table of the two options. However, the environmental and Indigenous community effects of the construction and operation of the camp located near the mine site were not assessed. These effects must be assessed in the event that the first option fails. Since the final selection of the camp will be made at a later date, the proponent must present the effects of each of the two alternatives.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) For each of the two alternatives considered for the workers' camp, submit a detailed analysis of: 1) environmental effects; 2) effects related to changes in the environment on Indigenous people in terms of health, natural and cultural heritage, current use of lands and resources for traditional purposes, and construction, site or thing of historical, archaeological, paleontological or architectural significance; and 3) social effects[1] on Indigenous people. For environmental effects, this analysis should include an assessment of the effects on air, water, wildlife and wetland quality, among others. The proponent must describe the mitigation measures that will be implemented to reduce the effects of each of these options. The proponent must follow the approach described in section 8 of the Agency's guidelines to draft the environmental impact statement.

B) Compare the two alternatives, namely on the basis of their environmental effects and their effects on established or potential Indigenous and treaty rights.

[1] The social effects on Indigenous people are being assessed under the agreement signed in June 2019 between the Canada Impact Assessment Agency and the Cree Nation Government regarding the continuation of the environmental assessments of the Rose Lithium-Tantalum Mining Project and the James Bay Mine Project (available at the following link: *https://iaac-aeic.gc.ca/050/evaluations/document/132804?culture=en-CA*).

Other means of carrying out the project

Request for information to the proponent

CCE 2 Alternatives - Ore Transportation and Storage

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-2.

Background

In question CEAA-2, the proponent was asked to provide a detailed analysis of alternatives for ore transportation and storage as requested in section 8 of the Agency's guidelines for drafting the environmental impact statement. In its response, the proponent mentions that two transshipment sites are being considered, namely Matagami and Chibougamau. It presents a summary analysis of the routes between the mining project site and each of these transshipment sites as well as a table summarizing the characteristics of the two alternatives (Table CEAA-2e). However, the environmental effects and potential adverse effects on established or potential Indigenous and treaty rights of each of these two alternatives have not been assessed, as required in the approach described in section 8 of the Agency's guidelines to draft the environmental impact statement. Since the final choice of the transshipment site will be made at another stage in the project, the proponent must present the effects of each of the two alternatives.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) For each of the two alternatives considered for the transportation and storage or ore, submit a detailed analysis of: 1) environmental effects; 2) effects related to changes in the environment on Indigenous people in terms of health, natural and cultural heritage, current use of lands and resources for traditional purposes, and construction, site or thing of historical, archaeological, paleontological or architectural significance; and 3) social effects[2] on Indigenous people. For environmental effects, this analysis should include an assessment of the effects on air, water, wildlife and wetland quality, among others. The proponent must describe the mitigation measures that will be implemented to reduce the effects of each of these options. The proponent must follow the approach described in section 8 of the Agency's guidelines to draft the environmental impact statement.

[2] The social effects on Indigenous people are being assessed under the agreement signed in June 2019 between the Canada Impact Assessment Agency and the Cree Nation Government regarding the continuation of the environmental assessments of the Rose Lithium-Tantalum Mining Project and the James Bay Mine Project (available at the following link: *https://iaac-aeic.gc.ca/050/evaluations/document/132804?culture=en-CA*).

B) Compare the two alternatives, namely on the basis of their environmental effects and their effects on established or potential Indigenous and treaty rights.

C) Justify the option selected (A and B).

CCE 3 Alternatives - Contaminated Water Treatment and Effluent Discharge Points

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-4.

Background

In response to question CEAA-4 A), the proponent presents alternatives for the treatment of mine water and the discharge of water from mine effluents, including those from pit dewatering. The proponent explains which option was selected for each of these two components and provides summary information on the alternatives. It does not present criteria to determine the technical and economic feasibility of these options. Nor does it explain the effects of each of the options assessed.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide a multi-criterion analysis for: 1) mine water treatment and domestic wastewater treatment, and 2) effluent discharge points (water treatment plant effluent and dewatering effluent). The proponent must follow the approach described in section 8 - Other means of carrying out the project, in the Agency's Environmental Impact Statement Guidelines. The proponent must explain the selection of criteria and the values assigned to each criterion, and present the results of this analysis of alternatives in a comparison table.

B) For each of the alternatives assessed for mine water treatment, domestic water treatment and effluent discharge points, present a detailed analysis of: 1) environmental effects; 2) effects related to changes in the environment on Indigenous people in terms of health, natural and cultural heritage, current use of lands and resources for traditional purposes, and construction, site or thing of historical, archaeological, paleontological or architectural significance; and 3) social effects[3] on Indigenous people. The proponent must summarize this analysis in the comparative table referred to in A). The proponent must follow the approach described in section 8 - Other means of carrying out the project, in the Agency's Environmental Impact Statement Guidelines.

[3] The social effects on Indigenous people are being assessed under the agreement signed in June 2019 between the Canada Impact Assessment Agency and the Cree Nation Government regarding the continuation of the environmental assessments of the Rose Lithium-Tantalum Mining Project and the James Bay Mine Project (available at the following link: *https://iaac-aeic.gc.ca/050/evaluations/document/132804?culture=en-CA*).

CCE 4 Alternatives - Energy Sources

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-5.

Background

For question CEAA-5, the proponent was asked to provide additional details on the economic and environmental criteria (including greenhouse gases (GHGs)) of the various options to justify its choice of energy sources to be used, namely to power mobile equipment. The proponent indicates in its response the economic and environmental criteria that were used to analyze the energy sources. However, GHG emissions are the only environmental criterion used in the analysis.

Environment and Climate Change Canada is of the opinion that other environmental criteria must also be considered, including emissions of criteria air contaminants (NO_2, CO, PMT, PM_{10}, $PM_{2.5}$, SO_2 and NH_3) as well as any other relevant contaminant, i.e., specific to mine site activities.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Include emissions of criteria air contaminants (NO_2, CO, PMT, PM_{10}, $PM_{2.5}$, SO_2 and NH_3) in the analysis and selection of energy sources, as well as any other relevant contaminants.

CCE 5 Alternatives - Ore Processing

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-6.

Background

In its response to question CEAA-6, the proponent provides information on the two process options for the extraction of lithium, either by brine or by spodumene concentration. However, it does not compare the two processes and does not explain why spodumene concentration extraction was selected. It does not present criteria to determine the technical and economic feasibility of these options. Nor does it explain the effects of each of the ore processing options evaluated.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide a multi-criterion analysis for ore processing. The proponent must follow the approach described in section 8 - Other means of carrying out the project, in the Agency's Environmental Impact Statement Guidelines. The proponent must clearly explain the criteria used to determine the option selected for each ore processing option. The proponent must explain the selection of criteria and the values assigned to each criterion, and present the results of this analysis of alternatives in a comparison table.

B) For each of the ore processing options assessed, present a detailed analysis of: 1) environmental effects; 2) effects related to changes in the environment on Indigenous people in terms of health, natural and cultural heritage, current use of lands and resources for traditional purposes, and construction, site or thing of historical, archaeological, paleontological or architectural significance; and 3) social effects[4] on Indigenous people. The proponent must summarize this analysis in the comparative table referred to in A). The proponent must follow the approach described in section 8 - Other means of carrying out the project, in the Agency's Environmental Impact Statement Guidelines.

CCE 6 Alternatives - Secondary Ore Processing

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-7.

Background

In response to question CEAA-7, the proponent describes the option of on-site secondary processing of spodumene ore in a second project phase. However, it does not conduct an analysis of alternatives using criteria to determine the technical and economic feasibility of these options. Nor does it explain the effects, other than a qualitative overview of greenhouse gas emissions, of each of the options evaluated.

In addition, the proponent does not consider various options that exist or that could be developed in the near future, other than abroad, for the secondary processing of spodumene. While a second transformation of spodumene by the proponent requires a feasibility analysis, the proponent may conduct a summary analysis of alternatives by considering local, Canadian and/or North American second transformation options.

[4] The social effects on Indigenous people are being assessed under the agreement signed in June 2019 between the Canada Impact Assessment Agency and the Cree Nation Government regarding the continuation of the environmental assessments of the Rose Lithium-Tantalum Mining Project and the James Bay Mine Project (available at the following link: *https://iaac-aeic.gc.ca/050/evaluations/document/132804?culture=en-CA*).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide a multi-criterion analysis of alternatives for secondary ore processing. The proponent must follow the approach described in section 8 - Other means of carrying out the project, in the Agency's Environmental Impact Statement Guidelines. The proponent must clearly explain the criteria used to determine the selected option for each of the secondary ore processing options. The proponent must explain the selection of criteria and the values assigned to each criterion, and present the results of this analysis of alternatives in a comparison table. Consider local, Canadian and/or North American secondary processing options.

B) For each of the options assessed for the second ore processing, present a detailed analysis of: 1) environmental effects, not limited to greenhouse gas (GHG) emissions, but by providing quantitative data on GHG emissions; 2) effects related to changes in the environment on Indigenous people in terms of health, natural and cultural heritage, current use of lands and resources for traditional purposes, and construction, site or thing of historical, archaeological, paleontological or architectural significance; and 3) social effects[5] on Indigenous people.

CCE 7 Dam Removal at Lake 3 - Security and Infrastructure Map Update

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 8 (Other means of carrying out the project).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Information requested by the CEAA for concordance with the environmental impact statement.* Report produced for Critical Elements Lithium Corporation.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-8.

Background

In response to question CEAA-8, the proponent indicates that there will be no more dams at Lake 3. However, on page 31 of the Supplementary Information to the Environmental Impact Statement Concordance (WSP, February 2019), the proponent indicated that the dam planned for Lake 3 must be built for the pit to be operated safely and that it would provide a safe distance to the pit.

[5] The social effects on Indigenous people are being assessed under the agreement signed in June 2019 between the Canada Impact Assessment Agency and the Cree Nation Government regarding the continuation of the environmental assessments of the Rose Lithium-Tantalum Mining Project and the James Bay Mine Project (available at the following link: *https://iaac-aeic.gc.ca/050/evaluations/document/132804?culture=en-CA*).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Present an updated map of the general development of the proposed mining infrastructure, reflecting the decision to no longer build a dam at Lake 3.

B) Specify whether the pit can be operated safely and that a safe distance can be maintained from the pit, despite the removal of the dam at Lake 3.

Environmental Impact Assessment Methodology

Request for information to the proponent

CCE 8 Criteria for Assessing the Significance of Residual Effects

Reference

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 10 (Evaluation of Effects).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-33.

Background

In response to question CEAA-33, the proponent presents its analysis of residual effects for each valued component. It justifies the values placed on each sub-criterion of intensity (magnitude), namely: ecosystem value, socio-economic value and degree of disturbance. However, the same justification exercise is not systematically presented for the values assigned to the following criteria: spatial extent, duration and probability of occurrence.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the values given in the assessment of the spatial extent, duration and probability of occurrence criteria for each valued component assessed as part of the assessment of the project's residual effects.

Air quality and sound environment

Request for information to the proponent

CCE 9 Air Quality Monitoring - Monitoring Stations

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 11.4 (Monitoring Program).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from Quebec's MELCC*. Appendix Q-7Bis.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-58.

Background

The proponent provided an air quality monitoring program in Appendix Q-7Bis of the Responses to the Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) (February 2019), which considers following up on a receptor deemed sensitive, namely the workers' camp. However, users of trapline RE1 use the area occasionally, especially for moose hunting in winter and goose hunting in spring. That said, no Cree camps have been identified as sensitive receptors. Exposure is nevertheless likely and it seems important to reassure users to minimize avoidance of the territory.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Consider adding an air quality monitoring station at a location representative of the use of RE1 trapline, even in the absence of a camp. If not, justify the choice of worker camp as the only air quality monitoring station.

CCE 10 Air Quality Monitoring - Compliance with Sensitive Receptor Standards and Addition of NO_2

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 11.4 (Monitoring Program).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sector study RS-6 (Air quality).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC*. Appendix Q-7Bis.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-58.

Background

In terms of the scope, the Air Quality Monitoring Program refers only to verifying compliance with the standards of Air Quality Regulations (AAR), without considering the National Ambient Air Quality Standards. The selection of contaminants to be monitored should, in part, be motivated by the results of the modelling study on atmospheric dispersion. For example, for nitrogen dioxide (NO_2) over a period of one hour, maximum values corresponding to 92% (construction phase) and 102% (operations phase) of the limit value were modelled at the C2 Cree camp.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Consider compliance with National Ambient Air Quality Standards for sensitive receptors in the Air Quality Monitoring Program. If not, justify.

B) Consider adding NO_2 to the Air Quality Monitoring Program. If not, justify.

CCE 11 Air Quality Monitoring - Toxic Gases (CO and NO_2) during blasting, dust, $PM_{2.5}$, PM_{10} and Total and Fine Particles

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 8.3.4.2 (Use of study area).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Answers to questions CEAA-58, CEAA-76 and Appendix CEAA-58.

Background

In question CEAA-58 a), the proponent was asked, among other things, to develop a dust management plan and an air quality monitoring program. In its response, the proponent indicates that the dust management plan is presented in Appendix CEAA-58.

ECCC believes that the plan provided answers the question overall but that some information is missing regarding the preliminary air quality monitoring program presented in section 5 of the dust management plan. According to this program, total particulate matter (TPM), certain metals and crystalline silica will be monitored. In its response to question CEAA-76, the proponent explains why it does not consider certain substances for air quality monitoring, such as certain metals and gases. It does not address the issue of $PM_{2.5}$, however. ECCC believes that $PM_{2.5}$ and PM_{10} should be considered for air quality monitoring.

In addition, the proponent did not consider continuous monitoring of particulate matter (total and fine). Such monitoring would allow the impact of mining activities on local air quality to be measured in real time, and thus facilitate adaptive action where necessary.

Nor does the monitoring program consider the monitoring of dust fallout. The proponent mentions in section 8.3.4.2 of the environmental impact study (p. 8–52) that “users of the camp at km 42 obtain water for consumption from a nearby lake located to the south of the camp (in Lake 3 presented in Figure 7-1). *A special value is thus assigned to this water body.*” While there are plans to relocate the camp from km 42 to km 51, it is not clear whether members of the Cree community could continue to use Lake 3 occasionally. Therefore, Environment and Climate Change Canada is of the opinion that monitoring the dust deposition may be required to measure the impact on Lake 3 and to take additional mitigation measures if necessary.

Furthermore, the proponent did not explain whether spot monitoring of toxic gases (CO and NO_2) was planned during blasting and what methods would be used to do so.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Add $PM_{2.5}$ and PM_{10} monitoring to the Air Quality Monitoring Program and complete the dust management plan by specifying the sampling and analytical methods to be used for these contaminants, and the frequency of analyses.

B) Complete the Air Quality Monitoring Program by adding continuous monitoring of total and fine particles and explaining the methodology that will be used.

C) Evaluate the relevance of adding a monitoring of dust deposition to the Air Quality Monitoring Program for Lake 3 or for any other watercourse or water body in the vicinity of the mining project that could be used by the Cree community, for example for fishing or water consumption. Justify the choice to add such monitoring or not.

D) Explain in detail the methods that will be used to carry out spot monitoring of toxic gases (CO and NO_2) during blasting.

CCE 12 Air Quality Monitoring - Adaptive Management with Respect to Dust

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 11.4 (Monitoring Program).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-58.

Background

In its response to question CEAA-58, the proponent provided a dust management plan (Appendix CEAA-58). The plan sets forth that the position of the sampling station will be determined to provide an adequate picture of the air quality moving toward the sensitive areas, namely the camp at kilometre 37 of the Nemiscau-Eastmain-1 Highway. It does not, however, specify the measures that would be taken in the event of exceedance.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Describe how mine operations would be modified to reduce dust emissions if air quality criteria are exceeded.

CCE 13 Enhancements to the Environmental Management Program via the Dust Management Plan

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-58.

Background

In response to question ACEE-58 B), the proponent states that a copy of the environmental management program for ambient air quality (Appendix Q-7Bis sent to MELCC), enhanced by the Dust Management Plan, will be sent as soon as it is available.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Provide a copy of the Enhanced Environmental Management Program along with the Dust Management Plan as soon as it becomes available.

CCE 14 Methodology for Estimating Dust Deposition Rates at Sensitive Receptors

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-59.

Background

In response to question CEAA-59, the proponent presented the results of modelling the maximum monthly deposition of dust at sensitive receptors in Tables CEAA-59-1 (construction phase) and CEAA-59-2 (operation phase). However, the proponent did not present the method used to estimate dust deposition rates. This information is needed to assess the value of the results obtained.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Explain the methodology used to estimate the dust deposition rates presented in Tables CEAA-59-1 and CEAA-59-2.

CCE 15 NO2 Exceedances and Additional Mitigation Measures

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-60 and Appendix CEAA-60.

Background

In response to question CEAA-60, the proponent provided an update on atmospheric dispersion modelling (Appendix CEAA-60). It also updated the interpretation of the results for the construction and operation phases by including heating sources and generators in its modelling. It also took into account the new [Canadian Council of Ministers of the Environment] Canadian Ambient Air Quality Standards (CAAQS) for nitrogen dioxide (limit values applicable for the year 2025). The results are presented in Tables CEAA-60-2 to CEAA-60-5 in Appendix CEAA-60.

This new interpretation of the modelling results highlights some exceedances for nitrogen dioxide (NO_2). Indeed, we noted that the concentration of NO_2 modelled over a one-hour period in the field of application exceeds the limit value applicable for the year 2025 by 285% during the construction phase and 184% in the operational phase. The limit value for the sensitive receptor (C2 Cree camp) was also exceeded by 102% during the operational phase. Since there is no no-effect level for NO_2, any increase could generate an effect on human health. The proponent states that the main sources contributing to the maximum concentrations modelled over a 1-hour period are exhaust gases from mobile equipment. However, it does not explain what additional mitigation measures will be put in place to try to reach CAAQS limit values (e.g., reduce idling of mobile equipment).

The proponent states that the concentrations obtained by modelling nitrogen oxide (NOx) emissions are below the air quality standards in Schedule K of the Clean Air Regulation for this pollutant.

Note to the proponent: Environment and Climate Change Canada wishes to specify that CAAQS do not include a scope of application, as does the Clean Air Regulation (CAR).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Explain the significance to human health of exceeding the Canadian Ambient Air Quality Standard for NO_2 over one hour (102% result).

B) Explain how the principles of protecting clean areas and continuously improving Canadian Ambient Air Quality Standards (CAAQS) will be considered in the design of mitigation measures, monitoring and air quality monitoring activities.

C) Explain what additional mitigation measures will be put in place to meet the CAAQS limit values for NO_2 over a one-hour period, during construction and operation phases.

CCE 16 Impacts of Forest Fires on Air Quality

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical environment).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-61.

Background

For question CEAA-61, the proponent was asked to describe the impact of forest fires on air quality in the region and at the site. In its response, the proponent stated that the initial $PM_{2.5}$ concentration of 15 µg/m³ takes into account the impact of forest fires on air quality in the study area of the future mine site. To support its conclusion, the proponent analyzed a single case study using the "Playground Canada utility developed using the BlueSky Framework (BSF)". Developed in the United States, this utility models the atmospheric dispersion of forest fires and provides an order of magnitude of the concentrations that can be found in the ambient air during these fire episodes. However, the quality of the results depends, among other things, on the quality of the weather data used and the vegetation data. Based on the explanations provided, it is uncertain whether the data used are representative of the study site. In fact, the utility's default parameters were used for the case studied. If the U.S. data were used without having adapted them for Canada, the quality of the results would be affected, and the degree of uncertainty would increase accordingly. The proponent in fact states that caution is in order when interpreting the conclusions.

Moreover, smoke plumes typically generate very high concentrations of $PM_{2.5}$. In fact, some observation stations in Quebec's Far North, indicate that $PM_{2.5}$ concentrations can reach a few hundred µg/m³ at different times during the summer. By dividing observations of forest fire events over a full year, it is possible to generate much lower observed averages than those representative of such events. However, regarding the proponent's response (3rd paragraph, p. 96), the results seem instead to indicate high concentrations of $PM_{2.5}$ near the mine site, and the explanation provided to demonstrate that $PM_{2.5}$ concentrations from forest fires have been incorporated into the average concentration of 15 µg/m³ has not been substantiated.

Environment and Climate Change Canada is of the view that the influence of forest fires on air quality during warm periods of the year should normally be considered in determining initial concentrations of contaminants, including $PM_{2.5}$. However, the modelled concentrations were likely underestimated during the summer months with forest fire episodes.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Consider the influence of forest fires on air quality during warm periods of the year and incorporate these events in the design of the air quality monitoring and surveillance program, namely at sensitive receptors (e.g., implement measures that will allow for adaptive management during air quality deterioration events caused by forest fires).

CCE 17 Generator Emissions if Power Line Displacement Delayed

Reference

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-69.

Background

With respect to question CEAA-69 c) on what would be the likelihood that the power line would not be constructed prior to the operation phase, the proponent stated: “CEC believes that it is unlikely that the power line would not be constructed prior to the operation phase. The impact of this situation on air quality has thus not been estimated.” However, the proponent does not present any justification to support its claim that the power line is unlikely to be built before the operation phase and therefore an analysis of the effects on air quality is not required.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Support the answer provided to question CEAA-69 c) by justifying why the proponent considers it unlikely that the power line will be built prior to the operation phase (for example: an agreement or ongoing discussions with Hydro-Québec) or assess the effects of this scenario on air quality, if applicable.

CCE 18 Effects of Road Transport

Reference

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected effects on valued components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA’s questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-137.

Background

In its response to question CEAA-137, the proponent identifies the effects of increased road transportation on traffic and Cree camps along the Eastmain-1 Road, but it does not provide data on these effects, including air quality and noise levels.

In addition to the increased risk of accidents, off-site transportation related to mine construction and operation may affect human health by modifying air quality and the sound environment, even if standards are met.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Provide a quantitative assessment of the potential effects (noise and air quality) associated with increased traffic on the road network at an appropriate distance from the project. Justify the selected distance. To carry out this assessment, a comparison with similar roads (average annual daily flows, running surface (asphalt or gravel), etc.) for which air quality and noise data are available at the approaches to these roads could be useful.

Comments and advice for the proponent

Comment 1 Criteria for Determining Significance

Reference

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected effects on valued components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-33.

Comments and Advice

In Table CEAA-33 (response to question CEAA-33), under the column "degree of disturbance," the proponent should not use compliance with standards as the sole criterion for determining the degree of disturbance. This is because population health effects can occur at levels below the standards (e.g., there is no no-effect level for fine particulate matter). For some of the modelled contaminants, the project's contribution to total modelled concentrations can be relatively significant, in excess of 50%. The proponent is invited to take preventive measures to reduce anthropogenic emissions to the extent possible to prevent a deterioration of air quality and to uphold the principle of protection of unpolluted regions.

Groundwater Quality

Request for information to the proponent

CCE 19 Location of the Hydrocarbon Refuelling Area

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 11.1 (Environmental mitigation).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-52.

Background

In its response to question CEAA-52 C), the proponent refers to a map locating the hydrocarbon supply zone on the mine site. However, the map presented is of low quality and does not distinguish the identified area.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Clearly identify the hydrocarbon refuelling area on a general map of the mining infrastructure.

Hydrogeology

Request for information to the proponent

CCE 20 Hydrogeological Modelling

Reference

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-38.

Background

According to Figures 3, 4, 5 and 6 presented in Appendix 38 of the response to question CEAA-38, the imposition of constant hydraulic loads on the lakes near the pit (e.g., lakes 3, 4 and 6) appears to limit the spread of drawdown caused by dewatering of the mine pit. Without the loads on the lakes, drawdown would be expected to be greater further away from the mine. This should also influence the anticipated pumping rates from the mine dewatering pits. In addition, the model predicts that the lakes in the vicinity of the pit will be completely dewatered by the mine pumping operations due to the groundwater table at the new conditions being well below lake levels.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Assess the need to review the lake modelling methodology to make it more representative of anticipated hydrogeological conditions and revise the methodology, as appropriate. If not, justify.

B) Present any new results associated with changes to lake modelling, if applicable, including results related to the impact of dewatering on water levels in streams and water bodies in the study area.

CCE 21 Monitoring - Quantity and Location of Piezometers

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to supplemental questions and comments from MELCC.* Appendix QC2-74, Map 1.

Background

The proponent presents a Groundwater Monitoring Program in Appendix QC2-74 of the *Responses to supplemental questions and comments from MELCC* (WSP, December 2019). During the operation of the mine, if the quality of this water is lower than forecast in the Environmental Impact Study (EIS), the proponent must assess the risks associated with this contamination and, where applicable, proceed with an analysis of measures to minimize the impacts of this contamination.

To verify the potential contaminant concentrations forecast in the EIS as early as possible, piezometers should be located near the tailings and waste rock area. When piezometers are closer to potential sources of contamination, more time is available to adequately protect nearby water bodies in the event of higher contamination than forecast in the EIS. Some piezometers may need to be relocated to take this into consideration.

For example:

- Piezometer PO-16-10 could be closer to the tailings facility and further away from Lake 16.
- Piezometer PO-16-08 could be closer to the tailings facility and be directed toward stream C instead.
- Additional piezometers could be placed within the perimeter of the tailings facility between piezometers PO-18-08 and PO-16-05 in the southwestern area of the tailings facility.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the number and location of piezometers presented in the Groundwater Monitoring Program (Appendix QC2-74). If necessary, adjust the Groundwater Monitoring Program by adding piezometers or changing the location of planned piezometers.

CCE 22 Monitoring - Location of Piezometers Based on Flow Directions

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to supplemental questions and comments from MELCC.* Appendix QC2-74, Map 1.

Background

The proponent presents a Groundwater Monitoring Program in Appendix QC2-74 of the *Responses to supplemental questions and comments from MELCC* (WSP, December 2019). In this program, the proponent identifies a single piezometer for each of the different groundwater flow directions. This may be sufficient for the start of operations; however, once the initial concentrations are measured in the piezometers, additional piezometers would have to be installed in order to quantify the spatial and depth distribution of dispersion plumes of possible contamination.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the presence of a single piezometer for each of the different groundwater flow directions as presented in the Groundwater Monitoring Program (Appendix QC2-74) and specify whether additional piezometers are planned during operations.

CCE 23 Monitoring - Water Quality Comparison Criteria

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 6.5 Groundwater Quality.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to supplemental questions and comments from MELCC.* Appendix QC2-74, Map 1.

Background

The proponent presents a Groundwater Monitoring Program in Appendix QC2-74 of the *Responses to supplemental questions and comments from MELCC* (WSP, December 2019). The objective of this program is to confirm the forecasts for groundwater quality presented in section 6.5.6 (Groundwater Quality - Likely Environmental Effects) in the Environmental Impact Statement (EIS; WSP, February 2019) regarding the likely effects on the quality of the groundwater.

In section 7 of Appendix QC2-74, the proponent presents its comparison criteria for groundwater monitoring. While it is common practice to compare the concentrations obtained in groundwater with environmental protection criteria, taking into account the natural concentrations at the site, it is also important to compare the measured concentrations with those forecast in the dispersion models presented in the EIS. If these forecasts are not met, the quality criteria can then be used to determine the risk to nearby water bodies.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the selection of comparing the background levels measured during the monitoring with the existing comparison criteria identified in Section 7 of the Groundwater Monitoring Program (Appendix QC2-74).

CCE 24 Monitoring - Measuring Frequency

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 6.3 Hydrogeology and section 6.5 Groundwater Quality.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to supplemental questions and comments from MELCC.* Appendix QC2-74, Map 1.

Background

The proponent presents a Groundwater Monitoring Program in Appendix QC2-74 of the *Responses to supplemental questions and comments from MELCC* (WSP, December 2019). In section 8 of Appendix QC2-74, the proponent proposes to measure the concentration of contaminants in groundwater twice a year, in the spring and summer. However, the sampling frequency should also take into account the groundwater flow velocity presented in sections 6.3 (Hydrogeology) and 6.5 (Groundwater Quality) of the environmental impact study (EIS; WSP, February 2019).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the frequency of groundwater contaminant concentration measurements presented in section 8 of the Groundwater Monitoring Program (Appendix QC2-74).

CCE 25 Environmental Risks Associated with Tantalum

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

Borgmann et al. (2005). *Toxicity of sixty-three metals and metalloids to Hyalella azteca at two levels of water hardness*. Environmental Toxicology and Chemistry, 24(3):641–652.

Espejo et al. (2018). *Biomagnification of tantalum through diverse aquatic food webs*. Environmental Science and Technology Letters, 5(4) 196–201.

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sections 3.4. (Ore Processing), 3.5.4 (Accumulation Pond and Water Treatment Plant), 3.6.2 (Geochemical Characterization of Tailings), 6.4 (Surface Water and Sediment Quality), 7.2 (Aquatic Fauna) and Appendix 3-3 (Characterization of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-10.

Background

In its response to question CEAA-10 regarding the risks associated with chemical reagents, the proponent did not explain how it intends to manage the risks associated with tantalum.

In section 3.4 (Ore Processing) of the Environmental Impact Statement (EIS; WSP, February 2019), the proponent states that the recovery rate for tantalum will be 40% compared to approximately 90% for lithium. As a result, 60% of the tantalum would end up in tailings, effluent or sludge. Tantalum is a potentially toxic element with a lethal 50% concentration (LC50) of 2 µg/L in fresh water compared to 650 µg/L for lithium (Borgmann et al. 2005). Chronic effects could thus be observed below this level. Tantalum has the potential to biomagnify in the food chain, as reported by Espejo et al. (2018). This information justifies that the proponent pay particular attention to the risks of exposure to tantalum for groundwater, surface water, sediment and the fish habitat.

In the EIS, there is little information on the risks of tantalum to water, sediment and groundwater quality, aquatic species and fish habitat and fish flesh. Tantalum concentrations in tailings leachate were identified in the certificates of analysis in Appendix 3-3 in the EIS (WSP, February 2019) on the geochemical characteristics of waste rock and tailings. The TCLP 1311 test, using acetic acid, was unable to detect tantalum (detection limit of 1 µg/L). In contrast, the SPLP leaching tests, using acid rain water, measured tantalum at 0.8 µg/L, while the WTC-9 leaching test, using distilled water, measured 2.9 µg/L tantalum. Quality assurance/quality control information on tantalum measurements was not available. In addition, there is little information on the rate of tantalum removal from the water treatment plant and the proportion of tantalum that will end up in the sewage sludge. There is also no information on where sewage sludge containing tantalum concentrations will be deposited. According to the available information, waste rock piles are not a source of tantalum.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Present a mass balance of tantalum in tailings, waste rock piles, water treatment plant effluent and resulting sewage sludge.

B) Indicate where on the mine site the sewage sludge will be disposed of.

C) Determine a critical threshold value (i.e., chronic effect preference) for tantalum.

D) Provide a conservative model of the environmental dispersion of tantalum, lithium and other metals in the water treatment plant effluent and surface water, and in the sediments of lakes 4 and 6 (including downstream lakes), covering the periods of construction, operation and site remediation. Then compare the model to the established critical threshold value (question C) for all these periods.

E) Present a conservative model of the environmental dispersion of tantalum, lithium and other metals originating from the tailings facility. The model should predict concentrations in groundwater from existing piezometers and in surface water and lake sediments in the surrounding area. The time period modelled should correspond to the period when concentrations will be highest in the receiving lakes and streams.

F) Present tantalum concentrations in groundwater, surface water and sediments in the watersheds of lakes 4 and 6 and in the periphery of the tailings impoundment area.

G) Once the risk assessment of tantalum to the aquatic environment is completed (Questions A to F), determine:

   a) whether co-disposal of tailings and waste rock is still a viable approach; and,

   b) whether it is still justified to discharge mining effluent into lakes 4 and 6 rather than in the Eastmain Reservoir.

Hydrology

Request for information to the proponent

CCE 26 Low-Level Streamflows

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 9.1.3 (Human Environment), 9.2 (Established or Potential Indigenous and Treaty Rights and Related Interests), 10.1.2 (Environmental Changes), 10.3 (Public Concerns) and 11.2 (Measures to Address Adverse Effects on Indigenous Rights)

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. RS-1 Sector study (Climatology and Hydrology).

Background

The method for estimating the project's effects on the hydrological regime, presented in the sector study RS-1 Climatology and Hydrology, is based on changes to the watersheds and the various mine inputs (such as dewatering) during the various phases of the mining project. The evaluation of average and low flow rates under current conditions is done using the basin transfer method. The Rivière à l'Eau Claire station was selected by the proponent as the benchmark station for estimating mean flows and the Rivière Giard station for estimating low water flows. However, the watersheds of these benchmark stations (Rivière à l'Eau Claire and Rivière Giard) are 450 to 3,000 times larger than the watersheds of the streams under study (SR-1, Section 3.2.3.3). With such watershed area ratios, the basin transfer method could result in the overestimation of low flow rates at the mine site. In other words, the proponent's method of estimating low water flows could result in calculated low water flows that are greater than actual low water flows.

In addition, the flow values calculated by the pond transfer method were compared with flows obtained by gauging during summer 2011 to ensure consistency between the estimates and observations. However, the hydrological conditions that prevailed at the time of these gaugings were not indicated. For example, it

is not clear whether low-flow gauges for a dry year would differ from those in a wet year. Estimating streamflows can contribute to assessing the effects of the project on fish and fish habitat, as well as aquatic species. However, in the context of a possible overestimation of the low flow rates calculated with this method, the project's effects on these components may have been underestimated.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Identify and explain the uncertainty and limitations of the method used to estimate streamflows in the study area.

B) Re-evaluate the effects of the project on streamflows.

C) Identify mitigation measures that could be implemented in the event that low water levels in these watercourses are greater than expected.

Fish and Fish Habitat

Request for information to the proponent

CCE 27 Effects on Fish and Fish Habitat of Changes in Surface Water and Groundwater Supplies

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Information requested by the CEAA for concordance with the Environmental Impact Statement.* Appendix E (Hydrology), Appendix H (Damage to Fish Habitat) and Appendix I (Hydrogeology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-4, CEAA-8 and CEAA-41.

Background

The assessment of effects on fish and fish habitat is dependent on the modelling completed in the hydraulic study (Appendix E; WSP, February 2019) and the hydrogeological study (Appendix I; WSP, February 2019). The assessment of effects on fish and fish habitat (Appendix H; WSP, February 2019) is based on a scenario where the pumping water from the peripheral wells, used to dewater the pit, is directed to three discharge points (Table 2–3 in Appendix E; WSP, February 2019), namely, the water from:

- Two wells to water body A;
- Five wells to Lake 4; and,

- A well to Lake 6.

According to the response to question CEAA-4 (WSP, December 2019), the three-point discharge scenario presented in Table CEAA-4b, would instead direct water from:

- Four wells to Lake 3;
- Two wells to Lake 4; and
- Two wells to Lake 6.

Based on the response to CEAA-8 (WSP, December 2019), the construction of the dam at Lake 3 is dropped, and therefore the planned dewatering of the upstream portion of Lake 3 as well. Based on the response to question CEAA-41 (WSP, December 2019), the effects of dewatering the pit are more extensive and reach additional water bodies and streams.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Re-evaluate water level and flow changes for water bodies and watercourses and the resulting effects on fish and fish habitat, to take into account the new elements set forth regarding modifications to peripheral well outlets, the removal of the dam at Lake 3, greater than anticipated effects on water bodies and watercourses and any new modifications related to the models used that may be necessary.

The Joint Committee points out to the proponent that, considering that some of the questions in this information request involve hydrogeological and hydrological modelling, the necessary modifications to the hydrological and hydrogeological models must be made before proceeding with the re-assessment of the effects on fish and fish habitat.

Water Quality

Request for information to the proponent

CCE 28 Selection of Tailings Samples for Analysis

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock- Lamont Inc. Report).

WSP (February 2019b). Rose Lithium - Tantalum Project - *Information requested by the CEAA for concordance with the environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to question CEAA-13 and Appendix CEAA-15.

Background

In question CEAA-13, the proponent was asked to explain the selection, composition and representativeness of samples for geochemical analyses of mine tailings. The responses provided by the proponent do not determine whether the samples are representative of the materials to be extracted and, therefore, to properly assess the potential environmental effects of mine tailings disposal in the short and long term.

For example, the proponent does not explain the basis on which the sources were selected (location in the deposit) and the composites were made. It also is not explained why these cores were chosen, nor why the different portions (depths) of the cores were selected to make up the composite samples. Additionally, the proponent states that each tailings sample comes from a separate ore sample, but the type of ore is not indicated.

Furthermore, the information provided in the geochemical characterization reports (Appendix 3-3 of the Environmental Impact Statement (EIS), Appendix G of the EIS Concordance Information Supplement and Appendix CEAA-15 of the CEAA's Q&A document) is not highly detailed.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the selection of the set of tailings samples to be analyzed, i.e., number, type, location within the deposit, and the selection of core sections to make up the composite samples. Explain why these selections were made and/or what methodology was used.

CCE 29 Water Management Plan - Water Management during Each Project Phase

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

Environment Canada (2009). Environmental Code of Practice for Metal Mines. Electronic resource: *www.ec.gc.ca/lcpe-cepa/documents/codes/mm/mm-eng.pdf* Consulted March 10, 2020.

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.7 (Water Management) and Sector Study RS-2 (Hydrogeological Study and Modelling of the Future Pit).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-18, CEAA-19, CEAA-20, CEAA-21, CEAA-24, CEAA-25, CEAA-30

WSP (February 2020). Rose Lithium - Tantalum Mining Project. *Responses to the incongruities in the first IAAC request for information*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-19.

Background

When assessing the effects of a mine project, a water management plan must clearly describe and provide a detailed explanation of how drainage and the collection, treatment and transfer of all water from the mine site to final discharge points at all phases of the project will be carried out. Specifically:

- Contact and non-contact water should be included in the Water Management Plan, as well as all mine site infrastructure, including roads and the overburden dump.
- It is important to identify, on a map, all ditches, dams, pumps, pipes, conduits and basins used to drain and collect water, as well as the connections between them. The direction of water flow should be clearly indicated. The type of pipe should also be clearly indicated (e.g. ditch, closed pipe).
- The Water Management Plan should also include detailed explanations demonstrating the effectiveness of the drainage system. Water collection and management should be illustrated on maps and show that it will prevent non-contact water from mixing with contact water to contain and/or treat potentially harmful substances. These explanations should include a description of the level of impermeability of the infrastructure and/or materials used to construct the various drainage and collection components (e.g., ditches, ponds).
- The treatment of mine water at the Water Treatment Unit (WTU), in sedimentation ponds and using any other water treatment infrastructure should also be explained. The effectiveness of the treatment should be demonstrated.

The documents already provided by the proponent (references indicated above) contain several elements of the Water Management Plan. However, essential information is missing to assess the short- and long-term effects of the mining project on surface water, groundwater and related environmental components. The proponent is encouraged to refer to the Environmental Code of Practice for Metal Mines (Environment Canada, 2009) for guidance on the management of contaminated water during the construction, operation, closure and post-closure phases.

In addition, in question CEAA-30, a note mentions that the proponent was notified in September 2018, during discussions between ECCC and the proponent, that the water pumped from the 9 peripheral wells around the pit is considered mine water effluent within the meaning of the Metal and Diamond Mining Effluent Regulations (MMER) and must be managed according to the requirements of these same regulations.

The proponent did not consider this information in its answers to questions CEAA-18, CEAA-19, CEAA-21, CEAA-24, CEAA-25, CEAA-27 and CEAA-30. The mine site Water Management Plan should take this notice into account by incorporating MMER requirements into the management of all mine water effluents, including water from peripheral pumping.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Complete the Water Management Plan by integrating all of the information listed above into the context and any other relevant information to adequately assess the effects of the project on water quality. For ease of understanding, all information related to water management could be presented in a single document.

B) Review water management from peripheral pumping, taking MMER into account, and include it in the Water Management Plan.

CCE 30 Water Management - Construction Phase

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-18, CEAA-20, CEAA-25 a), Appendix CEAA-18 and Appendix CEAA-20.

Background

Some elements of the response to question CEAA-25 a), regarding water management during the construction phase, appear to be complementary to the responses to questions CEAA-18 and CEAA-20. The answer to CEAA-25 explains that "water from the construction site will be directed and accumulated based on the topography and discharged into the natural environment. Temporary sedimentation ponds will be installed when required to collect the water. The water from these ponds will be discharged into the natural terrestrial environment more than 30 m from any watercourse or water body. "The explanations in section 1.2 of Appendix CEAA-18 (Mine Water Management during Construction) and the associated maps in Appendix CEAA-20 do not show ditches or temporary sedimentation ponds for construction work after the dewatering of lakes 1 and 2, i.e., after the removal of the two temporary ponds shown on map 20-1.

In response to CEAA-25 a), the proponent states that if staining (suspended solids) or iridescence (hydrocarbons) in the water indicates contamination, the environmental monitor will take a sample and send it to a laboratory for analysis.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Explain the installation sequence for the ditches and sedimentation ponds referred to in the response to CEAA-25, a) relative to the explanations in responses CEAA-18, CEAA 20 and Appendix CEAA-18. Specify at which stage(s) of the construction phase the measures presented in response CEAA-25 a) will be applicable and explain when and how these measures will be implemented.

B) Explain what water will be sent to the overburden berm, how it will be collected (e.g. through natural topography, ditches) and when.

C) Identify on maps 20-2 to 20-5 the exact location of each type of infrastructure that will be put in place, including the direction of water flow.

D) Explain the estimated timeframe for sample collection and analysis in the event of staining or iridescence of the water and how potentially contaminated water will be managed during this time to avoid adverse environmental effects.

CCE 31 Water Management during the Operations Phase

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to questions CEAA-21 and Appendix CEAA-21.

Background

The information presented on the maps regarding drainage of non-contact water and water from the mine site, including the work site roads, is not sufficient to understand how the proponent will be able to ensure adequate water management. For example, maps 21-1 and 21-2 in Appendix CEAA-21 do not show any details regarding the management of these waters, other than runoff (black arrows). Furthermore, according to the legend, the black arrows represent only non-contact water. However, ECCC is of the opinion that a large percentage of these arrows are in fact mine site water and should therefore be managed based on Metal and Diamond Mining Effluent Regulations requirements.

With respect to the overburden pit, the semi-permeable berm may not be a sufficient water collection system, since it only treats suspended solids.

In addition, an orange arrow line is visible between the pit and the overburden berm on map 03-03. During the operation phase, drainage of water from the pit to the overburden disposal area is not adequate because it is mine water. Therefore, this water should also be managed to meet MMER requirements.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Review the management of mining and non-contact waters (black arrows and orange arrows) in catchment areas A and F to ensure that they are properly collected and managed. Update the maps in Appendix CEAA-21 by adding all elements that will ensure adequate water management on the site (e.g., all ditches including road ditches).

B) Complete the overburden disposal site water management plan to ensure that water from the overburden disposal site is properly collected and managed. Add all the elements on the maps in Appendix ACEE-21.

C) Revise the drainage of the dewatering water to prevent it from passing through the overburden disposal site and update map 03-03 of Appendix ACEE-21 accordingly.

CCE 32 Water Management - Options for Dewatering in the Operations Phase

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sector Study RS-2 (Hydrogeological Study and Modelling of the Future Pit).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to questions CEAA-21 and Appendix CEAA-21.

Background

Map 03-03 in Appendix ACEE-21 shows that to lower the water table, the water from the nine pumps at the periphery of the pit is directed to sedimentation basins and then to lakes 4, 3 and 6. This type of water management is not sufficient since this water is considered mine water, according to ECCC. This water should be thus managed based on the requirements of the Metal and Mining Effluent Regulations (MMER). The sedimentation ponds shown on the maps at discharge points in lakes 4, 3 and 6 are only suitable for treating suspended solids. Proper water management should consider all potential contaminants.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Revise the management of water from peripheral pumping so that it can be managed as mine water, i.e., taking into account all potential contaminants and in compliance with the requirements of the Metal and Mining Effluent Regulations (MMER).

B) Update map 03-03 of Appendix CEAA-21 and identify any required infrastructure modifications.

CCE 33 Water Management - Decommissioning and Restoration Phases

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

Environment Canada (2009). Environmental Code of Practice for Metal Mines. Electronic resource: *www.ec.gc.ca/lcpe-cepa/documents/codes/mm/mm-eng.pdf* Consulted March 10, 2020.

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sector Study RS-2 (Hydrogeological Study and Modelling of the Future Pit).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to questions CEAA-21 and Appendix CEAA-21.

WSP (February 2020). Rose Lithium - Tantalum Mining Project. *Responses to the mismatch with the first information from IAAC*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-19.

Background

The future mine site is likely to produce effluent(s) that may contain contaminants and could constitute a deleterious substance as defined by the Fisheries Act several years after its operation. As a result, it may not be possible to remove the water treatment plant and other water collection and treatment components before a long period of stabilization of the effluent from the mine site, including water from the waste rock co-deposit pile, and from residue.

According to the proponent's response to the mismatch in the Agency's first request for information, it is mentioned on page 5 that "restoration work will be done gradually during operations until closure for a quicker return to nature." It also states that "No active or passive treatment will be required, site restoration as designed will ensure that water quality is at a level that poses no long-term risk to the environment."

The information regarding the management and treatment of mine water during restoration is not sufficiently detailed or justified. The design of the restoration work and water management should be presented in detail to demonstrate that negative environmental impacts will be minimized. The proponent must justify its approach to ensure effluent water quality during the restoration and closure periods.

Information on water management during open-pit mine restoration is available in Environment Canada's Environmental Code of Practice for Metal Mines and Climate Change Canada (2009).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide an estimate of the flow (flows and flow direction) and water quality at the site during the various stages of restoration through to closure. This information should take into account the significant changes in topography generated by the increase in volume of the co-disposal pad and the expansion of the pit.

B) Explain the water management measures at each stage of decommissioning and restoration. These measures should be adapted to the flows and water quality levels generated at the mine site.

C) Provide a schedule or plan explaining the decommissioning and restoration steps, explaining namely:

- When and how the various water collection and treatment infrastructures (for example, pumps, pipes, ponds, water treatment plant) will be dismantled;
- When and how the various components of the drainage and water collection system (or example, ditches, ponds, dams) will be backfilled;
- Where, when and how additional ditches and/or ponds will be added if required, if water flow needs to be altered during the restoration work.

D) Provide detailed maps to illustrate the progress of the restoration work and changes to associated water management infrastructure.

E) Define and explain the surface water quality monitoring that will be conducted during the restoration work to validate and adjust remediation activities as required.

F) Include a plan for geochemical monitoring of waste rock and tailings samples, which will have been collected during mine operations and/or during reclamation, to track changes in water quality in the co-disposal pad. This will help validate the estimates and adjust the mine site restoration plan as required.

CCE 34 Water Management - Closure and Post-closure Phases

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-95.

WSP (February 2020). Rose Lithium - Tantalum Mining Project. *Responses to the mismatch with the first information from IAAC*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-19.

Background

The proponent states on page 5 of the response to the mismatch in the first information request (WSP, February 2020) that approximately 500 mm of sludge will accumulate at the bottom of the sedimentation ponds and that as such, the restoration of these ponds will include the excavation and transport of the sludge to the bottom of the pit. ECCC questions whether other options would not be more beneficial for managing this sludge. Measuring the contaminants in this sludge could help determine the best option for its final disposal.

The document also states that upon closure, the annual discharge from the Rose Lithium-Tantalum mine site will decrease due to the elimination of water flows from mine production and the change in retention, moisture evaporation and retention characteristics. The annual discharge volume from the Rose Project site footprint to Creek A is anticipated to decrease from 5.79 Mm^3 to 1.56 Mm^3 under average climatic conditions. Post-closure runoff from the site will be intermittent, and will depend on climatic conditions.

This information is not sufficiently fleshed out to identify potential adverse effects on the environment and the water management measures required to minimize these effects. The results of the flows obtained should also be supported, and the assumptions and calculation methods that led to these values should be presented.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Determine and explain whether the proposed sedimentation pond sludge management method is the best option and whether other options could be considered in order to minimize negative environmental impacts.

B) Provide an estimate of the flow (flows and direction of flow) and water quality at the site at closure and post-closure. This information should take into account the significant changes in topography generated by the increase in volume of the co-disposal pad and the expansion of the pit.

C) Update map QC-95 in Appendix CEAA-95 by indicating topographic curves and direction of surface water flow.

D) Provide information related to the monitoring of water from the co-deposit pile after closure, and the mitigation measures that will be applied if necessary.

E) Provide an estimate of the volume of water and level of water in the pit at closure and post-closure. The proponent will be required to determine if there will be any effluent that will eventually exit the pit after closure, or if the pit will remain a closed water body. The proponent must also determine if there will be connectivity between the pit water and groundwater post-closure.

Note 1: More information on water management during the closure of an open-pit mine is available in the ECCC's Environmental Code of Practice for Metal Mines:
www.ec.gc.ca/lcpe-cepa/documents/codes/mm/mm-eng.pdf

Note 1: ECCC would like to reiterate that it is the proponent's responsibility to ensure compliance with the pollution prevention provisions of the Fisheries Act at all times.

CCE 35 Management of Water in Contact with Service Roads

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation CEAA-23 and Appendices CEAA-18, CEAA-20 and CEAA-21.

Background

In its response to question CEAA-23, the proponent states: "Contact water from the service roads will be collected in basins where it will be controlled. The water will be analyzed on a regular basis. If necessary, it will be pumped to the accumulation basin and treated at the treatment plant. The water will be measured to ensure it meets the criteria of Directive 019. Tailings and waste rock have been shown to be non-acid generating and non-leachable.

ECCC would like to reiterate that roads are part of the mine site and their contact and runoff water should be managed as mine water. The proponent's response is not detailed enough to fully answer question CEAA-23 regarding the management of water in contact with service roads (the required details were also not found in the other documents provided to date as part of the Environmental Impact Statement). In addition, the water balance presented in Appendix CEAA-18 does not include the volumes of water coming from the roads, which raises questions about the capacity of the contaminated water collection and treatment system at the mine site.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Clearly identify on the maps in Appendices CEAA-20 and CEAA-21 the stormwater collection system for all roads (e.g., ditches, ponds) and the direction of flow.

B) Explain, in the Water Management Plan, how water collected from road ditches will then be managed in accordance with applicable standards and regulations (including the Metal and Diamond Mining Effluent Regulations and the Fisheries Act):

- The location of all ditches and other infrastructure to collect water from roads and the direction of water flow;
- The location and dimensions of the basins referred to in the proponent's response;
- The parameters measured and the frequency of monitoring to verify water quality, as well as the locations where sampling will be done;
- Updating the water balance and design of various collection and treatment structures, if applicable.

CCE 36 Water Treatment Unit and Accumulation and Sedimentation Ponds

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.7 (Water Management).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-24, CEAA-27 and CEAA-28.

Background

In light of the above comments regarding the management of water and additional water that may need to pass through the Water Treatment Unit (WTU), ECCC questions the ability of the main accumulation pond, the WTU and other accumulation or sedimentation ponds to contain and treat all water from the mine site.

Questions CEAA-24 B) and C) asked the proponent to further describe and justify the performance and effectiveness of the WTU. The proponent's response is not sufficiently detailed. For example, in the event of an incident, if water quality thresholds (suspended solids and pH) are exceeded at the WTU effluent, the proponent states that the water will be recirculated in the accumulation pond. However, the response time between exceeding the water quality thresholds and the start of the recirculation of the discharge water must be sufficient to meet the effluent discharge criteria. Nor does the sponsor mention the potential failure of the sensor that measures suspended solids and pH.

In addition, the proponent mentions that the recirculation principle is used by different suppliers at several sites. Obtaining this information would be very useful to analyze the effectiveness of the treatment system.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Update the water balance with respect to the possibility of additional water being collected in road ditches. Where appropriate, assess the need to modify the design of the main storage pond and the Water Treatment Unit (WTU), as well as other storage and sedimentation ponds as required.

B) Provide the following information and incorporate it into the Water Management Plan:

- The response time between failure to meet the quality indicators, i.e., suspended solids and pH measurement by the sensor at the WTU effluent, and the start of recirculation of the discharge water. Describe the mechanism and its operation in detail, including whether this will be done automatically or manually. Indicate the robustness of this system and the measures that will be taken in the event of sensor failure.
- Estimated capacity of the storage tank, in number of days, should an incident occur that requires recirculation of the discharge water:
  - And that ore processing was not stopped;
  - And that ore processing was stopped.
- Examples of mine sites that use recirculation and water treatment system suppliers. Present this information in a detailed manner, including information on the performance of this type of system.
- If the discharge standards, criteria or objectives are not met at the point of discharge to water body A, indicate what the response time will be from the time the non-compliance is observed to the start of recirculation of the discharge water.

CCE 37 Impermeability of Accumulation Basins

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 5.7 (Project Activities) and 10.1.2 (Environmental Changes).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC.* Response to question QC2-17.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-26 and Appendix CEAA-21.

Background

Given that a geomembrane will be used to seal the accumulation basin, but not for basins 2 and 3, question CEAA-26 asked that the design of basins 2 and 3 be revised, if necessary, based on the results of additional geochemical tests, including kinetic tests. The proponent stated that based on the preliminary reports and kinetic tests, "the waste rock and tailings are still considered to be non-acid generating, or leachable.

However, the proponent did not demonstrate that the degree of impermeability of basins 2 and 3 was sufficient to prevent the risk of infiltration of potentially contaminated water from these basins into groundwater.

Water management in basins 2 and 3, as presented, could be insufficient. In fact, the water flowing through them will contain substances from the ore processing process. ECCC is of the opinion that the proponent

may have to make these two basins more watertight. If so, it must describe the method and materials it will use to do so.

In addition, lakes 18 and 19 are located near basins 2 and 3 and two ditches where contact water will circulate. To prevent contaminants from basins 2 and 3 from entering these lakes, sealing measures may also be necessary.

Furthermore, on map 03-03 in Appendix CEAA-21, there is a blue zone east of the co-deposit pile identified as a ditch, which is surprising given its size. It appears to be more of an accumulation basin. If this is indeed the case, it should be explained whether the same design and sealing criteria used for the other accumulation basins on the site will be applied for this one.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Demonstrate that the degree of impermeability of basins 2 and 3 will be sufficient to prevent the infiltration of potentially contaminated water from these ponds into the groundwater, or update their design by describing the materials that will be used. Where appropriate, incorporate this information into the Water Management Plan.

B) Explain what the blue area east of the co-deposit pad represents on map 03-03 in Appendix CEAA-21 and what design and sealing criteria are planned for this infrastructure.

CCE 38 Surface Water Monitoring Plan - Operation, Closure and Post-Closure Phases

References

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 11.4 (Monitoring Program).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sections 14.3.4 (Surface Water and Sediment Quality), 14.4.3 (Monitoring Final Effluent and Surface Water Quality), 14.5.1 (Groundwater Quality) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. Answers to supplementary questions from MELCC. Appendix QC2-74.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Appendix QC2-74.

Background

The information presented in Chapter 14 of the Environmental Impact Statement for monitoring surface water quality during the operation, closure and post-closure phases refers to regulatory requirements, but does not contain all the elements describing how this monitoring will be carried out (e.g., parameters, frequency and locations of sampling). No information is provided on the actions that would be taken to address situations where irregular releases in excess of applicable standards and objectives are observed.

Appendix QC2-74 of the responses to the Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) (December, 2019) contains a "Groundwater Monitoring Program." There is no equivalent plan for surface water, however.

Appendix CEAA-46 of the responses to the Agency's questions (December, 2019), which establishes the initial status of water bodies, is a reference for identifying the parameters to be measured as part of the surface water monitoring plan during operations and after closure.

In addition to the metals identified in the initial status of water bodies in Appendix CEAA-46, tantalum and lithium should be included in the surface water monitoring plan because they are the components sought by the Rose Project. Particular attention should be paid to the monitoring of tantalum. The comparison criterion for tantalum could be determined and justified in light of recent studies on the toxicity of this metal, as there are no existing criteria in Quebec and Canada.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide the surface water monitoring plan for the operation, closure and post-closure phases. A good example that could be adapted for the surface water monitoring plan is the groundwater monitoring plan in Appendix QC2-74 from the Responses to supplementary questions from the Ministère de l'Environnement et de la Lutte contre les changements climatiques (December, 2019). Indicate which parameters will be measured. Results should be compared to the recommendations in the Canadian Council of Ministers of the Environment Canadian Water Quality Guidelines and the standards of the Metal and Diamond Mining Effluent Regulations when the mine is subject to these standards. Mitigation and remedial actions to be taken in the event of an improper discharge exceeding the applicable standards and objectives should also be included in the plan.

B) Ensure that lithium and tantalum are included in the Surface Water Monitoring Plan. The results obtained for tantalum should be compared with results from baseline characterization or with reference stream characterization results.

CCE 39 Lake 7 Road and Surface Water Monitoring

References

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 11.4 (Monitoring Program).

WSP (February 2019). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix C.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Appendices CEAA-20 and CEAA-21.

Background

Appendix C of the February 2019 Supplementary Information Document on the Environmental Impact Statement, as well as the maps in CEAA Appendices CEAA-20 and CEAA-21 of the responses to CEAA questions show a section of road that runs at right angles to the access road and extends to Lake 7 (referred to as "Lake #7 Road" in Appendix C). Based on the cross section of the road shown in Appendix C, this road appears to be designed for heavy vehicles, as is the access road, since it has the same characteristics (e.g., width, type of foundation).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Indicate the types of vehicles that will use the section of road between the access road and Lake 7, and for what purposes it will be used.

B) Depending on the nature of the activities to be carried out on this road, include Lake 7 in the Surface Water Monitoring Plan, if necessary, otherwise justify.

CCE 40 Certificates of Analysis for Leaching Tests

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock- Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-14.

Background

In its response to question CEAA-14, the proponent indicates that tests on acid generation potential in the overburden are planned for the spring of 2020 and are thus not provided. In addition, an incomplete summary of the leaching test results is presented in Appendix G of the information document provided for concordance (WSP, February 2019a). To support a thorough review of the proponent's results by experts, the complete results of the parameters tested should be provided.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide certificates of analysis issued by the SGS laboratory on the leaching test results (MA200 method) of ore and tailings analyzed in 2018.

B) Provide certificates of analyses issued by SGS laboratory on the leaching test results (SPLP method) of ore and tailings analyzed in 2018.

C) Provide the quality assurance/quality control (QA/QC) tests performed as part of the geochemical testing program, including the evaluation of the results obtained. If a QA/QC program was not conducted, explain the reasons.

CCE 41 Overburden and Sediment Geochemical Characterizations

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management), 3.7 (Water Management), 6.4 (Surface Water and Sediment Quality) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-14.

Background

In its response to question CEAA-14, the proponent indicates that tests on acid generation potential in the overburden are planned for the spring of 2020 and are thus not provided. In Appendix G (Geochemical Characterization, Lamont Inc.) of the concordance information document (WSP, February 2019a), the proponent presents a comprehensive geochemical characterization program for all materials that will be disturbed by mining activities. According to the Manual for Prediction of Drainage Chemistry of Sulphide Geologic Materials (MEND, 2009), all geological materials must be assessed, including non-lithified surficial materials, as well as material in relatively low volumetric proportion that may be responsible for landfill development that could cause significant environmental impacts.

Over the life of the mine, 11 megatonnes of overburden will be removed during pit development and stored in a separate stockpile. The proponent states that surface water that comes into contact with mining infrastructure but has no potential for contamination, such as the overburden pit and service road ditches, will not be captured. It added that passive means of controlling suspended solids will be implemented during

construction and operation to meet discharge standards for concentrations of suspended solids. However, to date, the proponent has not submitted a geochemical characterization program to support its premise of no adverse effects of the overburden on contact water, other than the risk associated with suspended solids. A thorough assessment of the overburden is required to evaluate its potential for acid mine drainage and leaching to support the current project design and the overburden disposal site water management plan.

Lake 1 and Lake 2 will be drained prior to pit mining and lake bottom sediments will be disturbed. The management of these lake sediments has not been described. Lake sediments may contain metals and produce contact water that could cause environmental impacts.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide a sampling and analysis plan for the overburden characterization program planned for spring 2020, as mentioned in the response to question CEAA-14. The sampling and analysis plan must specify the methods for sample collection and analysis, and explain the sample selection to demonstrate that the program will achieve an appropriate spatial distribution of samples, on the pit footprint and at various depth profiles.

B) Provide a complete geochemical characterization (acid rock drainage and metal leaching) of the sediments from Lake 1 and Lake 2.

C) Identify where the sediments will be stored and confirm whether the lake sediments will be exposed in-situ during mining.

CCE 42 Waste Rock Sampling Method

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-12.

Background

In its response to question CEAA-12, the proponent explained the choice of materials used for kinetic testing. As detailed in the Manual for Drainage Chemistry Prediction of Sulphide Geological Materials (MEND), the waste rock sampling program must be representative of the spatial, geological and geochemical variability of the repository. The Manual recommends that core samples be recorded in block models and presented on cross-sections and plan view maps to better illustrate the presence of the sample in space, within the material it is expected to represent. In addition, each sample should be fully described, particularly with respect to mineralogy, grain size, colour and visible signs of alteration.

Section 2.1 of Appendix G (WSP, February 2019a) describes the waste rock sampling programs conducted in 2017 and 2018. The company that conducted the study presented in Appendix G (Lamont Inc.) indicates that it did not participate in the selection and collection of samples in 2017, but that according to the information available, the samples represent the different lithologies that make up the future waste rock to be extracted from the pit, and that the surface and depth distribution covers several sectors of the planned pit. The purpose of the 2018 sampling program was to complete the 2017 program and cover the footprint of the future pit. Lamont Inc. added that a proportional number of samples were taken to represent the lithologies that will be mined. The 2018 samples were taken by the proponent.

Appendix G (WSP, February 2019a) indicates that the proponent provided the position of the samples, drilling logs and photographs of the drill core to Lamont Inc., and that such information is presented in Appendix A of the same document. However, Appendix A contains only a table showing the sample identification number, the borehole identification, the depth interval and the rock group for each sample. Figure 2-2 (WSP, February 2019a) shows the location of the boreholes that were sampled, but it does not provide any context for the depth and location of the sample in relation to the geological units represented. The information provided does not demonstrate that the samples are representative of the waste rock units that will be disturbed during mining operations.

The average length of the waste rock sampling interval is 1.2 metres. The Manual for Prediction of Drainage Chemistry of Sulphide Geological Materials recommends that the size of the samples reflects the height of the pit benches. In addition, long sampling intervals capture the possible heterogeneity of the sampled unit, while short sampling intervals may distort the representativeness of the composition with respect to the overall rock composition.

In addition, the proponent’s geologist indicated that the sample cores occasionally had disseminated sulphide veinlets or grains, but that overall the waste rock and ore contained almost no sulphides.

The total tonnage of waste rock to be produced is 184.2 megatonnes (Mt). Table 2.1 in Appendix G (WSP, February 2019a) shows the proportion of each waste rock lithology and the total number of samples taken per lithology. The tonnage per rock varies from 6.75 Mt to 118.9 Mt, while the sample count varies from 3 to 47 samples per rock. This is less than the initial sampling frequency set out in the Manual, which is presented as a recommended starting point from which the final number of samples should be determined based on site-specific conditions and objectives.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide a detailed summary of the waste rock sampling method, including: how samples were taken from the intervals where visible sulphide was identified and the rationale for the length of the sampling intervals. Include a description of the roles of the consultant (Lamont Inc.) and proponent staff.

B) Provide images of cross-sections or a block model showing the location of waste rock samples from the 2017 and 2018 sampling campaigns. The images must clearly illustrate drill tracks, geological surfaces, ore zones and pit location, and be accompanied by a legend to allow for interpretation.

C) Provide a quantitative justification for the number of samples taken relative to the initial sampling frequency provided in the Manual for Drainage Chemistry Prediction of Sulphide Geological Materials. A statistical analysis of each lithology may be required to demonstrate that the number of samples collected is sufficient to capture the possible compositional variability of each sample group with respect to environmental parameters.

CCE 43 Sulphide Ore and Acid Generation Potential

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-12 and Appendix CEAA-15.

Background

In its response to question CEAA-12, the proponent explained the choice of materials used for kinetic testing. In Appendix G of the concordance information document (WSP, February 2019a), the proponent's geologist indicates that a minimum amount of visible sulphide ore was observed during the collection of waste rock and ore samples. The predominant sulphide ore was identified as pyrite, although no mineralogical tests were performed. In addition, the presence of sulphide ores is not anticipated in the geological deposit and therefore acid mine drainage should be conservatively assessed on a total sulphur basis rather than on a sulphide basis, as any detectable sulphate is likely related to alteration of the sample cores. In Appendix G (WSP, February 2019a), it is stated that since the acid generation potential is calculated from $S_{sulphides}$ and not S_{total}; $S_{sulphides}$ is represented in Figures 3.1 and 3.2. However, in the tables and the interpretation, the S_{total} is used to meet the criteria of Directive 019 for the mining industry.

Materials with low levels of sulphide mineralization have been identified as generating acid mine drainage as they have insufficient neutralizing potential (MEND 2009). Therefore, a careful assessment of acid mine drainage potential is required for materials with both low levels of sulphide mineralization that have formed sulphides and low neutralization potential. Acid mine drainage can develop in deposits where the waste rock has insufficient buffering capacity to neutralize the acidity generated by these low levels of sulphide

mineralization, especially when the sulphur-bearing waste rock is pooled rather than distributed throughout the deposit. In these cases, waste rock management practices should consider ways to minimize and control acid mine drainage.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Specify how pyrite was identified as the predominant sulphide ore in the samples.

B) Explain the use of total sulphur and sulphides in evaluating the acid mine drainage potential of the waste rock.

C) Re-evaluate the acid mine drainage potential of all waste rock using the total sulphur value to calculate the acid generation potential and the neutralization potential ratio (NPR) on the acid generating potential and provide an updated version of Table 4.1 (Appendix G; WSP, February 2019a) summarizing the acid mine drainage potential of each lithology.

D) Using cross sections or a block model, graphically present the spatial distribution of all samples reporting an NPR of less than two (based on the re-evaluation in C), including total sulphur and NPR values. Provide an analysis of the distribution of these samples, including a comparison with the anticipated mining sequence to determine whether the ore will be mined concurrently and whether it is likely to be located in the waste rock pile.

CCE 44 Sample Selection and Acid Generation Potential

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-12 and Appendix CEAA-15.

Background

The report on wet cell kinetic testing (Appendix CEAA-15 of WSP, December 2019) states that the samples are representative of future waste rock and ore. In its response to question CEAA-12, the proponent explains that the selection of its samples is justified since, generally speaking, the samples do not represent

the minimum or maximum extreme values, to be as representative as possible of future waste rock and ore. Table CEAA-12 (WSP, December 2019) presents the classification of samples based on the mining industry's Directive 019. Based on the rationale provided, no samples with acid-generating potential, as per Directive 019, were selected due to their maximum concentration of sulphur.

In its response to question CEAA-12, the proponent explained the choice of materials used for kinetic testing. However, kinetic test samples should be selected to conservatively represent parameters reflecting environmental concern for acid mine drainage potential (such as total sulphur and site buffering capacity) and metal leaching. Based on the samples selected, it is not possible to assess the long-term acid mine drainage potential of units classified as having acid generating potential (MEND, 2009) based on low total sulphur and low buffering capacity.

The information provided is not sufficient to assess the representativeness of each sample with respect to the geochemical database for each lithology.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) For each kinetic test sample, provide a statistical comparison of the concentrations of the potential parameters of environmental interest (total sulphur, neutralization potential, copper, tantalum, etc.) as well as all geochemical data of the sample's lithology. These data may be presented in the form of a graph or a summary table.

B) Explain why the selected samples do not include any samples considered to have acid-generating potential as defined in the Manual for Prediction of Drainage Chemistry of Sulphide Geological Materials (MEND, 2009).

CCE 45 Amphibolite lithology used in road construction

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to questions CEAA-16 and CEAA-23.

Background

In section 3.6.4 (Waste Rock and Filtered Tailings Management) of the Environmental Impact Statement (WSP, February 2019b), the proponent states that a portion of the waste rock will be used as construction material, mostly for road and deck construction and for filling boreholes. The roads will be constructed using waste rock from amphibolite lithology. In its response to question CEAA-16, the proponent explains the effects of the mining materials on water quality.

Of the 76 samples tested, the maximum sulphur content observed was 0.353%. The highest average total sulphur content was observed in the amphibolite lithology (0.140%). Conversely, the buffer capacity of the sterile is also low, with a reported neutralization potential of less than 10 kg $CaCO_3$/t for all samples. Amphibolite lithology thus reports the highest total sulphur content (0.140%) and the lowest buffer capacity (4.42 kg $CaCO_3$/t) of all lithologies. This situation can lead to the generation of acid mine drainage if the buffer capacity is not sufficient to counteract the acidity generated by the oxidation of sulphide ores.

In its response to question CEAA-23, the proponent states that contact water from service roads will be collected and then controlled.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Re-evaluate the acid mine drainage potential of amphibolite lithology using total sulphur and present an updated acid mine drainage potential for all amphibolite samples.

B) Graphically present the amphibolite samples using cross sections or a block model, and show figures representing the distribution of total sulphur content and acid mine drainage potential.

CCE 46 Composite and Tailings Samples

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

Mine Environment Neutral Drainage (MEND, 2009). *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. Information requested by the CEAA for concordance with the environmental impact statement. Report produced for Critical Elements Lithium Corporation. Appendix G (Geochemical Characterization, Lamont Inc.).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 3.6 (Ore, Waste Rock and Tailings Management) and Appendix 3-3 (Geochemical Characteristics of Mine Waste Rock - Lamont Inc. Report).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-13 and Appendix CEAA-15.

Background

The proponent indicates that the PP17 Comb Tails sample represents all residues generated by the treatment process. In its response to question CEAA-13 C), the PP17 Comb Tail sample is described as consisting of the lithium circuit, mica circuit, and de-flammability residues, which are all generated by the treatment process. Figure 2–3 in Appendix 3-3 of the Environmental Impact Statement (WSP, February 2019b) shows two separate flash stages: one after tantalum recovery and one between mica and spodumene flotation. It is not clear how this sample is produced, including the various steps in the metallurgical process, the inclusion of tantalum recovery and the representativeness of the composition of the thickened residue.

In the geochemical characterization program (Appendix G in WSP, 2019a), 15 residue samples were added. However, the location of these samples in the metallurgical processing circuit is not clearly identified and the tailings streams they represent are not noted. As such, these data cannot be evaluated relative to the composition of the filtered residues.

The PP17 Comb Tails sample contains tantalum in its process water (0.0003 mg/L), SPLP leachate (0.0008 mg/L) and WTC9 leachate (0.0029 mg/L) at concentrations that may be toxic in the receiving environment. Tantalum is below the reported limit of detection (<0.001 mg/L) in the SPLP leachate tests, which Lamont Inc. believes is not consistent with the expected neutral drainage of residues with no potential for acid generation.

The filtered tailings will be managed with the waste rock in a shared facility. However, the EIS does not clearly describe how this facility will be covered, for example, in a phased manner during operation or at closure. Based on static testing of the PP17 Comb Tails sample, the runoff from the tailings may contain high concentrations of tantalum. The geochemical tests conducted to date do not adequately characterize the long-term potential for tantalum leaching from the filtered tailings.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Specify whether the PP17 Comb Tails and process water sample was produced using a pilot plant process that included tantalum recovery.

B) Provide a balance of the 15 tailings samples (presented in the report in Appendix G in WSP, 2019a), specifically the location in the metallurgical process where each sample was taken. Relate these samples to the overall process, i.e., identify the type of tailings they represent.

C) Justify which sample(s) are most representative of the expected composition of the filtered residues in relation to the different residue streams that the filtered residues will comprise. This representative sample could be the PP17 Comb Tails composite sample or a combination of the 15 residue samples.

D) Provide a detailed justification for why kinetic testing was not conducted on the residue samples to assess the long-term leaching potential of metals, particularly tantalum. Then present a plan to address this data gap.

Comments and advice for the proponent

Comment 2 Secondary Ore Processing Plant

References

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Section 5.7 (Project Activities).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Appendices CEAA-30 and CEAA-52

Comments and Advice

Plan 8000-D-0503 in Appendix CEAA-30 shows a lithium carbonate plant for year 4 of the project on the flow diagram. Plan 6000-C-0104 in Appendix CEAA-52 also shows this plant on the industrial deck. This secondary ore processing plant is not within the scope of this EA. Should the proponent wish to add this plant, the proponent would be required to submit an updated environmental assessment for review.

The Committee reminds the proponent that any changes to the project must be reported to the Agency and that the Minister of the Environment and Climate Change may modify the terms and conditions of the project (if the project is approved). Any changes to the project will require an analysis of the effects of the changes made.

The proponent must also consider that the Indigenous consultations carried out by the joint committee in 2019 and early 2020 focused on a project evaluated without a secondary ore processing plant. In the event that the proponent plans to establish such a plant, communities will need to be consulted on this aspect to gather their concerns, namely regarding the additional chemicals used and the associated effects and risks.

Soil quality

Request for information to the proponent

CCE 47 Soil Characterization of Ore Storage and Transshipment Areas in the Closure Phase

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 6.6.4.4 (Statistical Analysis and Evaluation of Naturally Occurring Backgrounds).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC*. Appendix QC2-74.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Answers to questions CEAA-53 and CEAA-55.

Background

In question CEAA-53, the proponent was asked to explain how the soil in the ore storage and transshipment areas will be managed in the event of contamination. The proponent stated in its response that "The soil quality of the ore storage and transfer areas will nevertheless be monitored when the site is closed, by making a comparison with the natural background levels established prior to the start of construction of the mining complex. Should contamination be observed, as stated in the impact study, the soils would be treated on site or in an authorized centre if it is not possible to do so. "

It further states in its response to question CEAA-55 that "soil quality after the remediation phase will be similar in quality to the natural background levels established prior to the construction phase and adequate to allow for replanting of vegetation and future activities. "However, the proponent does not describe which analytical parameters will be used to characterize the soils of the ore storage and transshipment areas during the closure phase and to make comparisons with the natural background levels established prior to construction.

In addition, Environment and Climate Change Canada (ECCC) reviewed the document entitled *Programme de travail pour l'évaluation de la teneur de fond naturel en métaux dans les sols naturels,* Rose Lithium Project, presented in Appendix QC2-43 of the document in response to the second round of questions from the MELCC, and noted that tantalum was not included in the parameters of the proposed analytical program. ECCC is of the view that tantalum should nevertheless be part of the parameters analyzed when characterizing the ore storage and transshipment areas during the closure phase. As such, tantalum should thus be included in the program for the assessment of natural background levels.

Given that soil quality may affect the quality of habitats for flora and fauna as well as the quality of groundwater and surface water, the proponent should ensure that the soil characterization of the storage and transshipment areas is complete.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Describe the analytical parameters that will be used to characterize the soils in the ore storage and transshipment areas during the closure phase and to make comparisons with the natural background levels established prior to construction. To this end, ECCC recommends that:

1) Closure phase characterization be conducted for all inorganic and organic substances likely to be emitted or released from the project activities, including tantalum;
2) Natural background levels be established for these substances as specified in the *Guide de caractérisation physico-chimique de l'état initial des sols avant l'implantation d'un projet industriel* (MDDELCC, 2016) for the establishment of background levels. If some parameters were not analyzed, justify why they were not considered relevant.

Wetlands and Wildlife

Request for information to the proponent

CCE 48 Wetland Loss Compensation Project

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 7.1 (Vegetation and Wetlands.

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC.* Response to question CEAA-47.

WSP (December 2019a). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC.* Response to question QC2-68.

WSP (December 2019b). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Responses to questions CEAA-81, CEAA-82 and map QC-86.

Background

In its response to question CEAA-81, the proponent confirms its commitment to develop and implement a project to compensate for wetland losses. Environment and Climate Change Canada (ECCC) has also reviewed the proponent's response to question QC2-47 from the Ministère de l'Environnement et de Lutte contre les changements climatiques (MELCC) in which it outlines two potential offset project options being considered. One of the options presented is intended, among other things, to create wetlands that will provide functions similar to those lost and to help restore environments of low ecological value that are currently impacted. However, based on the information presented, it appears that some wetlands that will be lost are of high ecological value, particularly those corresponding to polygons R46 and 379 (see the answer to question QC-68, from the first round of questions submitted by the MELCC). These environments, which are within the footprint of the pit, also appear to be close to the locations where the American Nighthawk, a species at risk, has been identified, if we refer to map QC-86-1.

In its response to question CEAA-82, the proponent states that "Among the mitigation measures that will be implemented during the construction phase, the compensation plan for the loss of wetlands will be the most effective at reducing losses of habitat function, especially for migratory birds and other species at risk. " The proponent uses this argument to assess that the disturbance caused by residual effects on wetlands will be low. However, it provides very little information on the compensation plan and does not demonstrate how this plan will reduce the loss of wetland functions affected by the project, including habitat function.

In order to determine the significance of the project's residual environmental effects on the avian fauna that uses the wetlands, including certain species protected under the Species at Risk Act, ECCC believes it is necessary to have a sufficiently detailed snapshot of all mitigation measures to be implemented by the promoter, including compensation measures.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide an outline of the compensation program, including the type of compensation to be provided and the objectives of the compensation, and the function(s) that will be compensated.

B) Demonstrate how the proposed compensation plan will reduce the loss of habitat function, especially for migratory birds and species at risk.

CCE 49 Migratory Birds - Risk of Contamination

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 9.1.2 (Biophysical environment).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Sections 7.4 (Avian Wildlife), 10.5.1 (Valued Ecosystem Components) and 10.7 (Analysis of the Significance of Cumulative Effects).

WSP (February 2019b). Rose Lithium - Tantalum Mining Project. *Answers to supplementary questions from MELCC.* Response to question QC2-24.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-87.

Background

In its response to question CEAA-87(c), the proponent does not address the risks to birds that could be associated with basins 2 and 3. Maps 21-2 and 03-03 indicate that these would be ponds where contact water would accumulate and could likely pose a risk to wildlife. The proponent also does not address the risks to wildlife associated with the peripheral pumping ponds. The groundwater to be pumped into these basins would be more laden with certain elements than surface water. As stated by the MELCC in question QC2-24: "Based on the results of the baseline groundwater quality presented in Appendix QC-62, exceedances of up to five times the value of the surface water quality criterion are noted for certain parameters".

Furthermore, the proponent states that it is committed to "developing a specific response plan for migratory birds" to mitigate the potential impacts on the waters in the accumulation basin for birds likely to use this basin. The proponent also undertakes to install recognized deterrent systems to prevent the use of the accumulation basin, which poses a risk to avian fauna on the mine site. Environment and Climate Change Canada (ECCC) is of the opinion that the mitigation measures taken to reduce the effects of water contained in the accumulation basin on wildlife could also be required for basins 2 and 3 and for all other mining infrastructure (basins, ditches, etc.) where water and harmful substances are likely to accumulate.

To determine the significance of the project's residual effects, including the effects of harmful substances present at the mine site on migratory birds, including certain species protected under the Species at Risk Act, ECCC is of the view that the full range of the mitigation and monitoring measures to be implemented must be known to reduce the risks of contamination for migratory birds.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) As with the accumulation basin, assess the risk of contamination for migratory birds using basins 2 and 3 and any other permanent or temporary structures that may also present an attraction and risk (e.g., perimeter pumping sedimentation ponds, contact water ditches, etc.).

B) Provide an outline of the specific migratory bird response plan to be put in place to reduce the risk of contamination associated with mine water and harmful substances and demonstrate that the measures implemented will be adequate for the assessed level of risk (e.g., life cycle of birds relative to mine activities). This plan should include all mitigation and environmental monitoring measures that will be implemented to minimize the risk of contamination to migratory birds using the mine infrastructure.

CCE 50 Woodland Caribou - Cumulative Effects

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 9.1.2 (Biophysical Environment) and 10.1.2 (Environmental Changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 10.7 (Analysis of the Significance of Cumulative Effects).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Answers to questions CEAA-92 and CEAA-94 C).

Background

The proponent states in its response to question 94 c) that the project will have no foreseeable effects on caribou and their habitat during both construction and operation activities. However, ECCC is of the opinion that even after mitigation measures are implemented, the project will have residual effects on the boreal woodland caribou (rangifer tarandus caribou) and its habitat (e.g., disturbance of individuals, loss of habitat, etc.). Consequently, ECCC believes that a detailed assessment of the cumulative effects on this species is required.

To assess cumulative effects on woodland caribou (rangifer tarandus caribou), a boreal population, the proponent established a spatial boundary corresponding to a radius of 50 km from the centre of the proposed mine. The rate of habitat disturbance is the main indicator selected for analysis. However, the proponent did not describe the impact of cumulative effects on the population and distribution objectives identified in the Woodland Caribou Recovery Strategy, as requested in question CEAA-92.

The proponent should provide an analysis to understand how the effects of the project could be combined with those of other disturbances considered, at the scale of the study area corresponding to a radius of 50 km from the centre of the proposed mine. At minimum, the proponent should consider the existing rates of disturbance in the study area from natural and anthropogenic sources, as well as reasonably foreseeable anthropogenic disturbances (including a 500 m buffer zone added for all identified anthropogenic

disturbances). The analysis should be conducted for each habitat with the biophysical characteristics required by woodland caribou to complete their vital processes and described in Appendix H of the recovery strategy for the species. The proponent should then be able to describe the impacts of cumulative effects on the population and distribution objectives identified in the Woodland Caribou Recovery Strategy.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Present an analysis of cumulative effects on woodland caribou, taking into account the habitats found within the 50 km study area that have the biophysical characteristics required by woodland caribou to complete their vital processes.

B) Based on the 50 km study area, describe the impacts of cumulative effects on the population and distribution objectives identified in the Woodland Caribou Recovery Strategy as follows:

- Maintain the local population.
- Maintain the status of habitats in terms of area and undisturbed habitats to ensure the local woodland caribou population is self-sustaining. The goal is to maintain a minimum of 65% undisturbed habitat and the availability of the biophysical attributes necessary for woodland caribou.

CCE 51 Woodland Caribou - Blasting Impacts

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 10.1.2 (Environmental Changes).

WSP (February 2019a). Rose Lithium - Tantalum Mining Project. *Updated environmental impact statement.* Report produced for Critical Elements Lithium Corporation. Section 7.6 (Woodland and Migratory Caribou).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-94.

Background

All direct and indirect adverse effects of the project on woodland caribou during all project phases (construction, operation, closure) should be identified. Mitigation measures as well as monitoring and follow-up programs should be proposed and the measures selected should be consistent with the recovery strategy.

That said, the proponent did not provide a description of the project's direct and indirect effects on woodland caribou associated with blasting, as requested in question CEAA-94.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Assess the direct and indirect effects of the project on woodland caribou (i.e., individuals) associated with blasting and the mitigation measures that will be implemented to reduce these effects.

Health and Well-being of Indigenous Communities

Request for information to the proponent

CCE 52 Traditional Food - Sources of Contaminants

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Answers to questions CEAA-135, CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent provided an assessment of the contamination risk for traditional foods based on three main sources of contaminants, but it did not provide explanations to support the selection of these sources (Appendix CEAA-136). All decisions made in a human health Toxicological Risk Assessment (TRA) must be clearly documented for transparency and communication of the risk to stakeholders.

Note to the proponent: Environmental standards, such as the Metal and Diamond Mining Effluent Regulations and Mining Industry Directive 019, were not established to ensure the protection of human health (for example, linked to exposure through the consumption of aquatic foods). As a result, compliance with environmental standards does not necessarily ensure the protection of human health.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Detail each of the contaminant sources potentially emitted by the project and justify the exclusion of any contaminant source from the TRA.

B) Include the final effluent from the mine site water treatment unit in the TRA as another primary source of substances in the environment. Identify additional concentrations of substances in the receiving surface waters associated with the final mine site effluent and explain how these concentrations compare to other expected inputs of substances in the receiving water bodies. The TRA should consider concentrations that are representative of human exposure, taking into account the ability of the receiving water bodies to dilute the various contaminant sources.

C) Identify whether other substances (other than metals considered in the TRA) are likely to enter the environment as a result of the project (e.g., methylmercury, organics, tantalum and lithium). If so, explain whether they have the potential to bioaccumulate, and add these substances to the TRA.

CCE 53 Traditional Food - Toxicological Risk Assessment of Aquatic Food Consumption and Contaminants in Sediment

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, in Appendix CEAA-136, the proponent presents an assessment of the risk of contamination of traditional food based on the quality criteria for surface water in Quebec to prevent the contamination of aquatic organisms for human consumption, developed to protect individuals who would consume aquatic organisms throughout their life in which contaminants from surface water have bioaccumulated. However, the proponent does not mention contaminants also found in sediments[6], which could be a shortcoming that underestimates the risks to human health associated with traditional foods.

[6] Sediments can be affected by aerial deposition and by mining water inflows as well. Sediments can act as both a reservoir and a source of contaminants in the environment. Sediment is considered a reservoir when contaminants are deposited from the overlying water column and accumulate at the bottom of water bodies. Contaminated sediment can also be a source of contamination for overlying waters (e.g., through dissolution or resuspension). Potential sediment contamination can have an impact on traditional foods (for example, on the quality of fish and other aquatic foods, on geese and moose that may accidentally ingest sediment while feeding, and there may be potential for bioaccumulation and biomagnification in the food chain).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Indicate whether the exclusive use of surface water quality criteria could underestimate the risks associated with the consumption of aquatic foods that may also be affected by the presence of substances in sediments. If so, revise the toxicological risk assessment to take into account contaminants in sediment.

CCE 54 Traditional Food - Toxicological Risk Assessment for Consumption of Aquatic Food and Use of Affected Lakes

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). In section 4.2.2.1 of Appendix CEAA-136, the proponent states that the consumption of aquatic organisms is not expected to exceed the value of 17.5 grams per day used by MELCC in developing a criterion for surface water. In particular, the proponent considers that the lakes that may be affected by the release of contaminants from the mine site are relatively remote and represent only a fraction of the lakes frequented by land users.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Clarify whether the hypothesis that lakes that may be affected by the release of contaminants from the mine site are rarely frequented by land users has been confirmed by the communities concerned. Specify whether this hypothesis considers future land uses. Following these clarifications, review the contamination risk assessment of traditional foods, as required.

CCE 55 Traditional Food - Description and Justification of Consumption Rates

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). This assessment does not present a description or analysis of the food consumption rates used, such as those cited in section 4.2.3.4, p. 22 from Chan L. (2011).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Describe and justify the consumption rates selected and determine whether they are representative of the consumption rates of members in the area's hunting or harvesting communities, both today and in the future. Following these clarifications, review the contamination risk assessment of traditional foods, as required. To do this, the proponent may conduct a sensitivity analysis and an uncertainty analysis of the consumption rates used to better understand the results of the contamination risk assessment of traditional foods.

CCE 56 Traditional Food - Using Average Soil Contaminant Levels

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). Predicted contaminant levels in traditional foods are based on average soil concentrations. No justification was provided for the use of these average concentrations.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the use of average soil concentrations for the analysis of predicted contaminant levels in traditional foods. This can be done by conducting a sensitivity analysis to better understand the sensitivity of the risk estimates if the concentrations are different from those assumed in the assessment. Review the contamination risk assessment of traditional foods, as required, based on these clarifications.

CCE 57 Traditional Food - Effects of Contaminants on Organs

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional food (Appendix CEAA-136). A minimum of information was provided on the human toxicological reference values used in Appendix CEAA-136. In fact, the assessment does not identify target organs and target effects on them for each contaminant of concern. This information is important since the risk assessment must take into account the presence of effects on the same target organ by different contaminants.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Identify the organs and target effects on them for each contaminant of concern. Based on this information, revise the contamination risk assessment of traditional foods, if applicable.

CCE 58 Traditional Food - Toxicological Reference Values

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). The assessment states that a hierarchy was followed for the selection of toxicological reference values (TRV) (i.e., Health Canada > US EPA > ATSDR). However, it does not appear that the hierarchy has always been followed. For example, Health Canada has TRVs for chromium and selenium, but US EPA values were selected.

In Table 7, the "source" of the TRVs does not include the year of publication. Also in Table 7, the selected TRVs (ATSDR Minimal Risk Levels) for cobalt and tin are for an "intermediate duration" of exposure. This was not noted in the table, however. The TRV for molybdenum is incorrect. As per the erratum in the Health Canada document entitled: Federal Contaminated Site Risk Assessment in Canada - Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors, Version 2.0, 2010, TRVs are expressed in µg/kg/day and should be divided by 1000 to be converted to mg/kg/day.

Table 7 states that the TRVs for lead are from the World Health Organization/Health Canada. Health Canada does not, however, recommend a specific TRV for lead. In fact, the TRV for lead is currently being revised, as outlined in the Federal Contaminated Site Risk Assessment in Canada - Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors, Version 2.0, 2010.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide justification for the Toxicological Reference Values (TRVs) selected when the screening hierarchy proposed by the sponsor was not followed. Revise the contamination risk assessment of traditional foods, if applicable.

B) In Table 7 of Appendix CEAA-136, indicate the year the TRV was published. Note if a TRV is temporary, such as in the case of lithium.

C) Include the exposure times (e.g., intermediate duration) in Table 7 of Appendix CEAA-136. Provide a rationale for how TRVs identified as "intermediate duration" of exposure are considered appropriate for the assessment of chronic effects. Revise the contamination risk assessment of traditional foods, if applicable.

D) Recalculate risk estimates for molybdenum in cases where the unit error was made in the risk characterization step of the contamination risk assessment of traditional foods. Based on this information, revise the contamination risk assessment of traditional foods, if applicable.

E) Identify an appropriate TRV for lead by identifying the source. Include the rationale behind the selection of the TRV in the contamination risk assessment. Following these clarifications, revise, as needed, the contamination risk assessment of traditional foods.

CCE 59 Traditional Food - Risk Indices for Non-Carcinogenic Effects

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). Risk indices for non-carcinogenic effects are not presented in this assessment. Instead, results are provided as a percentage of the tolerable daily intake (Tables 11 and 12) for each of the terrestrial foods considered (fruiting plant, leafy plant, ptarmigan, hare and moose).

No risk index was calculated in relation to the consumption of aquatic foods, i.e., only a comparison between estimated concentrations in surface water and the Ministry of the Environment and Climate Change Control surface water quality criteria was conducted. Similarly, the incremental lifetime cancer risk for arsenic was estimated separately for each type of traditional food considered in the study: plants, ptarmigan, hare and moose (p. 23 of Appendix CEAA-136).

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Provide risk indices for non-carcinogenic effects based on the guidelines in the Health Canada document entitled: Federal Contaminated Site Risk Assessment in Canada - Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment, Version 2.0 (2012) or Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (2010).

B) Where appropriate, calculate a total risk index related to the consumption of multiple foods (terrestrial and aquatic), or multiple contaminants if they present toxic effects on the same target organ, for each receptor (child, adult).

C) Where appropriate, calculate an additional total lifetime cancer risk for arsenic from multiple foods (terrestrial and aquatic).

D) Following the clarifications requested in A, B and C, revise the contamination risk assessment of traditional food, as needed.

CCE 60 Traditional Food - Uncertainty and Sensitivity Analyses

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136 (Contamination Risk Assessment of Traditional Foods).

Background

In its response to question CEAA-136, the proponent presents a contamination risk assessment of traditional foods (Appendix CEAA-136). The risks associated with ingesting organs from hunted animals, which may contain higher concentrations than in muscle tissue, have not been assessed, which is a source of uncertainty.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Include a detailed uncertainty and sensitivity analysis in Appendix CEAA-136 to help clarify the level of confidence in the results obtained. Based on these clarifications, review the risk assessment of contamination of traditional food as required.

CCE 61 Traditional Food - Measures to Protect Surface Water Quality

Reference

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136 (Contamination Risk Assessment of Traditional Foods).

Background

In section 4.1.1.4 of Appendix CEAA-136 (response to question CEAA-136), it is stated that all process water will be recirculated or treated and that, apart from accidental leaks, it should not be a source of contaminants to surface water.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Describe the measures that will be taken to detect leaks and spills from the waste rock and tailings pile or mine water basins (including exfiltration from piles, ponds and ditches) to protect surface water quality.

CCE 62 Traditional Food - Implementation of Contaminant Mitigation Recommendations

Reference

CEAA (August 2016). Supplementary information to the final guidelines for the Rose Mining Project. Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136 (Contamination Risk Assessment of Traditional Foods).

Background

In Appendix CEAA-136 (response to question CEAA-136), the proponent provides recommendations for mitigation measures for environmental contamination emissions in section 5.2, but does not specify whether they will be implemented.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Specify whether the recommendations in section 5.2 of Appendix CEAA-136 for the mitigation of environmental contamination emissions will be implemented.

CCE 63 Traditional Food - Information Sources

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136 (Contamination Risk Assessment of Traditional Foods).

Background

Sections 2.3.1 to 2.3.4 of Appendix CEAA-136 (Contamination Risk Assessment of Traditional Food) describe traplines RE1, R19, R16 and R10 respectively, including water bodies, facilities, infrastructures, roads, hunting camps and other information on activities in the territory. However, the proponent does not indicate which sources were consulted for this information.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Refer to the information sources consulted on land use, especially with regard to hunting, fishing and gathering activities. If interviews were conducted with the local population on their traditional food consumption habits, present the details and results or refer to the relevant reports.

CCE 64 Traditional Food - Baseline Status

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

In its response to question CEAA-136, the proponent did not describe the characterization of the baseline status for traditional food (soil, water, plants, etc.) in the initial situation.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Describe the studies carried out, and their available results, to perform the baseline characterization of traditional foods or refer to the relevant reports.

Comments and advice for the proponent

Comment 3 References and Background Information

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, sections 10.1.1 (Methodology - Risk Assessment Framework).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples) and 9.1.1 (Existing Environment - Methodology).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Comments and Advice

No specific source is provided for some of the models presented in Appendix CEAA-136, namely those for estimating additional concentrations in surface water, soil and game. In addition, some basic information about these models is not presented, for example: their limitations and uncertainties, their sensitivity (level of influence of the input parameters on results, sensitive parameters), their relevance to the project under study, their peer validation or general recognition, the values and justifications of all input parameters including default values, etc.

Although the modelling results were not reviewed by Health Canada, it is recommended that, for a more complete and transparent study, the following information be provided for each of the models selected:

1) Specific references; and,
2) Basic information (limitations, uncertainties, sensitivity, relevance, validation, etc.).

Note that some inconsistencies were noted in the description of variables in the equation for estimating the concentration in game.

Environmental Monitoring and Surveillance

Request for information to the proponent

CCE 65 Improved Monitoring and Surveillance Programs and Collaboration with Territorial Users

Reference

CEAA (December 2012). Guidelines for Preparing an Environmental Impact Assessment. Part II, section 11.4 (Monitoring Program).

CEAA (August 2016). *Supplementary information to the final guidelines for the Rose Mining Project.* Sections 10.1.3 (Expected Effects on Valued Components - Indigenous Peoples).

Chan L., Batal B., Receveur O., Sadik T., Schwartz H., Ing A., Fediuk K., Tikhonov C. and Lindhorst K. (2016). First Nations Food, Nutrition & Environment Study: Results from Quebec 2016. Ottawa: University of Ottawa. Available at: http://www.fnfnes.ca/docs/QC_French_Aug6.pdf, consulted on January 22, 2020.

WSP (December 2019). Rose Lithium - Tantalum Mining Project. Responses to the CEAA's questions and comments. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-136 and Appendix CEAA-136.

Background

Many gaps were identified by Health Canada in the risk assessment of contamination of traditional foods (response to question CEAA-136, Appendix CEAA-136).

Health Canada reiterates the importance of determining the initial level of contaminants of potential concern in traditional foods in the vicinity of the project site (in close collaboration with land users with respect to the choice of resources analyzed). Currently, traditional food quality is monitored based on the monitoring in place for certain environmental media (air, water, etc.). When the environment committee in charge of monitoring receives these data, it will not be able to assess them from a human health point of view without established "health" thresholds (target levels based on the protection of human health). Furthermore, it is not possible to specify which contaminants or environmental media should be monitored since the toxicological risk assessment is incomplete.

The intake of many nutrients is enhanced when Indigenous people consume traditional food, even in small amounts. Given the high level of food insecurity in First Nations communities (Chan et al., 2016), especially in areas where the price of food in stores is high, access to traditional food should be valued and protected.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

To demonstrate that levels of contaminants in the environment are not increased or remain acceptable (i.e., below target levels based on the protection of human health):

A) Enhance environmental monitoring and follow-up programs for waste water, air, surface water (water body A, lakes 3, 4 and 6) and traditional foods. Present and justify target levels based on the protection of human health.

B) Specify how the proponent plans to respond to potential exceedances.

C) Specify whether the traditional food monitoring and follow-up program will be developed in cooperation with Cree communities.

D) In addition to the relevant contaminants, indicate whether nutritional and organoleptic quality monitoring parameters[7] will be developed in cooperation with Cree communities to prevent any avoidance of the resource.

Accidents and Malfunctions

Request for information to the proponent

CCE 66 Final Effluent

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 7.1.2 (Effects of Possible Accidents or Malfunctions).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-108.

Background

In its response to question CEAA-108, the proponent explains that there will be no non-compliant discharge of final mine effluent. In its answers to questions CEAA-20 and CEAA-21, the proponent also presents the management of water from the mine site at different stages of the project. The maps presented in response to these questions show part of the route where the final effluent water will be directed.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Although no non-compliant discharges are expected, provide a map showing the path of water from the final effluent, from the discharge point to its entry onto Waskaganish community lands.

[7] That which is likely to stimulate a sensory receptor (such as appearance, smell, taste, texture or consistency) (definition adapted from https://www.btb.termiumplus.gc.ca/).

CCE 67 Emergency Response Plan (information from Indigenous communities)

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 7.1.2 (Effects of Possible Accidents or Malfunctions).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-112.

Background

In its response to question CEAA-112, the proponent states that all incidents will be reported to the communities, without specifying which ones. It added that, depending on the severity of the incident, communication methods such as the proponent's newsletter, "band council bulletin boards" and radio could be used to disseminate information.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

A) Specify which community(ies) will be informed of incidents, if any.

B) Specify what type of incident would be communicated through the proponent's newsletter and bulletin boards, specifying from which band council(s), and via radio, specifying from which community(ies).

Cumulative Effects

Request for information to the proponent

CCE 68 Justification for Using Criteria to Assess the Significance of Cumulative Effects

Reference

CEAA (December 2012). *Guidelines for Preparing an Environmental Impact Statement.* Part II, section 12.1.2 (Cumulative Environmental Effects).

WSP (December 2019). Rose Lithium - Tantalum Mining Project. *Responses to the CEAA's questions and comments*. Report produced for Critical Elements Lithium Corporation. Response to question CEAA-97.

Background

In its response to question CEAA-97, the proponent presents its analysis of cumulative effects for several valued components. It justifies the values assigned to each sub-criterion of intensity (magnitude) in its

assessment, namely: ecosystem value, socio-economic value and degree of disturbance. However, the same justification is not presented for the spatial extent, duration and probability of occurrence criteria.

The Joint Assessment Committee requests Critical Elements Lithium Corporation (the proponent) to:

Justify the values assigned in the assessment of spatial extent, duration and probability of occurrence criteria for each valued component studied to evaluate the project's residual effects.