

Montreal, April 1st, 2022

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James Bay Lithium Mine Project
Impact Assessment Agency of Canada
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Dear Mr. Dubreuil,

Eau Secours is writing to you to express our concerns about the deficiencies in the environmental impact assessment regarding the management of arsenic contamination of pit waters that would be generated by the Galaxy Lithium (Canada) Inc.'s *James Bay Lithium Mine Project*.

Founded in 1997, Eau Secours's mission is to promote the protection and responsible management of water from the perspective of environmental health, equity, accessibility, and collective defence of people's rights. Eau Secours has been actively involved for several years in studying, identifying and denouncing water-related risks in various industrial sectors in Quebec, including the mining sector.

Upon reading the proponent's Environmental Impact Statement (EIS)¹, and more specifically the Surface Water Quality Modeling² and the Answers to the Third Information Request³, it appears to us that the long-term management of the water that would accumulate in the pit as currently proposed by the proponent is clearly insufficient to ensure the sustainability and quality of water resources. Our main concern is arsenic contamination of waters.

As stated on page 7-45 of Chapter 7 of the July 2021 EIS, the pit left by Galaxy Lithium is expected to gradually fill with water that will be loaded with arsenic. The proponent claims that "the surface water's physicochemical nature will return to its initial condition" at the time of dismantling the water management infrastructure⁴. However, the proponent's rehabilitation plan does not include any concrete measures to restore the water quality to its original level.

¹ [Revised Environmental Impact Statement, WSP, July 2021.](#)

² Revised Environmental Impact Statement, [Update to Surface Water Quality Modeling – Final, WSP USA, July 2021.](#) (Annex B)

³ [Answers to the Third Information Request](#) received from the Impact Assessment Agency of Canada as part of the Environmental Review of the Project, WSP, January 2022.

⁴ Revised Environmental Impact Statement, [Chapter 7: Identification and Assessment of Environmental Impacts](#), section 7.2.4, Post-Rehabilitation Phase. WSP, July 2021.

The proponent’s rehabilitation plan, as detailed in Annex D of the EIS⁵, includes the following key elements related to the pit and the water that would accumulate in it:

- The proponent affirms their desire to restore the site to a satisfactory state following operations, which implies, in particular, “limiting the production and spread of substances likely to affect the receiving environment”⁶;
- The proponent expects the pit to flood naturally over the years with rainfall and groundwater inflow until it reaches equilibrium with the water table, which the developer estimates could take 180 years⁷;
- A weir would be constructed for excess water and the flow channel would be directed to stream CE3⁸, which empties into the Asiyan Akwakwatipusich Lake watershed located a few hundred metres downstream;
- The proponent does not plan any treatment of the pit water prior to its release into stream CE3.

Although the Impact Assessment Agency of Canada (IAAC) raised the issue of arsenic contamination of the pit and potential impacts on stream CE3 and downstream waters in January 2022 (ref 3, question CCE3-32), the proponent’s answer does not provide further measures to manage arsenic contamination. Instead, the proponent relies on water balance assumptions and dilution factors that are not demonstrated in any thorough modeling.

In its Surface Water Quality Modeling report (ref 2), the proponent assesses the arsenic concentrations in the pit after operations. Based on this modeling, arsenic concentrations would range from 0.20 to 0.23 mg/L until approximately 60 years after cessation of operations. Thereafter, they would not decrease below 0.170 mg/L even after 180 years (ref 2, Figure 10). However, these levels are approximately **2 times** higher than the Metal and Diamond Mining Effluent Regulations (MDMER), approximately **40 times** higher than the Canadian Council of Ministers of the Environment (CCME)’s guideline for the protection of aquatic life in freshwater (0.005 mg/L), and up to **230 times** higher than naturally occurring levels of arsenic in the surrounding waterways (see Table 1 below).

Table 1: Comparison of in-pit arsenic levels with other standards and criteria

	Mine pit (0-180 years)	Directive 019 Quebec (currently not in compliance with federal MDMER regulations)	Federal regulation MDMER	CCME Recommendation for the Protection of Aquatic Life	Natural concentration of surrounding waters (background noise)
Arsenic (mg/L)	0.170 – 0.230	0.2	0.1	0.005	0.001 – 0.003
Number of times higher	-	-	1.7 to 2.3	34 to 46	56 to 230

⁵ Revised Environmental Impact Statement, [Plan de restauration préliminaire \(French Only\), WSP, July 2021](#). (Annex D)

⁶ Ibid., section 4, §2, free translation.

⁷ Ibid., section 4.6.6, §2.

⁸ Ibid., section 4.6.6, §3.

These levels of arsenic would not only violate federal regulations but would also contribute to significant degradation of the quality of the surrounding ecosystems for decades, if not centuries, posing unacceptable risks to aquatic species, avian wildlife and terrestrial wildlife that frequent these environments. These risks are not sufficiently documented by the proponent in the environmental assessments.

The pit will indeed become a lake integrated into the natural environment for decades after mining operations. Serious and responsible restoration of the pit should include measures to return the water quality to near natural pre-project conditions. It must be considered that the arsenic-laden water of the pit would eventually flow into stream CE3, which itself flows into Asiyán Akwakwatipusich Lake located a few hundred metres downstream.

In addition, there are contradictions in the proponent's assessment of naturally occurring arsenic levels in the surrounding waterways. The proponent states in its answer A-CCE3-32: "It is known that As concentrations are naturally high in the area (approximately 0.1 mg/L) [...]". However, the consultant's EIS indicates that most of the arsenic concentrations measured in the study site streams are below 0.001 mg/L in the current natural state, and that the highest median value obtained is 0.0028 mg/L⁹. The value used by the proponent is 30 to 100 times higher compared to these last assessments. The proponent should review the **validity of the data** used to determine the long-term management and treatment of the pit water.

Treatment should be considered to reduce arsenic levels in the pit to an appropriate level to protect aquatic life in the pit and nearby waterways over the long term. Basic research indicates that technically feasible and economically viable treatments have been used in Canada to treat arsenic-laden pit water by neutralisation and precipitation with a hydroxide directly into the pit¹⁰.

In short, according to Eau Secours, it is essential that Galaxy Lithium's environmental assessments and rehabilitation plan include the management of arsenic contamination from the pit. Eau Secours recommends that serious measures based on valid data and reliable hypotheses be presented by the proponent, so that Quebec and the affected communities do not inherit, following the realisation of this project, an arsenic contaminated pit and mining effluents.

We sincerely thank you for your attention to this letter. Please do not hesitate to contact us for any further information.

⁹ [Étude spécialisée sur l'habitat aquatique \(French Only\)](#), tableaux 6 à 14, WSP, July 2018.

¹⁰ [BC MEND ML/ARD, Annual Workshop](#) and [Study to Identify BATEA for the Management and Control of Effluent Quality from Mines](#), MEND Report 3.50.1, September 2014.

Please accept our best regards,

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Mining Analyst, Eau Secours

Rébecca Pétrin (B.Sc., M.Env)
Executive Director, Eau Secours

CC :

- Hon. Steven Guilbeault, Minister of Environment and Climate Change Canada
- Hon. Benoit Charette, Minister of Environment and Fight Against Climate Change (MELCC) of Quebec
- Chief Kenneth Cheezo, Cree Nation of Eastmain (paper version)
- Chief Clarke Shecapio, Cree Nation of Waskaganish (paper version)
- Terence Hubbard, President of the Impact Assessment Agency of Canada
- Marc Croteau, Deputy Minister of MELCC and Provincial Administrator of chapter 22 of the James Bay and Northern Quebec Agreement
- Luc Lainé, Chair of the Environmental and Social Impact Review Committee
- Ugo Lapointe, representative of the Coalition Québec meilleure mine
- Rodrigue Turgeon, national program co-lead, MiningWatch Canada