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November 4, 2022

Honourable George Heyman
Minister of Environment and Climate Change Strategy and Minister responsible for TransLink
PO Box 9047 Stn Prov Gov
Victoria, BC V8W 9E2

Dear Minister Heyman,

Re: Proposed Amendment of Effluent Permit PE-3904 – Ajax Mine

We write to you today on behalf of our client, the Kamloops Area Preservation Association, to formally request that you exercise your power under ss. 14(4)(a)[1] and/or ss. 16(1)(a) of the *Environmental Management Act* ("*EMA*") and amend Effluent Permit PE-3904 ("Permit") to require KGHM Ajax Mining Inc. ("KAM") to perform improved and increased monitoring of the effluent it is discharging from the closed Ajax copper-gold mine ("Ajax Mine") to ensure the protection of the environment.

Background

The Ministry of Environment and Climate Change Strategy ("Ministry") issued the Permit to KAM on September 7, 2018, under the *EMA.* Pursuant to the Permit, KAM is authorized to discharge effluent from the closed Ajax Mine.[2]

The closed Ajax Mine is located to the south of Kamloops, along and on either side of Peterson Creek, below the outlet of Jacko Lake.[3] Peterson Creek and its aquifer serve as a source of drinking water for the Knutsford Knoll development, the Kamloops RV Campground, and several detached homes.[4] The Knutsford Knoll well supplies 41 modular homes/households and the Kamloops RV well supplies 100 fully-occupied RV campsites and tent sites, nine mobile homes, one mosque, and one private property.[5]

In addition to being a source of drinking water, Peterson Creek is a fish-bearing creek. In and around the Ajax Mine site, rainbow trout are present in Peterson Creek.[6]

[1] Please accept this as an "application" for the purposes of ss. 14(4)(a) of the *Environmental Management Act*.
[2] Knight Piésold Ltd. (for KGHM International), "Ajax Project: Environmental management Act Permit 3904 Annual Report – 2021" (28 March 2022) [2021 Annual Report] at p 1.
[3] Dr Kevin A Morin, "Peterson Creek and Aquifer - Review of Ajax Mine Permit 3904 for Reliably Characterizing and Preventing Water Contamination by Existing Mine Wastes" (15 April 2020) Minesite Drainage Assessment Group (pdf) [Review of Ajax Mine Permit 3904] at p v.
[4] Dr Gilles Wendling, "Potential Impact of the Proposed Ajax Mine on the Drinking Water" (8 August 2017) GW Solutions (pdf) [Wendling Report] at p 5.
[5] *Ibid.*
[6] 2021 Annual Report, *supra* note 2 at p 11 and 23.

The Permit imposes certain requirements on KAM, including a requirement to monitor water contamination from the Ajax mine site. KAM's most recent monitoring data continues to show increasing contamination of Peterson Creek and its aquifer from the waste rock of the Ajax Mine.

In 2020, the Kamloops Area Preservation Association ("KAPA") retained hydrogeologist, Dr. Kevin A. Morin, to review and prepare an expert report on the Permit. After reviewing the annual and 5-year reports required by the Permit, and the many relevant documents from the environmental assessment for the rejected ("new") Ajax Mine Project, Dr. Morin concluded, among other things, that the current water monitoring conditions of the Permit:

- are "woefully inadequate and ambiguous";
- do not ensure the proper monitoring of surface water and underground water;
- do not adequately protect Peterson Creek and downstream waters; and
- do not explain the dramatic increasing contamination of Peterson Creek by mine site derived elements.[7]

In summary, Dr. Morin's report definitively shows that the Permit's current water monitoring conditions are insufficient.

The fact that the Permit's water monitoring conditions are insufficient and must be significantly strengthened is evidenced by Dr. Morin's expert report,[8] the 2021 Annual Report on the Permit prepared by Knight Piésold Ltd for KAM,[9] and your government's October 2019 finding that KAM is not even complying with the inadequate monitoring conditions of the Permit.[10]

Dr. Morin's Review of Ajax Mine Permit 3904

In short, Dr. Morin concludes that, while all the available evidence indicates the Ajax Mine is contaminating Peterson Creek, the Permit's "woefully inadequate and ambiguous" surface water monitoring conditions do not provide enough information to understand the nature and extent of the contamination.[11]

According to Dr. Morin, because the Ajax Mine components have no observed surface water pathways to Peterson Creek and the Permit only requires the monitoring of surface waters (and only for a few of the components), this has led to incorrect statements and conclusions that Peterson Creek is not being contaminated by the Ajax Mine. However, the Ajax Mine components that are and are not being monitored for surface water have subsurface pathways that can (and do) deliver contamination to Peterson Creek.[12]

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[7] Review of Ajax Mine Permit 3904, *supra* note 3 at pp v, viii, and 34.
[8] *Ibid* note 3.
[9] 2021 Annual Report, *supra* note 2.
[10] British Columbia, Ministry of Environment and Climate Change Strategy – Environmental Protection Division, *Natural Resources Compliance and Enforcement Database* (Victoria: Ministry of Environment and Climate Change Strategy, 2020) <https://nrced.gov.bc.ca/records;keywords=ajax;ms=483;currentPage=1;pageSize=25;sortBy=-dateIssued> accessed 13 October 2022 [*NRCED*].
[11] Review of Ajax Permit 3904, *supra* note 3 at pp v-ix, 1, 12-21, and 27.
[12] *Ibid* at p vi-vii, ix and 34.

This is apparent for several reasons:

- First, total mine waste rock that was previously estimated to be around 15 million tonnes, was recently estimated to be nearly 50 million tonnes,[13] in addition to 7 million tonnes of water-contaminating overburden.[14] This does not include the volume of other components.[15]
- Second, while the mine site components have no observed surface pathways to Peterson Creek, leading previous reports to incorrectly conclude that contaminated water from the old mine site is not entering Peterson Creek,[16] subsurface pathways do exist that deliver contaminated water to Peterson Creek.[17] This is particularly apparent where a comparison of upstream and downstream concentrations from Peterson Creek reveal increased contaminant concentrations downstream of the mine site.[18]
- Third, it was thought that pits surrounding the mine site would theoretically prevent contaminated groundwater from the old mine site from reaching Peterson Creek, but the most recent reports show that these pits have very limited effect on groundwater flow and that most contaminated groundwater from the mine site enters the aquifer, at least part of which reaches Peterson Creek.[19]
- Fourth, as of February 2020, KAM's own monitoring data continues to show increasing contamination of Peterson Creek downstream of the old mine site.[20]

Dr. Morin also found the wording of the Permit to be ambiguous and contradictory.[21] For example, the Permit stipulates that contaminated water may seep into the ground at an average of 25 m^3 per day, but KAM has never provided any data on the volume of effluent it is discharging, so there is no way of knowing whether KAM is complying with that condition.[22]

Therefore, Dr. Morin concludes that major amendments to the Permit are needed to require KAM to monitor the surface water contamination of additional mine site components, as well as monitor groundwater contamination. Specifically, Dr. Morin recommends that the water monitoring conditions be amended to require:

- Monthly measurements of creek flows and chemistry, and of groundwater levels and chemistry, because the highly variable seasonal fluctuations are not adequately addressed by current biannual chemistry-only measurements as currently required in the Permit;
- At least 20 surrounding monitor wells and piezometers to be monitored monthly; and
- Monthly analysis of all elements and parameters for water-quality guidelines for drinking, irrigation, wildlife, and aquatic life to be analyzed in dissolved (i.e. filtered) and total forms and, due to seasonal peaks, each monthly value to be compared to guidelines, rather than comparing annual averages to guidelines. [23]

[13] *Ibid* at pp vii and 9.
[14] *Ibid* at pp vii.
[15] *Ibid* at pp vii and 9.
[16] *Ibid* at pp vi and 9.
[17] *Ibid* at pp vi, viii, 6, 8, and 11-14.
[18] *Ibid* at pp vii-viii, 10, and 14.
[19] *Ibid* at pp vii, 21, 24, and 28.
[20] *Ibid* at p v.
[21] *Ibid* at pp v-viii, 1, 10, 12, and 34.
[22] *Ibid* at pp vii and 12.
[23] *Ibid* at pp ix and 34.

The 2021 Annual Report for the Permit

As stated above and by Dr. Morin in his report, a key issue with the Permit is the complete lack of conditions requiring groundwater monitoring. Given that there is no observable surface runoff from the Ajax Mine waste sites into Peterson Creek, the effluent that is reaching the creek must be via groundwater.

The two mine waste sites that likely contribute most to Peterson Creek contamination are a waste rock seepage pond located only 40 metres from the creek and an overburden storage seepage pond located 90 metres from the creek.[24] Both seepage ponds are elevated to Peterson Creek, and therefore groundwater likely flows from these ponds to the creek. Yet, for both seepage ponds, the 2021 Annual Report makes the following statement: "The seepage pond is an isolated waterbody, with no connection to any existing natural drainage."[25] However, no hydrologic evidence is provided in the 2021 Annual Report to support that claim, and it is repeated for two other waste rock seeps in the report with no supporting evidence.

Contrary to the 2021 Annual Report's unsupported assertions about the seepage ponds and other mine site components not being connected to natural waterways, there is enough evidence in the 2021 Annual Report itself to conclude that the Ajax Mine components are contaminating Peterson Creek. Specifically, the report shows that the measured level of toxic substances is considerably higher immediately downstream of the mine site compared to upstream.

Peterson Creek discharges from Jacko Lake. Water quality monitoring station "Station E222526" is located at the point Peterson Creek discharges from Jacko Lake.[26] About three kilometres downstream, just below the Ajax Mine site, is another water quality monitoring station, "Station E222527".[27] A comparison of the levels of certain elements at the downstream location (Station E222527) versus the upstream location (Station E222526), as provided in Tables D5 and D6 of the 2021 Annual Report, shows increased levels of each of those elements at the downstream location.

Specifically, at the downstream location:

- Uranium concentrations are 2.39 times as high;
- Arsenic concentrations are 1.31 times as high;
- Molybdenum concentrations are 7.86 times as high;
- Selenium concentrations are 4.04 times as high; and
- Copper concentrations are 2.28 times as high.[28]

As stated above, Peterson Creek is a fish-bearing creek, with rainbow trout being observed in the creek in and around the Ajax Mine site.[29] The maximum selenium reading for the downstream Peterson Creek station that is

[24] 2021 Annual Report, *supra* note 2 at p 8-9.
[25] *Ibid.*
[26] *Ibid* at p 1-2, and 11-12.
[27] *Ibid* at p 1-2, and 13-14.
[28] *Ibid* at Appendix D, Tables D5 and D6.
[29] *Ibid* at p 11 and 23.

below the Ajax Mine site is 0.00469 mg/L,[30] which is well above the 0.002 mg/L British Columbia approved water quality guideline for aquatic life and wildlife.[31]

2019 BC Government Site Inspection

In October 2019, the Environmental Protection Division of your government performed a compliance inspection in relation to the Permit and found KAM was out of compliance with the Permit, primarily due to missing monitoring data and reporting.[32] This was communicated to KAM in November 2019.[33]

It is quite likely the missing monitoring data and reports would have further confirmed increasing levels of contamination in Peterson Creek and its aquifer from the Ajax Mine. That KAM is not even complying with the "woefully inadequate" water monitoring conditions is deeply concerning to KAPA and its members.

Specific Amendment Requests

Once again, we implore you to protect the environment and the citizens of Kamloops and their water by amending the Permit under ss. 14(4)(a) and/or ss. 16(1)(a) of the *EMA* to strengthen its water monitoring conditions. Specifically, we ask that you amend the Permit to require:

1. The installation and monitoring of at least 20 surrounding monitor wells and piezometers.
2. For two years or until variabilities are well understood, continuous monitoring of flows, in-situ pH levels, and in-situ conductivity at a minimum of five locations in Peterson Creek including the two Permit 3904 stations.
3. After the two-year period or once variabilities are well understood, monthly monitoring and sampling of: creek flows and chemistry, groundwater levels and chemistry, including monitoring with in-stream real-time Ph and electrical conductivity monitors.
4. After the two-year period or once variabilities are well understood, monthly analysis of all elements and parameters for water-quality guidelines for drinking, irrigation, wildlife, and aquatic life in dissolved (i.e. filtered) and total forms and, due to seasonal peaks, each monthly value should be compared to the guidelines each month, rather than comparing single annual averages to the guidelines.
5. KAM to provide monthly data on the volume of effluent it is discharging so compliance with the 25 m^3 per day limit can be confirmed.
6. The installation and monitoring of several seepage meters at the locations where the contaminated groundwater from the Ajax Mine is seeping into Peterson Creek.

[30] *Ibid* at Appendix D, Table D6.
[31] British Columbia, Ministry of Environment and Climate Change Strategy – Water Protection and Sustainability Branch, *British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture – Guideline Summary* (Victoria: Ministry of Environment and Climate Change Strategy, 2021) https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf accessed 13 October 2022, at p 29, table 35.
[32] *NRCED*, *supra* note 10.
[33] Review of Ajax Permit 3904, *supra* note 3 at pp v, vi, 1, and 10.

On behalf of our client, we kindly ask that you advise us by December 15, 2022, whether you will be exercising your power to amend the Permit under either ss. 14(4)(a) and/or ss. 16(1)(a) of the *EMA* to protect the environment and the citizens of Kamloops.

We thank you for your time and consideration of this matter and look forward to your response.

Sincerely,

L. MACK LAW CORPORATION

Per: 

Matt Boulton
Lawyer

Cc: Client
Honourable Premier John Horgan – premier@gov.bc.ca
Honourable Kevin Falcon – kevin.falcon.mla@leg.bc.ca
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