



MEMORANDUM

To: Lac Le Jeune Conservation Association **Date:** March 31, 2017
From: KGHM Ajax Mining Inc.
CC: B.C. Environmental Assessment Office, Canadian Environmental Assessment Agency
Subject: Response to Ajax Project Application/EIS Public Comment Period Submissions

To the members of the Lac Le Jeune Conservation Association, thank you for your comments provided on the Ajax Project Environmental Application/Environmental Impact Statement (Application/EIS). This memo provides a response to your concerns raised.

1. INTRODUCTION

As part of the environmental assessment review process for the Ajax Project (the Project), the BC Environmental Assessment Office and the Canadian Environmental Assessment Agency held a 75-day public comment period from January 26 to April 11, 2016. A letter dated April 11, 2016, signed by Corrine Schock, was received on behalf of the Lac Le Jeune Conservation Association (LLJCA).

KGHM Ajax Mining (KAM) appreciates the level of effort the LLJCA has put into review of the Project, and is pleased to provide the following response, which outlines KAM's understanding of LLJCA's key issues and summarizes how KAM is addressing these topics. Thank you for categorizing your comments in point form.

2. KEY ISSUES AND ACCESS TO INFORMATION

Consistent with the direction provided by the EAO, KAM reviewed all of the 3,845 public submissions received, analyzed and sorted them into 177 issues (see attached Document Map), and developed responses to these issues. These responses will be posted on the BC EAO ePIC website, where they will be publicly available for review. As LLJCA has also been engaged in earlier stages of the environmental assessment directly with KAM and also through the Ajax Community Advisory Group, KAM would like to take this opportunity to directly respond to your submission. KAM's direct response to your submission is consistent with commitments made in the Community Consultation Plan (Appendix 4.7-A of the Application/EIS) and guidance provided by the EAO.

As you described, the concerns in your letter are related to the following key issues:

- Pollution and Environmental Disasters
- Fish and Wildlife
- Health and Safety
- Recreation

In our review of the full range of public comments, KAM notes that LLJCA's interests are similar to issues raised by other commenters. KAM, as per direction from the EAO, has taken an integrated approach to the issues raised in the public comment period as well as comments received through the technical Working Group. We recommend that LLJCA members review KAM's public response submission to the EAO, and we provided an overview of where you will find our responses to topics you raised. Where your submission provided information or posed questions that are unique to the LLJCA submission, we identified those and included them in Section 3 of this letter.

In the public response memos, KAM has provided information relevant to the concerns you have included in your letter. Some relevant sections of those memos are listed below, and can be referred to in Section 5 Useful Links of this document:

- Public Response Report – Project Description, Environmental Assessment, Other Pillar: Section 2.1.3 Design/engineering of TSF and other components
- Public Response Report – Project Description, Environmental Assessment, Other Pillar: Section 9.2.4 Geotechnical/ground stability risks at the mine site
- Public Response Report – Environment Pillar: Section 4.3.3 Critique of Geochemical model/ calculations
- Public Response Report – Environment Pillar: Section 4.4.6 The Project will use/consume too much water
- Public Response Report – Environment Pillar: Section 4.5.1 Effects on Fish and Fish Habitat
- Public Response Report – Environment Pillar: Section 4.5.2 Impacts to Salmon
- Public Response Report – Environment Pillar: Section 4.5.3 Effects of blasting/vibration on fish
- Public Response Report – Environment Pillar: Section 4.5.4 Inks Lake, including fish stocking
- Public Response Report – Environment Pillar: Section 4.5.5 Critique of Fish and Fish Habitat Assessment
- Public Response Report – Social Pillar: Section 6.6.1 Effects on recreation near the mine site
- Public Response Report – Social Pillar: Section 6.6.2 Effects on Fishing Activities
- Public Response Report – Social Pillar: Section 6.6.3 Closure of Goose Lake Road
- Public Response Report – Social Pillar: Section 6.6.4 Environmental impacts will affect enjoyment of community and outdoor/natural areas

KAM has also provided a substantial set of supplementary material to EAO and the Agency in response to comments received by technical reviewers on behalf of the City of Kamloops, Stk'emlupsemc Te Secwepemc Nation (SSN), provincial and federal agencies, and other Technical Working Group members. Within those supplemental documents, there are a number of key updates to Project design, and new commitments to mitigation that KAM has made in response to the comments received. Some of the key areas include:

- Project Design:
 - Updated Peterson Creek Diversion System;
 - Updated Fish Habitat and Fishery Offsetting Plan;
- Mitigation Measures and Commitments:
 - Fugitive Dust Management Plan;
 - Peterson Creek streamflow;
 - Updated Wildlife Management and Monitoring Plan;
 - Grassland restoration and enhancement (>2,000 ha on Sugarloaf Ranch);
 - Ephemeral wetlands included in compensation calculation;
- Additional Analysis and Assessment:
 - Air quality modelling;
 - Groundwater, water balance, and water quality modelling;
 - Cumulative effects of water quality in Lower Peterson Creek;
 - Critical habitat for *Species at Risk Act* (SARA) listed and other wildlife species;

Recognizing that these supplemental submissions add to what is already a large volume of material; KAM has also developed a few tools to support technical reviewers, including a directory of supplemental memos, and a set of integrated summary memos, which summarize, from KAM's perspective, the key supplemental responses and their implications for the review process. While these tools were developed for technical reviewers, we anticipate that they may provide you with information that responds to some of your questions, and as such refer to section 5 Useful Links in this document.

Furthermore, KAM has provided the following supplemental submissions to EAO/CEAA as part of the technical Working Group that are relevant to the concerns you have included in your letter:

- 0324_KAM_IRB Comments on TSF Design: provides the findings of the Independent Review Board after evaluation of the Tailings Storage Facility design
- 1207_KAM_Fugitive Dust Mitigation Plan: includes additional detail regarding how KAM will manage fugitive dust from the Project site
- 0510_KAM_Applied Mitigation Descriptions: summarizes the proposed mitigations applied to the emission calculations for the Project

- 1214_KAM_BGC Surface Water Working Group Round 2 Responses; and 0629_KAM_Peterson Creek Streamflow Mitigation_BGC_014: discuss mitigation of predicted reduction in streamflow's for existing water license holders and fish habitat during low flow conditions
- 0706_KAM_Peterson Creek Diversion System Update: provides an update to Project design related to Peterson Creek Diversion System
- 0706_KAM_Fish Habitat and Fishery Offsetting Plan: provides a new Offsetting Plan that supersedes the previous Inks Lake offsetting plan and includes the expansion of the west arm of Jacko Lake, upgrades to Jacko Creek (inlet stream) and restoration of Peterson Creek
- 0706_KAM_Instream Works: provides response to DFO concerns regarding blasting and pile driving effects to fish
- 0708_KAM_Critical Habitat: includes quantification of the amount of draft critical habitat lost for multiple species including amphibians
- 0720_KAM_Mitigation Hierarchy and Offsetting: includes additional mitigation measures for wildlife including amphibians

3. RESPONSE

Your letter categorizes concerns of the LLJCA into Pollution and Environmental Disasters, Fish, Amphibians Health and Safety, and Recreation and includes a number of statements and questions. We believe the majority of these concerns are addressed in the responses to public comments and the technical supplementary information listed in section 2 above. We also noted the comments and questions that were unique to your submission and we would like to provide supplemental or clarifying information regarding the Application.

3.1 Pollution and Environmental Disasters

LLJCA Statement/Opinion: *Everything in the environmental report is based on the best possible outcome from steps Ajax proposes to take to reduce problems. They should be reporting what the worst possible results from mine operation might be.*

KAM Response: The Application/EIS includes several detailed effects assessments for Construction, Operation, Closure and Post-Closure phases by which significance of environmental impacts are evaluated. The effects assessment conducted by technical experts such as registered Professional Biologists concluded that potential effects of the Project would be not significant, as described in the Application/EIS (Chapters 6, 7, 8, 9, and 10). KAM and its consultants completed the assessment of potential effects on Valued Components using proven, reproducible and defensible methods that meet the requirements of the Application Information Requirements/EIS Guidelines approved by the BC Environmental Assessment Office and the Canadian Environmental Assessment Agency.

Many of these assessments include conservative assumptions (e.g. air and water quality predictions and the human health and ecological risk assessment include a number of unlikely assumptions resulting in over-prediction of potential impacts so that the potential 'worst-case' scenario has been

evaluated). In fact the purpose behind the air quality assessment was to predict the effect of the highest Project emissions during worst-case meteorological conditions.

Only effects on a given Valued Component related to planned project components and activities are assessed in the detailed effects assessment sections of the Application/EIS; effects related to unplanned events or activities (e.g., spills, traffic accidents etc.) are discussed in Section 17.6 - Accidents and Malfunctions which represent what is referred to as “upset conditions” which can be considered to be worst case scenarios. Management plans described in Section 11 of the application take into consideration the mitigations related to planned activities and those related to preventing unplanned events.

LLJCA Question: *There has been an increase in litter on Lac Le Jeune Road, much of it a result of commuter traffic from Kamloops to the Highland Valley Copper mine (as reported by RCMP at our Association’s Annual General Meeting). A further increase in traffic will no doubt result in more litter. How will this issue be addressed?*

KAM Response: Appendix 8.1-A provides the Ajax Mine Traffic Impact Assessment which describes the two Project Access Plans. The Project requires a temporary access plan to allow for construction of a new highway interchange prior the use of a permanent access plan for the life of the Project. The permanent Project access plan requires construction of a new interchange on Highway 5 in the vicinity of the existing Inks Lake Interchange. Prior to completion of the new interchange, Project-related traffic will be use temporary access arrangements via the Copperhead Interchange and Lac Le Jeune Road via the Walloper Lake exit off Highway 5 as per the Temporary Access Plan. KAM will upgrade the existing Lac Le Jeune Road and Ajax Mine Access Road (a.k.a. the Ajax Haul Road) intersection to ensure safe, functional access to the Project site for existing operations. This work will also benefit access to Jacko Lake by improving sight distance and facilitating left turn movements as well as to Inks Lake through an upgraded crossing.

While the temporary access plan is in effect, all heavy vehicles will be required to access and egress the Project via Lac Le Jeune Road and the Walloper Way Interchange on the Coquihalla Highway. In the event that increased litter is observed during the 6 months usage of the temporary access plan, KAM will work with the City, TNRD and LLJCA to remove it from the roadside regularly. After implementation of the Permanent Access Plan that will allow for Project traffic to access/egress the site directly from the Coquihalla via a new interchange, Project traffic will not use Lac Le Jeune Road.

LLJCA Request/Concern: *We request clarification of what is meant by the term “fault”, particularly in relation to where it is used in reference to the Goose Lake and Edith Lake zones. We have concerns with respect to various faults described in the application. The use of the term “faults” were thought to indicate the potential for instability in the area to be used for tailings ponding. In the section on Geology, faults refer to interfaces between non or low ore bearing rock basins and zones that are suitable for ore extraction. These faults are ancient and stable (non --active) interfaces, and clearly they would not constitute a threat with respect to earthquakes.*

KAM Response: In geology a fault, or fault line, is a planar rock fracture which shows evidence of relative movement. A fault is a break in the rocks that make up the Earth’s crust, along which rocks

on either side have moved past each other. A number of faults in the Project area are described in detail in Section 3.3 – Geology of the Application/EIS to provide geologic context to mineralization and structure of the ore body. In addition, these faults were described for geotechnical characterization used for design of the Open Pit (Appendix 3-C Ajax Project Open Pit Geotechnical Slope Design Parameters) and the Tailings Storage Facility and Mine Rock Storage Facilities (Supplementary Report 0324_KAM_Geotechnical Report -TSF and MRSF).

You are correct that the faults in the Project area are not active. Yet the Pacific Coast is the most earthquake-prone region of Canada due to the presence of active faults, particularly dominated by the northwestward motion of the Pacific Plate relative to the North American Plate. However, the Project is distant from these active faults (more than 200 km) and therefore earthquake frequency and size decrease moving inland from the coast. As a result, seismic activity is relatively low in the region. The risk of seismic activity to the Project is described in Section 17.5.6.6 of the Application/EIS.

In addition a fault mapped by the BC Geological Survey underlies the proposed location of the Tailings Storage Facility, South and West Mine Rock Storage Facilities, Jacko Lake and Edith Lake. The fault is referred to as the Edith Lake Fault Zone. KAM contracted a geotechnical engineering consultant to conduct a site investigation and characterization program to determine the presence of the fault and its properties to provide input to the geotechnical and hydrogeological (groundwater) assessments for the Project. Appendix 6.2-B provides the Edith Lake Fault Zone Investigation and Characterization Report.

LLJCA Statement/Opinion: *“Winter conditions” were not evaluated. There would be a build of air borne particulates on the ice, snow/ice cover, which would lead to a pulse of contamination entering the water upon ice off. This would be unlikely to change the composition of the contaminants but would result in a spike in concentration, which could potentially increase the biological impact significantly.*

KAM Response: Winter conditions were part of the Surface Water Quality Effects Assessment (Section 6.4 of the Application/EIS). Within the water quality prediction model, dust fall predicted to be deposited in winter months (December through April) is accumulated within the model, based on the assumption that it is held up in ice and snowpack, and is made available at the nearest surface water quality model node in May in association with the average timing of spring freshet and ice break-up on Jacko Lake. As a result, a spike in some parameter concentrations occurs in the water quality predictions at some locations every May. These water quality predictions were used to determine the effects on aquatic life.

LLJCA Question: *Lac Le Jeune is a direct source of drinking water for residents who are not using wells. During the winter months we take measures to ensure that the surface of the frozen lake remain free from contaminants, such as salt from road maintenance, and pet dog feces. What will be the accumulation of particles on the lake surface during the winter months? How will that impact the quality of our drinking water?*

KAM Response: as presented in Appendix 6.1-A Climatology Report and 6.4-A 2012 Hydrometeorology Report, the predominant winter wind direction at the Project site is south-southeasterly (from the southeast blowing to the northwest), minimal dust fall from the Project is expected to occur to the south of the Project where Lac Le Jeune is located. As such, water quality

changes at Lac Le Jeune as a result of dust fall accumulation are very unlikely. Please refer to Section 10.1.4 of the Application/EIS for further discussion about dust fall deposition. Dust fall monitoring will occur throughout the life of the Project, and dust management measures will be adjusted if monitoring results indicate predictions were incorrect. The spatial scope of the monitoring program will include Jacko Lake, Peterson Creek upstream and downstream of Jacko Lake, Edith Lake, and Humphrey Creek, upstream and downstream of the Project. Although KAM does not currently plan to monitor water quality at Lac Le Jeune based on water quality and air quality modeling predictions, if monitoring results differ from predictions and indicate potential for dust fall deposition and water quality impacts at Lac Le Jeune, KAM will adaptively adjust monitoring and mitigation plans.

LLJCA Statement/opinion: *Regarding leachate of toxic waste from rock and ore extraction, we have read over the parts of the application that deals with Jacko Lake, and note that there have been studies on the likelihood of leaching of toxic materials such as lead and arsenic from the rock extracted from the pit zone and stored as waste rock. The rock itself and the surrounding area on which it would be stored tests as basic in pH, which means that there is a low potential for leaching of acid soluble material. This means that though the rock and minerals within the rock may contain amounts of these materials they are not likely to leach into ground water or aquifers. These findings at least coincide with our knowledge of the alkaline nature of the waters and soils of the area (Jacko Lake has an alkaline pH as do the soils of the surrounding area). However, this does not mean that there are not other chemical or physical mechanisms which may contribute to elevated levels of toxic materials in Jacko Lake and Peterson Creek and associated aquifers, but they would probably be slow developing, long term contributors. The studies were reportedly based on laboratory tests on rock and ore samples and at least in part on rock residues that had been exposed during previous open pit operations immediately east of the proposed site.*

KAM Response: Determining the leaching potential of mine rock was a primary objective of the Ajax geochemical characterization program. We and our geochemical consultants have considered leaching potential for acidic and neutral materials. In addition to the Geochemical Characterization Report (Section Appendix 3-A of the Application/EIS), please reference Public Response Report – Environment Pillar: Section 4.3.3 Critique of Geochemical model/calculations and the multiple supplementary memos listed above related to geochemical analyses completed for the Project.

The terminology ‘source term prediction’ is defined as the prediction of water chemistry which will originate from a mining facility to surface and/or groundwater if not collected. The geochemical ‘source terms’ predicted for the Project take into account the pH conditions that exist at the site as well as other processes that may cause metal leaching from mined rock. These source terms were used as inputs to the water quality model to determine predicted water quality concentrations for numerous facilities and the receiving environment. Drainage chemistry from large scale facilities was used to develop and validate the predicted geochemical source terms. The use of full-scale mine data is provided in Appendix 3-B of the Application/EIS. The geochemical source terms were validated with drainage chemistry from the field bins at the Ajax site, existing waste rock dumps at the Ajax site, and other copper porphyry mines in British Columbia.

LLJCA Question: *Peterson Creek is an open water course through a residential part of the city as well as in a park. How will the mine impact Peterson Creek?*

KAM Response: The protection of Peterson Creek is a high priority to KAM. The Project has the potential to affect the creek through physical changes via diversion, water quantity (reduced flow and changes to hydrograph) and water quality. Regarding changes to the creek channel, KAM has proposed diverting the creek for approximately 3 km from its current alignment that would be impacted by Project infrastructure and the Open Pit. The Peterson Creek Diversion System design has been updated to account for concerns raised during the Environmental Assessment Process. The revised design seeks to avoid and minimize effects to Peterson Creek via diversion. It is important to remember that a large section of the proposed diversion reach was realigned by the previous mine operator and currently this reach offers poor quality fish habitat. Please refer to supplementary memo 0706_KAM_Peterson Creek Diversion System Update for details of the revised design.

Regarding potential water quantity impacts, there will be a reduction of flow in Peterson Creek as a result of the Project. As outlined in memorandum 1214 KAM BGC Surface Water Working Group Round 2 Responses, KAM has proposed a strategy during operation of the mine to fully offset flow reductions by augmenting flow in Peterson Creek with water from Kamloops Lake.

Regarding potential water quality impacts, the Application/EIS looked extensively at the predicted quality of surface and groundwater and while the Project might cause some changes, water quality is predicted to remain within acceptable levels¹ and expected to remain safe for people and the environment. Please refer to Public Response Report –Section 4.4.3 Downstream water quality (lower Peterson Creek, Thompson River).

LLJCA Question: *How will drawing large quantities of water impact the level of the Thompson River? If it drops much lower this is going to affect the Adams River run of salmon.*

KAM Response: The Ajax Project will not impact salmon. KAM considers the Aboriginal, recreational and commercial salmon fisheries on the Thompson River system to be important resources for the people of British Columbia. As part of the Application/EIS, KAM considered potential effects of the Project on salmon in the Thompson River including Kamloops Lake.

Researchers evaluated stream, river and lake flows at their lowest levels, because it would be in these times that water withdrawal would be most noticeable. The research found that the Ajax Project's effect on flows is negligible (less than 0.35 per cent), and reductions in water flow in the Thompson River system that could cause indirect habitat losses or temperature changes will not be measurable. Please refer to Public Response Report – Environment Pillar: Section 4.4.6 The Project will use/consume too much water and Public Response Report – Environment Pillar: Section 4.5.2

¹ The term, 'Acceptable levels' pertains to parameter specific water concentrations that are predicted to be under those set by the BC Water Quality Guidelines, Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines, Guidelines for Canadian Drinking Water Quality, and/or science based environmental benchmarks that will be considered by the Ministry of Environment where applicable.

Impacts to Salmon for additional information regarding the impacts of water withdrawal on the Thompson River and salmon.

LLJCA Question: *Where will the tailings pond drain? A spill will surely flow out Peterson Creek and into the river.*

KAM Response: The tailings storage facility (TSF) will store tailings solids, process water, and contact runoff water from the Project without discharge to the environment during the operations phase of the Project. A description of the TSF design is provided in Section 3.8 and details in Appendix 3-D – Tailings Storage Facility Design Report. Runoff and seepage control for the TSF is described in Section 3.8.5 of the Application/EIS. At mine closure, water from the TSF will be transferred to the Open Pit to facilitate dry closure and reclamation of the TSF. Water management ponds will be reconfigured to evaporation facilities post closure. The entire tailings surface will be covered and re-contoured with an earth fill cover to minimize infiltration of surface water. Runoff from the covered TSF will discharge into an engineered channel at the south end of the TSF constructed during the closure phase which will discharge to Humphrey Creek.

Regarding the risk of “spill” via TSF failure, KAM understands the consequences of potential tailings dam breaches on the environment and population, and is committed to ensuring TSF design for the Project meets best-practice, including implementing the recommendations from the Mt. Polley panel report. The environmental implications of potential TSF failure are evaluated in Section 17.6 of the Application/EIS and supporting appendices. A Dam Breach and Inundation Evaluation was conducted (Appendix 17.6-B), and has informed the design of the Tailings Storage Facility (Appendix 3-D). The Dam Breach and Inundation Evaluation assessed a total of 19 different potential failure mode (PFM) scenarios. Of these, four scenarios were considered ‘credible’, and were carried through breach and inundation evaluation. PFM scenarios that would result of a catastrophic dam breach to the City of Kamloops were considered as part of the 19 PFMs, but the assessment found them to be ‘non-credible’ scenarios. Non-credible was defined to be not physically possible, or so remote a possibility as to be non-credible, or not reasonable to postulate. The Dam Breach and Inundation Evaluation concluded that the potential for a downstream water release to be very remote and a downstream tailings release to be limited to 300 m beyond the toe of the south embankment due to site topography. Please refer to Appendix 17.6-B of the Application/EIS for detail.

Recognizing the importance of this work, KAM and the engineering team specifically strengthened design of the TSF above and beyond standard requirements to a level where the team felt they could stand behind this assessment.

In the Application/EIS, KAM made the following commitment:

KAM will continue to advance design of the TSF with the principles of minimizing the amount of water stored in the TSF, and optimizing MRSF buttressing to increase the factor of safety. Subsequent phases of design, construction and operations will adhere to best practices, including the establishment of an Independent Engineering Review Board.

KAM has followed through on this commitment and has established the Independent Engineering Review Board. As supplemental information to support the Application/EIS review process, KAM has submitted a letter from the Independent Engineering Review Board that summarizes their work to date (see supplementary memorandum 0324_KAM_IRB Comments on TSF Design).

The SSN have also retained an independent expert to conduct a review of the TSF design. The conclusions of this review can be found in Ajax Mine Project EA: Review of Tailings Storage Facility and Other Aspects and Ajax Mine Project EA: Review of Tailings Storage Facility and Other Aspects (Addendum 1, re: Thickened Tailings Density)².

Additional summary information regarding the design and engineering of the TSF may be found in the Public Comments Report Section 2.1.3.

LLJCA Questions: *Was data from both the Aberdeen and Federal Building Air Quality station used? If so, was the data averaged between the two stations? Did the air quality station in Aberdeen registered the occurrence of cloud clover at that elevation? Did the model include the regular occurrence of cloud bank at the proposed mine elevation?*

KAM Response: The air quality model developed for the Project is more complex than what has typically been developed for other mining projects in the province. KAM has met with the federal-provincial technical working group on multiple occasions to discuss the selected modelling approach, to walk through example calculations, and to discuss the findings of the air quality studies. The air quality assessment was done with a thorough understanding of local meteorology, including a predominant wind direction that frequently places the City downwind of the Project and the presence of inversions in the area at times. The data used in the air quality modelling were comprehensive and approved by BC MOE as appropriate for performing the assessment. Please refer to Public Response Report – Health Pillar Section 7.4.2 (Critique of air quality modelling/calculations) for additional detail on modelling.

Data from the Kamloops Federal Building was considered in the assessment, but as there was an insufficient amount of data available from the Aberdeen station when the assessment modelling work was occurring, this data was not included in the assessment. Although the data from this monitoring station was not available in time for use in the air quality modelling exercises for the assessment, through the Technical Working Group review process, the data has been used for model validation and result verification. In general, the measured and predicted data show good agreement which demonstrates the data used for modelling was appropriate for representation of the Project.

Cloud cover is not something that is measured at a typical air quality monitoring station. It is normally only measured at Environment Canada airport weather stations, as it is important information for the aviation community. Air quality monitoring stations usually measure particulate

² Ajax Mine Project Environmental Application: Review of Tailings Storage Facility and Other Aspects. Letters from Peter Lighthall (P. Eng.) to Stk'emplupsemc Te Secwepemc Nation. Letter dated April 5, 2016. Addendum 1 dated April 26, 2016.

and gaseous pollutant concentrations, meteorological data to determine where the measured pollutants are coming from (e.g. wind speed and direction), temperature, relative humidity, and precipitation and barometric pressure.

Refer to the Public Response Report – Health Pillar Section 7.4.1 AQ data collection/monitoring stations and available baseline data for additional information and reference to supporting studies in the Application/EIS and supplementary information.

LLJCA Question: *Was North--east winds registered and accounted for at the Aberdeen station?*

KAM Response: Northeast winds were accounted for as part of the Air Quality effects assessment, but measured at the AJAXMET Station. At the time of the assessment modelling, there was not sufficient data from the Aberdeen station to include in the modelling, but exercises to verify predictions against measured data from this station have been completed and generally show good agreement. Please see the Hydrometeorology Report (Appendix 6.4-A of the Application/EIS) for details on baseline wind conditions that were used as input to the Air Quality model.

LLJCA Question: *Were the following gases registered and included in the study? Ground--level Ozone (O₃), Nitrogen Dioxide (NO₂) and Sulphur Dioxide (SO₂)?*

KAM Response: Yes, please see the Air Quality Technical Data Report (Appendix 10-1-A of the Application/EIS) and Public Response Report – Health Pillar Section 7.5.4 Health effects of air quality in valley/lower elevations for additional detail.

3.2 Fish

LLJCA Question: *Low water flow from April--September in Peterson Creek and Jacko will not meet the needs of fish. There seems to be little in the way of mitigation on this item. Is there a plan if we reach drought conditions?*

KAM Response: While the changes from the Project are predicted slightly reduce water flow in Peterson Creek, these reductions are not predicted to be measureable and water depths and velocities will be suitable for small bodied rainbow trout in lower Peterson Creek through the life of the Project. KAM recognizes the concern for a potential reduction in streamflow in Peterson Creek, and the importance of this water source to stakeholders in the area who rely on this water for agricultural purposes as well as impacts to fish that utilize the creek downstream of the Project.

KAM is committed to mitigating impacts associated with reduced streamflow in Peterson Creek, and through the Application/EIS process, has developed several options for discussion with the technical working group and water license holders. These options were submitted to the technical working group under the document title 0629_KAM_Peterson Creek Streamflow Mitigation_BGC_014, and include eight potential mitigation options. Individually, or in combination, these options could be implemented to minimize or completely offset streamflow reduction effects, and could also potentially benefit fish habitat in Lower Peterson Creek.

KAM is committed to implementing the necessary mitigation; however, the decision about which mitigation option to implement is not solely KAM's to make. Therefore, KAM has outlined these options as an initial framework for discussion with federal and provincial regulators and stakeholders, and has engaged in early discussions with water license holders.

In regards to drought planning, the B.C. Government has collaborated with Agri-Food Canada to complete the British Columbia Drought Response Plan. The plan focuses on the actions taken before, during and immediately after a drought to reduce the impacts of drought. The plan is coordinated by Ministry of Forests, Lands and Natural Resource Operations (FLNRO). The plan was updated in July 2016 and can be found at <http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/drought-info/drought-response-plan-update-june-2015.pdf>. KAM will work with FLNRO in the event of a drought to the same extent that all water users are required under the *Water Sustainability Act*.

3.3 Amphibians

LLJCA Questions/Comments: *How many western toads will be destroyed by the creation of the entire mine site?*

- *How will you manage the migration of any remaining western toads on a 24/7 basis?*
- *How many western toads will survive after the 1st year of the mine site having been cleared?*
- *We are very concerned about the effect this project is going to have on the amphibians and the western toad population in the area.*
- *There are two Species at Risk blue-listed species of special concern. Even after mitigation measures there will complete habitat and breeding habitat loss, direct mortality and chemical hazards. This is unavoidable and will be permanent and/or have long term effects. This contravenes the BC Wildlife Act and the Species at Risk Act (SARA).*
- *There is a large population of the western toads at the mine site. The proposed mitigation is insufficient.*
- *There is a large Western Toad population not identified in the application. They migrate in large numbers across the Lac Le Jeune Road in the area around Michell Ranch and Inks Lake underpass (approximate coordinates 50.613090 -- 120.445136 to 50.618128 -- 120.442969)*
- *Jacko Lake is a breeding site for the Western Toad and has a large population. http://ca.geoview.info/little_toads_at_jacko_lake_bc,59944143p*

KAM Response: it is not possible to predict exactly how many western toads may be impacted during construction of the Project. However as stated in Section 6.12 of the Application/EIS, based on proportionality to available habitat, direct mortality resulting from Project site preparation and clearing was estimated at 26 to 29% of the smaller local study area (LSA) population and 5% of the larger regional study area (RSA) population. Assuming translocation is effective at preventing some mortality; the magnitude of this effect will be reduced to minor. Direct mortality is anticipated to have a not significant (minor) effect on amphibians. While a number of individuals are anticipated to be lost as a result of Construction activities, the significance can be reduced by Trans locating

individuals from disturbance areas within the Project site to areas of suitable breeding habitat adjacent to the Project site. In the event translocation is deemed unsuccessful through monitoring, KAM will implement adaptive measures such as installation of culverts to facilitate dispersal of recently metamorphosed amphibians or migrating toads. KAM will also develop an action plan to manage and mitigate effects of mass dispersal/migration events on Project roads, including procedures in event road closing or if detouring roads is not practical (i.e. fencing will be installed to funnel/direct amphibians to specific locations). Workers and volunteers could then transport the toads ('bucket brigade') from these locations to areas of suitable habitat.

Despite these measures, some individuals will be lost. Although the population will recover to some degree, the population supported in the Local Study Area will be reduced below baseline levels for the life of the Project due to habitat loss. Since suitable breeding habitat will be maintained in the Local Study Area and in the Regional Study Area, wetlands recreated in the Project Infrastructure Footprint during reclamation can be recolonized from these source populations. Also, wetland compensation efforts will provide new or enhanced habitat for amphibians. Please refer to Appendix 11.27-A of the Application for the Wetland Compensation Plan and 0720_KAM_Mitigation Hierarchy and Offsetting: includes additional mitigation measures for wildlife.

Regarding the management of western toad migration, KAM has committed to a number of mitigation measures that include:

- yielding to wildlife observed along Project roads and communicating these observations;
- minimizing traffic along roads by providing a vehicle parking lot for staff, and mine personnel will be shuttled from this site to the mine;
- implementing speed limits and wildlife signage to alert drivers of potential collisions;
- developing an action plan to manage and mitigate effects of mass dispersal events on Project roads; if closing or detouring roads is not practical, then fencing will be installed to funnel/direct the frogs and toads to specific locations. Workers and volunteers could then transport the toads ('bucket brigade') from these locations to areas of suitable habitat outside of the infrastructure disturbance area.
- installing drift fences and culverts in locations where road mortality is excessive

Please refer to Section 6.12.4.3 for a comprehensive list of proposed mitigation measures for the protection of amphibians.

We respectfully disagree with your comment that there is a large western toad population that is not identified in the Application/EIS. The population area in question located in the vicinity of Lac Le Jeune Road and the Inks Lake underpass is within the Local Study Area defined for the Ajax Project. Appendix 8.6-A Wildlife and Vegetation Baseline Report describes the amphibian surveys completed in support of the Application/EIS, which includes the entire Local Study Area and used methods such as road transect surveys, larval searches, and auditory surveys. This data, collected as part of baseline studies, were used in the effects assessment included in the Application/EIS. In addition, we are aware of the seasonal western toad migration events the area you describe. In fact KAM has a

protocol in place that includes temporary road closures and traffic re-direction during toad migration. Traffic is re-directed from the existing Ajax Mine Access Road (a.k.a. the haul road) until the toad migration ceases. During the migration bulletins are provided to Project staff and contractors so that they may plan accordingly for detours. Toad salvage has also been conducted to remove toads from roads to prevent mortality.

As mentioned above and in the Application/EIS, we are committed to the protection of amphibians and will implement mitigation measures during subsequent phases of the Project if approved to proceed. The presence of this population does not alter the commitments made to date nor detailed monitoring and management plans and procedures to follow during permitting and construction/operation of the Project.

We appreciate your concerns related to the Great Basin spadefoots and western toads, both of which are blue listed species. However we disagree that the Project will result in complete breeding habitat loss and that KAM will be in contravention of the BC *Wildlife Act* and the *Species at Risk Act*. Both Species are 'Blue listed' in British Columbia; however the Great Basin spadefoot is SARA Schedule 1 - Threatened, while the Western Toad is SARA Schedule 1 - Special Concern. KAM understands that a permit will be required to authorize activities prohibited in the BC *Wildlife Act*; that act states "Unless authorized by the province, it is an offense to hunt, trap, wound, or kill wildlife at a time not within the open season (Section 26(1)c)". We understand that if the Project proceeds and a permit are issued, amphibian salvage and other mitigation measures will be required to prevent mortality to the degree possible. Direct mortality of amphibians will be mitigated by following guidance provided in Environment and Climate Change Standard Guidance for Environmental Assessments: Western toad (*Anaxyrus boreas*) (<http://bit.ly/2fp049e>), avoiding the amphibian breeding and reproductive season (April to September) for clearing vegetation near waterbodies and draining wetlands (see supplemental memo 0720_KAM_Mitigation Hierarchy and Offsetting), and salvaging amphibians if necessary.

We have also proposed a Wetland Compensation Plan (Appendix 11.27-A) to mitigate the permanent, long term effects to these species' habitat. Breeding habitat loss for amphibians will be compensated by offsetting for wetlands that are lost. For wetlands where species listed under SARA have been observed, these wetlands will be compensated at a 2:1 ratio (see 0708_KAM_Critical Habitat for details of additional preconstruction surveys for great basin spadefoot, see 0707_KAM_Ephemeral Wetlands for revised estimate of wetland loss including ephemeral wetlands, see 0725_KAM_Federal Policy on Wetlands for details on wetland compensation ratios).

With respect to the *Species at Risk Act*, this legislation generally applies to federal lands. However, there is a recent proposed policy for Critical Habitat Protection on Non-federal Lands (http://registrelep-sararegistry.gc.ca/virtual_sara/files/policies/CH%5FProtection%5FNFL%5FEN%2Epdf), which states: "Subsection 61(1) of SARA provides that no person shall destroy any part of the critical habitat of a listed endangered or threatened terrestrial species at risk that is on non-federal lands". Critical Habitat will be defined in the Federal Recovery Strategy, but the Recovery Strategy for Great Basin Spadefoot is not yet public (due 2016-2017). At the time of submitting the Application/EIS there was no publicly available information regarding critical habitat in the Project Local Study Area (LSA) or Regional Study Area (RSA). However since submission of the Application/EIS, KAM is working with the Canadian Wildlife

Service to gain additional information relevant to this species. Section 79(2) of SARA provides that the adverse effects of a project on a SARA-listed wildlife species and its critical habitat must be identified and measures taken to avoid or reduce the effects on that species and its critical habitat, and to monitor those effects (Government of Canada 2016). Species listed on Schedule 1 as Endangered, Threatened as well as Special Concern must be taken into account in the environmental assessment process (Government of Canada 2014). In response to this information, KAM submitted a supplemental memo entitled 0708_Critical Habitat that clarifies the great basin spadefoot habitat that would be impacted by the Project.

Regarding chemical hazards and changes to water quality used by amphibians in the Project area, significant effects of chemical hazards are not anticipated on amphibians within the Local Study Area. While increased levels of several elements will occur at various locations, mitigation measures to reduce interactions at any source of contact water within any infrastructure footprints will be in place. Exposure to chemical hazards will be mitigated by creating diversion pools as alternative breeding locations near the TSF and MRSFs (see 0720_KAM_Mitigation Hierarchy and Offsetting). It is predicted that Humphrey Creek and Peterson Creek will have increased levels of some elements that exceed aquatic water quality guidelines, but these water bodies are not conducive to breeding habitat (i.e., amphibians prefer still water, not flowing creeks). The potential does exist, however, for an interaction to occur. We are confident that the management of contact water and spill prevention measures we have committed to will substantially reduce risk to amphibians. However we have also committed to monitoring effects on amphibians, both those predicted and not predicted, and will implement additional mitigation measures to protect amphibians if necessary.

3.4 Health and Safety

LLJCA Question: *The increase in Lac Le Jeune Road traffic is a concern. Many Lac Le Jeune residents commute to Kamloops and use that route because there are infrequent vehicle accidents and generally winter road conditions are superior to Highway 5.*

KAM Response: The Project requires a temporary access plan to allow for road construction works prior to implementation of a permanent access plan to be used for the life of the Project. The permanent Project access plan requires construction of a new interchange on Highway 5 in the vicinity of the existing Inks Lake Interchange.

Prior to completion of the new interchange, Project-related traffic will be contractually required to use temporary access arrangements via the Copperhead Interchange and Lac Le Jeune Road as per the Temporary Access Plan shown in the figure below (Figure 1). Figure 2 shows the Permanent Access Plan indicating the route after road upgrades are complete. These works will enable Project traffic to completely bypass Lac Le Jeune Road.

At the start of Project construction, KAM will upgrade the Lac Le Jeune Road and Ajax Mine Access Road intersection to ensure safe, functional access to the Project site. This work will also improve sight distance and facilitate turn movements to Jacko Lake and Inks Lake through an upgraded crossing. While the temporary access plan is in effect, all heavy vehicles will be required to access and egress the Project via Lac Le Jeune Road and the Walloper Way Interchange. It is estimated that

the temporary access plan and associated increase of traffic on Lac Le Jeune Road will be in effect for approximately 6 months.

It is important to consider that while there will be increase traffic on Lac Le Jeune Road temporarily, KAM has made commitments including the bussing of construction workers from dedicated park and ride facilities in Kamloops to reduce the number of vehicle traffic. In addition, KAM has committed to providing funding to the City of Kamloops to assist with impacts to the road. The section of Lac Le Jeune Road between the Project site and Walloper Lake exit is currently below desirable Level of Service design standards. The current condition of the road is also poor with approximately \$3 million in deferred maintenance.

Although Project traffic will not significantly impact the remaining useful life of the pavement or future rehabilitation cost, it is predicted that short term use of the road by the Project construction traffic will increase reactive maintenance during the period of use. Therefore, some road improvements or upgrades are warranted in proportion to the temporary safety and traffic loading impacts of the trips created by the Project traffic.

Based on the current condition of the pavement and traffic volumes that are expected to travel on Lac Le Jeune Road during construction phase, KAM has initiated discussions with the City of Kamloops with regards to providing monetary assistance for road maintenance. This funding could be used for reactive maintenance during the use of the road under the Temporary Access Plan. Given the starting condition of the road, allocating some of the anticipated maintenance costs towards early activities such as crack sealing, and, ensuring free and unobstructed side drains and culverts, could significantly reduce the risk of surface failures. Please refer to the Traffic Impact Assessment (Appendix 8.1-A of the Application/EIS) for further details on expected traffic volume on Lac Le Jeune Road and proposed mitigation measures.

LLJCA Question: *An anticipated concern is the closure of “Lac le Jeune highway” which passes through the proposed Ajax site. We seek guarantees that Lac Le Jeune road will remain open as a means of access to Lac Le Jeune. If both Goose Lake Road and Lac Le Jeune Road are closed, this leaves only one access to Kamloops and represents potentially a problem with egress in the event of fire in our area. Clarification of what is to be done with respect to this is essential.*

KAM Response: The Project does not require and KAM does not propose the closure of Lac Le Jeune Road. The Traffic Impact Assessment (Appendix 8.1-A of the Application/EIS) describes the ways in which KAM commits to reducing impacts on Lac Le Jeune Road through all phases of the Project.

Figure 1. Temporary Access Plan for Initial Construction Phase

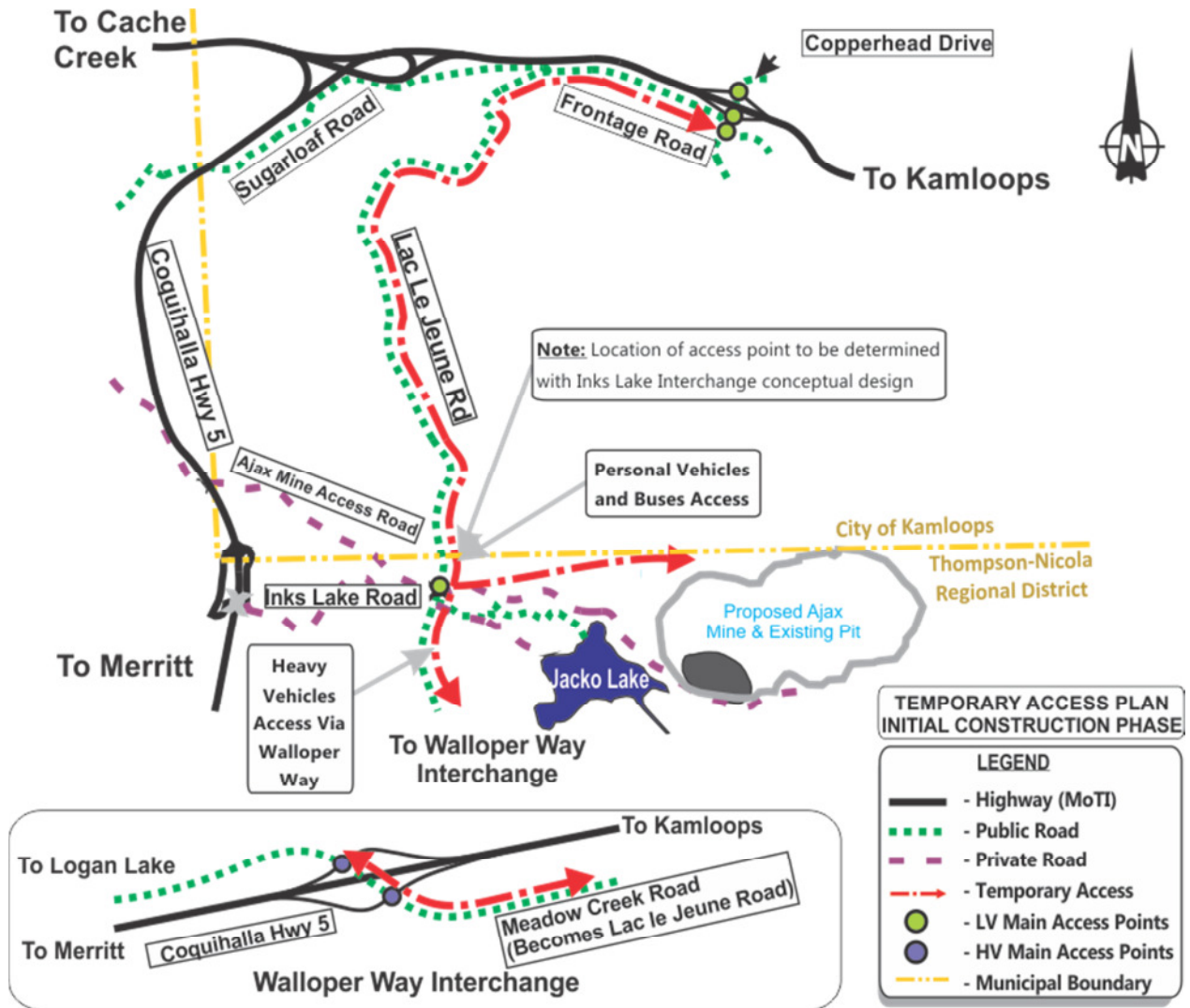
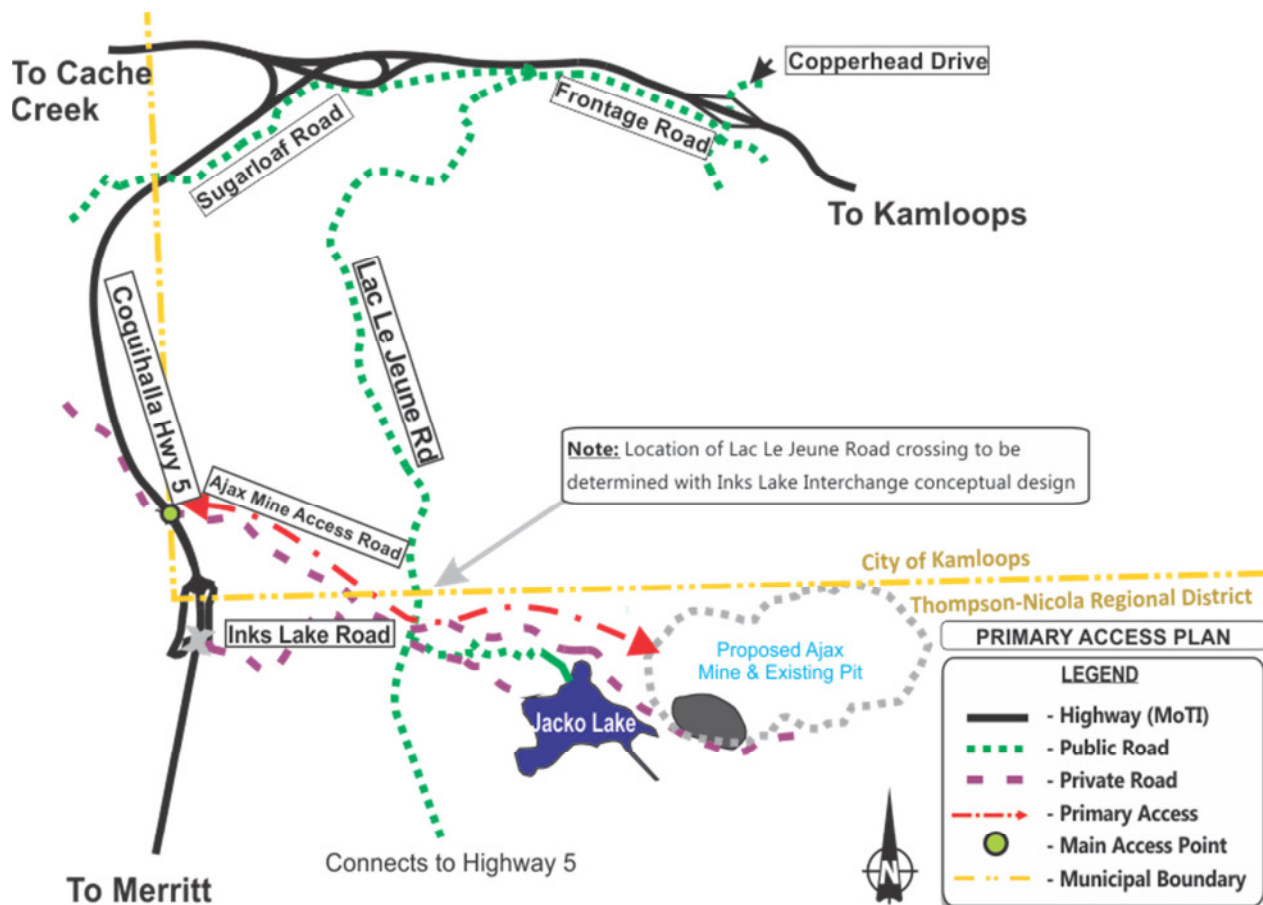


Figure 2. Permanent Access Plan (post Inks Lake Interchange construction connecting the Ajax Mine Access Road to the Coquihalla Highway)



3.5 Recreation

LLJCA Question: *We have concerns for the continued viability of the Jacko Lake fishery. Apart from the potential for the loss of this fishery due to chemical, particulate, and sonic causes, we wonder if KGHM Ajax would even permit access to the lake given its proximity to the active mining site. And, even if access were permitted, would intermittent closures during periods of blasting effectively eliminate the lake as the prime, world class fishery it in now?*

KAM Response: We understand concerns related to potential impacts to the recreational fishery on Jacko Lake. The Project will result in unavoidable impacts to the lake by removing approximately 2 ha of the northeast arm (mine bay). In addition there will be changes to fishing experience related to Project noise; visual impacts of Project facilities from the lake and increased traffic on the existing mine access road near the lake. . Section 6.7 (Fish Populations and Fish Habitat) of the Application/EIS provided a thorough assessment of the potential effects on fish in Jacko Lake and elsewhere. Specific concerns related to fish and fish habitat are also addressed in Section 4.5 of the Public Response Report, whereas the discussion in Section 6.6.2 of the Public Response Report focuses more on how fishing activities may change as a result of the Project. Response 6.6.1 deals with other concerns related to recreation near Jacko Lake.

KAM has taken efforts, as required by the federal *Fisheries Act*, to develop a Fish and Fishery Offsetting Plan to counterbalance these impacts. Details of the plan can be found in supplementary memo 0706_KAM_Revised Conceptual Fish Habitat and Fishery Offsetting Plan. Aspects of this plan include support for the recreational fishery at Jacko Lake, including improvements to infrastructure and commitments regarding blast restrictions.

Regarding access restrictions to Jacko Lake, blast designs for Ajax have been developed by a blasting expert to protect the health and safety of the public, mine employees and aquatic life in Jacko Lake. The blast designs include procedures for blast notifications, warning signage, blast clearance zones, communications, and post-blast inspections. The effects of blasting near fish-bearing waters and mitigation measures are described in Section 6.7.4.2 of the Application/EIS starting on page 6-47. Detailed information on blasting procedures, including dust control, is contained in Appendix D of Appendix 10.5-A.

Temporary access restrictions will be imposed at blasting times to protect public safety. A minimum 500-metre safety radius will be established from blast zones. No one will be allowed in these zones immediately prior to and during blasting. Once blasting has been safely completed for the day, access will be restored within the safety radius. During a part of the Project operation phase these temporary access restrictions will be imposed for a portion of Jacko Lake within 500 m from blasting in the Open Pit. It has not been proposed to restrict access for the entire lake. Due to information indicating that the majority of anglers are on Jacko Lake between 10:00 a.m. and 2:00 p.m. to coincide with chironomid hatch timing, making this a prime fishing time, KAM has committed to avoid blasting during these times in areas close to the lake during the fishing season. Please refer to Public Comment Response Section 4.5.3 for additional information regarding effects of blasting on fish.

4. CONCLUSION

We value the feedback received to date regarding the Project and the conclusions of the environmental assessment. As a result of comments received, we have committed to additional mitigation measures, which together will help to minimize the environmental effects of the Project.

We hope that the information provided in this letter and in other public responses, continues to show you our commitment to being an accountable and transparent operator of an environmentally responsible mining operation. Through our consultation efforts, KAM intends to build long-lasting and productive relationships with Kamloops residents and key stakeholders to ultimately reach mutually beneficial levels of understanding of everyone's needs and aspirations.

We believe that the Project can be developed in a manner that maintains recreational opportunities, a robust fishery on Jacko Lake, provide a net gain of aquatic and wildlife habitat and that the Kamloops region will continue to support ecological diversity and economic opportunity.

We appreciate the comments received from the LLJCA and will work towards addressing additional concerns that you may have in the future. Thank you for taking the time to contribute to the Application/EIS process and providing input to support our goal of continual improvement.

5. USEFUL LINKS

The responses provided in this document make reference to a range of other related materials. For ease of reference, links to the following materials are provided. Specific cross-references are also provided in the text.

KGHM Ajax Mining Inc.

<http://ajaxmine.ca>

EAO e-PIC site for the Ajax Mine Project

<https://projects.eao.gov.bc.ca/p/ajax-mine/detail>

Ajax Project Application/EIS

<https://projects.eao.gov.bc.ca/p/ajax-mine/docs?folder=161>

Plain Language Summaries of the Application/EIS

<http://application.ajaxmine.ca/Home.aspx>

Responses, including supplemental technical memorandum, provided to the Technical Working Group

<https://projects.eao.gov.bc.ca/p/ajax-mine/docs?folder=220>