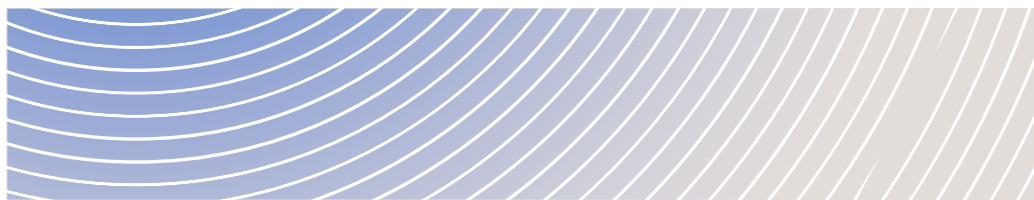


Impact Assessment Agency of Canada



ANALYSIS OF AURICO METALS INC.'S PROPOSED CHANGES
TO THE KEMESS UNDERGROUND PROJECT (DECEMBER 2020)





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1. Introduction

AuRico Metals Inc. (the proponent) proposes the construction and operation of the Kemess Underground Project (the Project), an underground gold-copper mine located approximately 250 kilometres north of Smithers and 430 kilometres northwest of Prince George, British Columbia (B.C.). Construction began on the Project in 2017.

1.1 Impact Assessment Act

On August 28, 2019, the *Impact Assessment Act* (IAA) came into force, repealing the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). Section 184 of the IAA provides that Decision Statements issued under CEAA 2012 are deemed to be Decision Statements under the IAA and, therefore, subject to the provisions of the IAA. In addition, the former Canadian Environmental Assessment Agency is now the Impact Assessment Agency of Canada. In this report, the term “Agency” refers to either the former Canadian Environmental Assessment Agency or the current Impact Assessment Agency of Canada.

1.2 Assessment History

The Project was subject to an environmental assessment pursuant to the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and B.C.’s *Environmental Assessment Act* (2002). The federal environmental assessment was conducted by means of substitution in accordance with the *Memorandum of Understanding between the Canadian Environmental Assessment Agency (the Agency) and the British Columbia Environmental Assessment Office (EAO) on Substitution of Environmental Assessments* (2013).

As part of the substituted process, the EAO submitted to the Agency an Assessment Report that informed the former Minister of Environment and Climate Change’s environmental assessment decision under CEAA 2012. The EAO prepared the Assessment Report in consultation with an Advisory Working Group, made up of federal, provincial, and local government representatives with mandates and skill sets relevant to the review of the Project, as well as representatives of Takla Nation, Tsay Keh Dene Nation and Kwadacha Nation, collectively known as Tsay Keh Nay (TKN). The Agency also provided advice to the EAO in relation to fulfilling the requirements related to CEAA 2012.

The former Minister of Environment and Climate Change issued a Decision Statement under CEAA 2012 for the Project on March 9, 2017, following the substituted environmental assessment process, and determined that the Project is not likely to cause significant adverse environmental effects and the Project may proceed. The Decision Statement contains 87 legally-binding conditions, which include mitigation measures and follow-up program requirements that the proponent must comply with throughout the life of the Project. The Decision Statement includes two conditions that pertain to change(s) to the Project:



- 2.13 The proponent shall consult with Aboriginal groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s).
- 2.14 In notifying the Agency pursuant to condition 2.13, the Proponent shall provide the Agency with a description of the potential adverse environmental effects of the change(s) to the Designated Project, the measures proposed to be implemented by the Proponent to mitigate adverse environmental effects, and the results of the consultation with Indigenous groups.

1.2.1 Past Project Changes Assessed

On November 28, 2017, the proponent informed the Agency about proposed changes to the Project, related to additional use of and modifications to existing infrastructure, and the installation and construction of new infrastructure, pursuant to conditions 2.13 and 2.14 of the Decision Statement.

The Agency determined that changes or additions to mitigation measures and follow-up requirements were not required to address these changes. An analysis report was posted on the Canadian Impact Assessment Registry at <https://iaac-aeic.gc.ca/050/evaluations/document/124928>.

1.3 Proposed Project Changes

As required by condition 2.14 of the Decision Statement, on November 8, 2019, the proponent submitted to the Agency a report titled *Application for an Amendment to the Decision Statement* (the Report). The Report (described further in Section 2) discussed proposed changes to the Project and assessed the potential effects within federal jurisdiction associated with these changes, as well as the results of the consultation with Indigenous groups. On December 18, 2020, the Proponent updated its November 2019 report to clarify yearly output estimates.

The Agency conducted an analysis of the proposed Project changes and the potential adverse environmental effects of those changes, and considered comments from Federal Authorities and Indigenous groups to assess:

- whether the changes constitute a new or different designated project that may require a new impact assessment; and
- whether any changes (including addition or removal) may be required to the mitigation measures and follow-up requirements identified in the environmental assessment and included as conditions in the Decision Statement.

This report provides a summary of the proposed project changes, an analysis of whether these changes may result in adverse effects within federal jurisdiction that may not have been considered in the environmental assessment, and consideration of whether existing mitigation measures and follow-up requirements included as conditions in the Decision Statement are still applicable, need to be modified and/or are no longer required, or whether new mitigation measures or follow-up requirements should be added to the Decision Statement.





The Agency is of the view that the proposed project changes do not constitute a new or different designated project that may require a new impact assessment, and that the mitigation and follow-up requirements included as conditions in the Decision Statement remain relevant without any requirement for changes.





2. Proposed Project Design Changes

The proponent is proposing to increase daily ore production capacity, which would include a shortened mine life, and changes to tailings storage, truck traffic, and surface conveyor route.

2.1 Project Design Changes Details

The proposed project changes (Figure 1) include:

- Increased ore production capacity;
- Shortened mine life;
- Modification to the Kemess Underground Tailings Storage Facility (TSF);
- Increased concentrate truck traffic; and
- Realignment of the surface conveyor route.

The proponent is proposing to increase ore production capacity from 24,650 tonnes per day to 37,500 tonnes per day due to Project optimization and planning (which would result in a corresponding increase in production of gold from 105,000 ounces per year to 149,000 ounces and of copper from 44 million pounds per year to 63 million pounds). As a result, the estimated mine life would be reduced from 13 years to 11 years.

The proponent has also proposed design modifications to the TSF that would include an updated causeway design and earlier construction of the East Dam.

In addition, the increased ore production capacity would require additional truck traffic to transport concentrate. The proponent estimates an increase from six to nine trucks per day transporting concentrate on the Omineca Resource Access Road (ORAR) to the Mackenzie loadout facility.

Finally, conveyor realignment would take place to address design risk and climate extremes. An additional transfer station and increase in motor size would be developed to accommodate the change in production capacity, including waste rock handling and off-loading infrastructure.

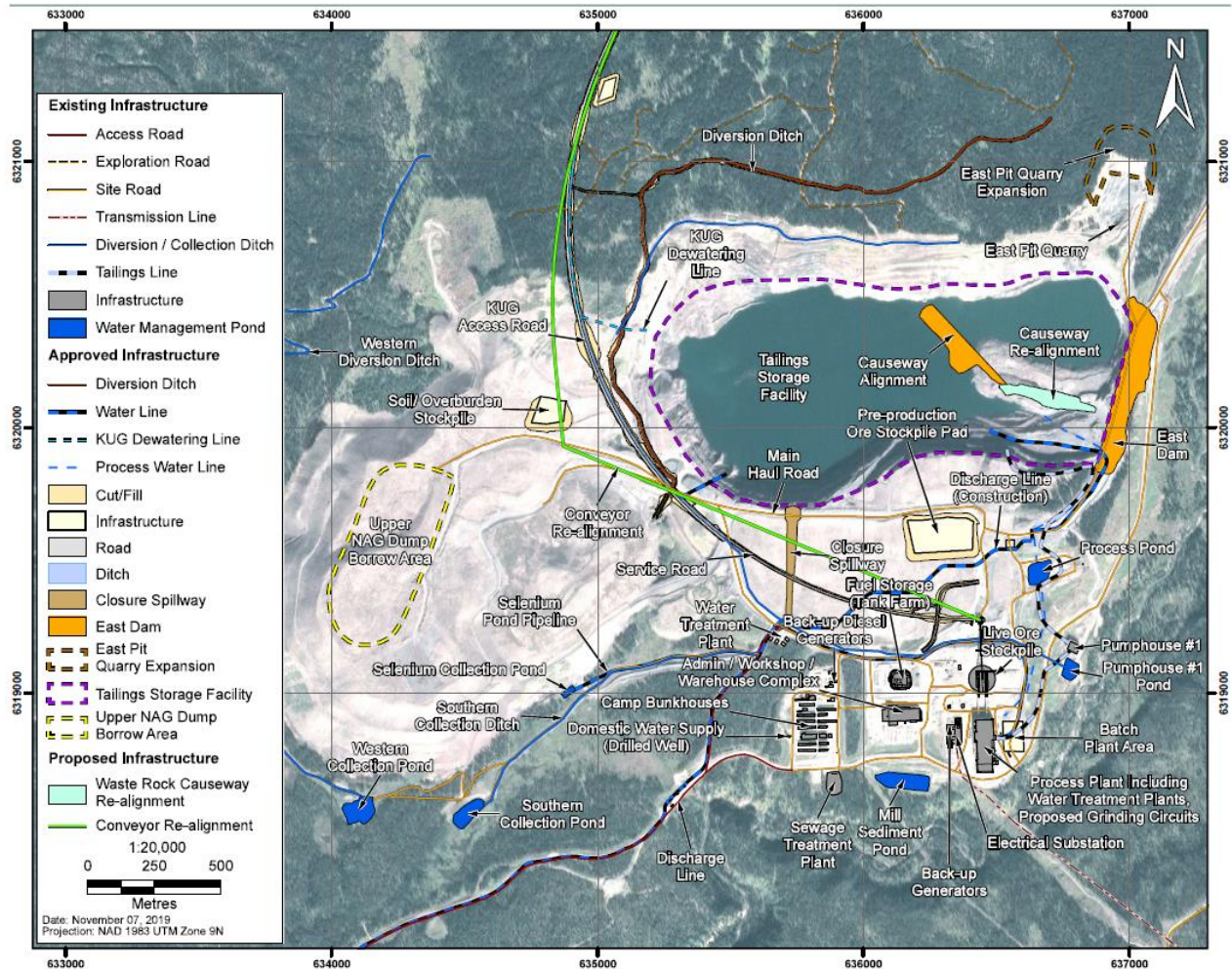
2.2 Agency's Analysis of Changes

The *Physical Activities Regulations* under the IAA identify the physical activities that constitute designated projects that may require an impact assessment. On their own, the proposed project changes are not a physical activity described in the Regulations. Consequently, the Agency is of the view that the changes do not constitute a new or different designated project that may require a new impact assessment.





Figure 1: Proposed Changes to the Kemess Underground Project



Source: Application for an Amendment to the Decision Statement, ERM Consultants Canada Ltd. (2019)



3. Potential Adverse Environmental Effects from Proposed Project Changes

The following is an analysis of whether proposed changes to the Project would require modifications, additions or removal, of mitigation measures and follow-up requirements included as conditions in the Decision Statement. The analysis focused on potential adverse environmental effects and potential effects on species at risk listed in Schedule 1 of the *Species at Risk Act* (SARA).

3.1 Overview

The proponent provided an assessment of the proposed changes to the Project and the potential for adverse environmental effects on the following:

- Fish and fish habitat;
- Migratory birds;
- Current use of lands and resources for traditional purposes;
- Human health and socio-economic conditions;
- Physical and cultural heritage, and structures of historical, archaeological, paleontological, or architectural significance; and
- Rights of Indigenous peoples

The proponent did not carry forward any valued components (VCs) from the environmental assessment into its assessment as the proponent indicated none of the VCs would have any interactions that would result in greater or different potential for adverse effects in comparison with the environmental assessment for the Project.

In addition, subsection 79(2) of the *Species at Risk Act* (SARA) requires the identification of adverse effects of the Project on listed wildlife species and their critical habitat, and that measures be taken to avoid or lessen those effects and to monitor them.

3.2 Fish and Fish Habitat

Effects to fish and fish habitat were assessed during the environmental assessment of the Project and mitigation measures and follow-up requirements were developed. The Decision Statement includes related conditions.



3.2.1 Proponent's Assessment

The proponent indicated that the proposed increase in ore production capacity and shortened mine life would result in reductions in base flow that remain within the range assessed during the environmental assessment. There would be no anticipated additional effects on surface water hydrology for East Cirque Creek, Central Cirque Creek, and El Condor Creek.

With reference to the modification of the TSF, the proponent indicated that resulting erosion and sedimentation would occur earlier than identified in the environmental assessment but that no additional erosion and sedimentation would occur. The proponent has concluded that existing mitigation measures will be sufficient to manage the potential effects on fish and fish habitat.

The proponent noted that fugitive dust deposition from mine-related traffic on the ORAR was not considered in the assessment of effects on water quality in the environmental assessment. The increase of six to nine trucks per day carrying concentrate on the ORAR was concluded to have no resulting additional dust deposition.

The proponent indicated that the realignment of the surface conveyor route would occur within a previously disturbed area with no anticipated impacts to aquatic habitat. Thus, the conclusions of the environmental assessment with respect to fish and fish habitat remain unchanged.

The proponent does not anticipate new adverse effects to fish and fish habitat in addition to those identified in the environmental assessment.

3.2.2 Comments Received

Gitxsan Wilp Nii Kyap raised concerns regarding effluent from the Project impacting fish and fish habitat in Attichika Creek and Thutade Lake, as well as the protection of fish with regards to the proposed realignment of the surface conveyor route.


3.2.3 Agency's Analysis and Conclusions

The Agency concurs with the proponent's conclusion that potential adverse effects to fish and fish habitat from the proposed increased production capacity and associated shortened mine life are negligible.

The Decision Statement contains conditions that require the ongoing monitoring of fish and fish habitat throughout the duration of the Project. The proponent is required to monitor water quality and fish habitat in Attichika Creek, Amazay Lake, and Waste Rock Creek (Condition 3.7). As such, any potential impacts to fish and fish habitat, including due to reductions in base flow, would be monitored.

With respect to the management of mine tailings, Conditions 3.3 and 3.4 stipulate that the proponent must comply with federal regulations related to the well-being of fish and fish habitat, including Fisheries and Oceans Canada's *Measures to Avoid Causing Harm to Fish and Fish Habitat Including Aquatic Species at Risk*, the *Metal and Diamond Mining Effluent Regulations*, subsection 36(3) of the *Fisheries Act*, and the Canadian Council of Ministers of the Environment's *Water Quality Guidelines for the Protection of Aquatic*





Life. Condition 3.7.6 also requires that the proponent monitor contaminants in the tissue of fish species harvested by Indigenous groups in Thutade Lake.

The proposed modification of the TSF would only affect the timing of anticipated effects, and therefore the Agency is of the view that existing mitigation measures are sufficient to address erosion and sedimentation.

During the environmental assessment, it was anticipated that the Project would add 12 trucks per day travelling on the ORAR during operations, a decrease from the 16 trucks per day that were operating for the Kemess South mine. The Agency is of the view that an increase of six to nine trucks per day travelling on the ORAR would have negligible effects and would result in similar or less effects than what was assessed during the environmental assessment. The aforementioned conditions provide sufficient requirements to monitor and address any impacts to fish and fish habitat.

The Agency agrees with the proponent's conclusion that since the realignment of the surface conveyor route is occurring in a previously disturbed area, there are no anticipated additional effects to fish and fish habitat.

The Agency is of the view that no changes are required to the mitigation measures previously identified in the environmental assessment.

3.3 Migratory Birds and Species at Risk

Effects on migratory birds were assessed during the environmental assessment of the Project, and mitigation measures and follow-up requirements were developed. The Decision Statement includes conditions related to migratory birds.

Subsection 79(2) of SARA requires the identification of the Project's adverse effects to SARA-listed wildlife species and their critical habitat. If the Project is carried out, SARA requires that measures be taken to avoid or lessen those effects and that such effects be monitored.

3.3.1 Proponent's Assessment

The proponent anticipates no increase in noise levels or changes to water quality as a result of proposed changes to ore production rate and the related shortened mine life. The proponent is of the view that there would be no additional sensory disturbance nor increased exposure to chemical hazards for migratory birds or species at risk.

The proponent stated that the early construction of the East Dam would only result in changes in timing of sensory disturbance to migratory birds, but no increase in noise levels.

The proponent concluded that, taking into account the increase in concentrate traffic by six to nine trucks per day, traffic levels on the ORAR remain below the threshold that would result in wildlife failing to cross the road.

The proponent stated that realignment of the conveyor has no anticipated effects on movement of migratory birds.



The proponent does not anticipate any adverse effects to migratory birds or species at risk in addition to those evaluated in the environmental assessment.

3.3.2 Comments Received

The ORAR is currently being used for mine site reclamation, care, and maintenance activities, as well as for forestry purposes, and activities of local Indigenous communities. Environment and Climate Change Canada (ECCC) noted the proponent's lack of information on its methodology used to assess effects of proposed changes, and a lack of available traffic data for traffic levels on the ORAR. ECCC recommended that information on methodology used to assess the risk of wildlife mortality as a result of increased traffic should be provided. In addition, in order to provide a better view of risks to migratory birds and species at risk on the ORAR, ECCC recommended that the proponent install additional camera traps to monitor wildlife activity to provide a better view of risks to migratory birds and species at risk along snow banks on the ORAR. Additionally, ECCC recommended that the proponent conduct camera checks on a bi-weekly basis over the winter months on the ORAR.¹

ECCC also recommended that additional mitigation measures, including culverts, ramps, and low fences along roadsides, to direct western toads and small mammals towards culverts and ramps, be implemented if there is road mortality risk for the Western toad, a species of Special Concern under SARA, and small mammals. In addition, ECCC recommended to avoid clearing during sensitive periods for migratory birds and avoid the use of pre-clearing surveys. ECCC recommended that if potential impacts to caribou are expected, the proponent should conduct a study to evaluate caribou movements in the Project area and to evaluate the potential impacts of increased traffic volume along the ORAR. ECCC further recommended that if the potential for impacts to species at risk is identified, mitigation measures such as training truck drivers and mine workers to reduce road collisions and imposing reduced speed limits along the ORAR should be considered. The proponent should also consider monitoring caribou during critical times of the year, such as during the implementation of mitigation measures and notifying drivers of location and timing when caribou may be present on roads.

Gitxsan Wilp Nii Kyap emphasized the importance of protecting wildlife across all proposed project changes.

3.3.3 Agency's Analysis and Conclusions

The Agency concurs with the proponent's conclusion that the increased ore production capacity and shortened mine life would have no anticipated additional adverse effects on migratory birds and species at risk, due to there being no anticipated changes to noise levels or water quality.

The Agency is of the view that the effects of the proposed modification of the TSF on migratory birds and species at risk would be negligible, and existing mitigation measures are sufficient.

The Agency agrees with ECCC that sufficient mitigation measures should be implemented to address the potential for increased mortality risk to the Western toad as a result of increased truck traffic on the ORAR. Condition 6.5 of the Decision Statement requires the proponent to, prior to construction and in consultation

¹ Additional comments from ECCC on wildlife monitoring are outlined in section 3.4.2 of this report.





with Indigenous groups and relevant authorities, conduct pre-clearing surveys to identify Western toad (*Anaxyrus boreas*) breeding habitat, and implement measures to mitigate the loss of the breeding habitat caused by the Project. Therefore, no changes to any of the existing conditions would be required.

The Agency agrees with the proponent's conclusion that, due to the realignment of the surface conveyer being undertaken within the project footprint, there would be no adverse effects to migratory birds and species at risk.

Conditions 2.6.2 and 2.6.3 require the proponent to undertake monitoring and analysis to determine the effectiveness of any mitigation measure(s) and determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken. These include migratory birds, their eggs, and nests (Condition 4.3), and species listed under SARA including little brown myotis (*Myotis lucifugus*) and Northern myotis (*Myotis septentrionalis*) (Condition 6.8), hoary marmot (*Marmota caligata*), white-tailed ptarmigan (*Lagopus leucura*), and short-eared owl (*Asio flammeus*) (Condition 6.10), and the Chase herd of Southern mountain caribou (*Rangifer tarandus caribou*) and the Thutade herd of Northern mountain caribou (*Rangifer tarandus caribou*).

The proponent is also required to take into account ECCC's *Avoidance Guidelines* (Condition 4.1). The *Avoidance Guidelines* address how the scheduling of Project activities outside of sensitive time periods for migratory birds reduces the risks to migratory birds. The Guidelines also recommend against active nest search. In addition, the proponent is required to develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to determine the effectiveness of the mitigation measures to avoid harm to migratory birds, their eggs, and nests (Condition 4.3).

Southern and northern mountain caribou are listed under schedule 1 of SARA as threatened and special concern, respectively. Effects to the species are detailed in Section 3.4 as they were harvested by the Indigenous groups near the Project area in the past.

The Agency is of the view that the mitigation measures as required by the Decision Statement are sufficient to protect migratory birds and species at risk from impacts that may result from the proposed project changes. No changes to the mitigation measures previously identified in the environmental assessment would be required.

3.4 Current Use of Lands and Resources for Traditional Purposes

Woodland caribou (caribou) were assessed under paragraph 5(1)(c) of CEAA 2012, as caribou was harvested by TKN First Nations near the Project area in the past, though it is not currently harvested by Indigenous groups due to low population numbers. Caribou were also assessed as part of the requirements under section 79(2) of the *Species at Risk Act*. The Decision Statement issued for the Project included conditions in relation to caribou.





3.4.1 Proponent's Assessment

The proponent addressed potential for adverse effects to wildlife, including caribou, through sensory disturbance and chemical hazards related to changes in water quality associated with proposed Project changes. The proponent concluded that the increase in ore production capacity and the associated shortened mine life would not result in elevated noise levels or changes to water quality.

With respect to altered timelines of construction of the East Dam, the proponent anticipated earlier sensory disturbance as a potential result but no increase in magnitude of noise levels.

The proponent found no potential increase in wildlife road mortality risk due to the proposed increase in concentrate traffic. Mitigation measures proposed during the environmental assessment will remain valid and will be implemented to prevent wildlife mortality. The increase in traffic is not anticipated to alter access to lands and resources.

The proponent stated that realignment of the conveyor is not anticipated to further impact wildlife movement nor Indigenous peoples' access to lands and resources, as the realignment would occur within the existing Project area.

The proponent found no new potential adverse effects on the use of lands and resources for traditional purposes as a result of the project changes.

3.4.2 Comments Received

Gitxsan Wilp Nii Kyap expressed concerns about increased water usage due to the proposed increase in daily production capacity of the mine, impacts on Attichika Creek due to water usage for mining purpose, and the associated impacts on their communities ability to access resources for traditional purposes. Gitxsan Wilp Nii Kyap also indicated that certain aspects of the lands surrounding the Project area, including habitations and trails, have been accessed for traditional purposes. Gitxsan Wilp Nii Kyap emphasized the need to protect the area and ensure environmentally safe development, as it is a priesting area and therefore carries spiritual, religious, and cultural significance.

Gitxsan Wilp Nii Kyap also raised concerns around the impacts of mining effluent on the watershed surrounding the Project, including Thutade Lake and Attichika Creek, and other rivers and creeks within their traditional territory. Gitxsan Wilp Nii Kyap indicated that the gathering of medicinal plants could be impacted by the Project.

Gitxsan Wilp Nii Kyap indicated they requested information from the proponent on water usage and toxicity of mine runoff, information regarding the modification of the TSF, and any construction associated with the increase in moving raw material. Gitxsan Wilp Nii Kyap raised concerns around seepage associated with the TSF, and the need for surface water and ground water to be clearly free from environmental contaminants.

3.4.3 Agency's Analysis and Conclusions

The Agency agrees with the proponent's conclusion that the increased mine production capacity and shortened mine life would have no additional effects on the current use of lands and resources for traditional



purposes, as there would be no increase in sensory disturbance or decreased water quality. Due to these changes occurring within the project footprint, access to lands would not be impacted.

The Agency is of the view that the modification of the TSF and realignment of the surface conveyor route would not obstruct access to lands or resources as the changes would occur within the existing project footprint.

The Agency agrees with ECCC that potential increased wildlife mortality on the Omineca Resource Access Road should be mitigated and monitored by the proponent as increased mortality could adversely affect current use, such as hunting activities. The Decision Statement requires the proponent to implement mitigation measures in order to minimize adverse effects to wildlife. Condition 6.1 requires that the proponent install and maintain ramps every 100 to 300 metres over the discharge line between the tailing storage facility and Attichika Creek to provide passage for moose, woodland caribou, grizzly bear, and furbearers. Additionally, pursuant to Condition 6.2 the proponent must create and maintain escape pathways along all access roads associated with the Project, including the northern section of the Omineca Resource Access Road, to allow ungulates to exit the plowed roads.

Condition 6.11 also requires that the proponent develop a follow-up program, in consultation with Indigenous groups and relevant authorities (including ECCC) to verify the accuracy of the environmental assessment as it pertains to the effects of changes on caribou hunting activities for traditional purposes, and to determine the effectiveness of the mitigation measures. As part of the follow-up program, Condition 6.11.2, for example, requires that the proponent monitor mortality of wildlife on all access roads associated with the Designated Project, including the northern section of the ORAR (i.e. the northern 168-kilometre portion of the ORAR from the junction of the Thutade and Finlay Osilinka Forest Service Roads). In addition, Condition 2.6 requires the proponent to develop and implement modified or additional mitigation measures, should they be required based on the results of the monitoring and analysis undertaken as part of the follow-up program. If the results of the follow-up program required in Condition 6.11 demonstrate that increased traffic volume along the ORAR may be adversely affecting caribou hunting activities, the Agency is of the view that the proponent should consider ECCC's recommended mitigation measures when determining whether to implement modified or additional mitigation measures in relation to Project-related traffic.

With respect to Gitksan Wilp Nii Kyap's concerns on impacts to water quality and usage, Condition 5.1.1 requires the proponent to identify levels of environmental change relative to established baseline conditions for contaminants of potential concern in water that would require the proponent to implement modified or additional measure(s) to mitigate increased risks to human health. Though Condition 5.1.1 specifically relates to human health in the Decision Statement, the health and wellbeing of Indigenous communities in the vicinity of the project is closely linked to the land, including the watershed. Therefore, Condition 5.1.1 also applies to the use of lands and resources through the linkages between water usage and health outcomes. As such, impacts to the watershed as they relate to Indigenous peoples' usage and potential adverse effects on their health would be monitored and mitigated by the proponent.

The Agency concurs with the proponent's conclusion that any additional adverse effects on the current use of lands and resources for traditional purposes due to the proposed Project changes are negligible. As the changes are to be implemented within the Project site, impacts on use of lands for traditional purposes are minimized.





The Agency is of the view that the conditions as described in the Decision Statement establish sufficient requirements for the proponent to monitor and mitigate adverse effects to the current use of lands and resources for traditional purposes.

The Agency is of the view that no changes are required to the mitigation measures previously identified in the environmental assessment.

3.5 Human Health and Socio-economic Conditions

Effects to the health and socio-economic conditions of Aboriginal peoples from changes to the environment were assessed under paragraph 5(1)(c) of CEEA 2012. The proponent considered effects to human health from proposed Project changes generally, which were carried forward in the assessment of effects to health socio-economic conditions from changes to the environment on Indigenous peoples.

3.5.1 Proponent's Assessment

The proponent considered in its analysis the potential for increased sensory disturbance and changes in air quality as a result of the proposed increase in production rate and correspondent shortened mine life. The proponent determined that there would be no increase in noise levels from the proposed changes. The proponent concluded that there would be no additional dust deposition as a result of increased production rate, due to no anticipated change in volume of mine waste rock. It was noted that the proponent's Air Quality Management Plan for the Project includes dust suppression measures.

The proponent's assessment concluded that the modification of the TSF would only affect the timing of any potential effects to human health and socio-economic conditions. The proponent did not anticipate any additional impacts on these conditions as a result of early construction of the East Dam.

The proponent did not provide an assessment of human health or socio-economic conditions related to modifications to the realignment of the surface conveyor.²

The proponent concluded that the proposed increase in concentrate traffic on the ORAR would not result in an increase of fugitive dust deposition, and thus no anticipated additional impacts on human health.

The proponent concluded that there would be no additional adverse effects to human health and socio-economic conditions as a result of the proposed project changes.

3.5.2 Comments Received

Health Canada (HC) stated that further information is needed as to whether the Human Health Follow-up Program for the Project was updated to consider the project changes.

HC recommended that, should noise levels be a concern as a result of the proposed changes to the Project, the proponent involve the public in developing appropriate mitigation measures. Overall, HC noted that, with

² The proponents assessment of impacts of the modifications to the surface conveyor on Indigenous peoples' ability to practice their rights can be found in section 3.7.1 of this report.





respect to the proponent's submission, the generation of new contaminants, human receptors and exposure routes from the proposed project changes are not anticipated.

ECCC recommended that the proponent provide quantitative analysis of air quality, and incorporate the new Canadian Ambient Air Quality Standards threshold into the Project's monitoring and mitigation program.

Similarly, Gitxsan Wilp Nii Kyap raised concerns over the use of diesel as the primary energy source for the project. In particular, Gitxsan Wilp Nii Kyap noted the potential for diesel spills and reduced air quality resulting from increased energy requirements due to the project changes.

3.5.3 Agency's Analysis and Conclusions

The Agency concurs with HC and ECCC that the increase in daily production capacity and anticipated shortened mine life raises concerns regarding impacts to human health. The Agency agrees with ECCC that increased nitrogen dioxide (NO₂) emissions should be considered by the proponent in its monitoring and mitigation program. The Agency also agrees with Gitxsan Wilp Nii Kyap that energy usage as it relates to human health should be closely monitored, and impacts mitigated.

There are existing conditions included in the Decision Statement that address human health risks. Condition 5.1 requires that the proponent monitor effects to air quality and verify the accuracy of the environmental assessment with respect to effects to the health of Indigenous peoples from changes to air quality. Additionally, Condition 5.1.1 stipulates that the proponent identify levels of environmental change relative to established baseline conditions for contaminants of potential concern that would require the Proponent to implement modified or additional mitigation measure(s) to mitigate increased risks to human health.

Condition 5.1 requires a follow-up program be developed in consultation with Indigenous groups and relevant authorities, including ECCC and HC. As such, the Agency is of the view that ECCC and HC's comments regarding a follow-up program, such as the need to consider potential increased NO₂ emissions, can be addressed through this condition.

The Agency is of the view that the changes to effects of the modification of the TSF on human health and socio-economic conditions are negligible, as only the timing of these effects would be impacted.

The Agency is also of the view that the realignment of the conveyor route will not result in any additional environmental effects that are not already assessed in the environmental assessment.

The Agency agrees that an increase of six to nine trucks per day on the ORAR would have negligible impacts on human health and socio-economic conditions as the marginal increase in emissions and fugitive dust would be minimal.

With the implementation of the conditions in the Decision Statement, the Agency is therefore of the view that no changes be required to the mitigation measures previously identified in the environmental assessment.





3.6 Physical and Cultural Heritage, and Structures, Sites, or Things of Historical, Archaeological, Paleontological, or Architectural Significance

Environmental effects to physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological or architectural significance are included in the definition of environmental effects under paragraph 5(1)(c) of CEEA 2012. These effects were assessed as part of the environmental assessment and the Decision Statement included related conditions.

3.6.1 Proponent's Assessment

The proponent found that there would be no additional surface disturbance as a result of the proposed increase in daily ore production capacity and shortened mine life as these changes would occur in the existing project area.

The proponent indicated that the modification of the TSF would not interact with physical and cultural heritage, and structures, sites, or things of historical, archaeological, paleontological or architectural significance, and thus concluded that no further assessment was warranted.

The proponent did not provide an assessment of the potential impacts on physical or cultural heritage as well as structures, sites, or things of historical, archaeological, paleontological or architectural significance as a result of increased concentrate truck traffic on the ORAR, but the environmental assessment concluded that no heritage sites that no known sites are located within the local study area assessed for the Project, which encompasses the section of the ORAR in question.

Additionally, the proponent noted that the Heritage Chance Find Procedure would be employed in the construction of the overland conveyor. The proponent is of the view that changes to the alignment of the conveyor will not have any effects on any known physical and cultural heritage resources or paleontological resources.

The proponent concluded that no material change to physical or cultural heritage as well as structures, sites, or things of historical, archaeological, paleontological or architectural significance would occur as a result of the project changes.

3.6.2 Comments Received

Gtixsan Wilp Nii Kyap indicated that Thutade Lake is a sacred place. Section 3.4.2 of this report details the concerns raised by the Wilp regarding the potential impacts of mining effluent on Thutade Lake.

3.6.3 Agency's Analysis and Conclusions

The Agency concurs with the proponent's conclusion that there are no predicted adverse effects to physical and cultural heritage and structures, sites, or things of historical, archaeological, paleontological, or architectural significance as a result of the proposed changes to the Project. As the changes are all occurring





within the project site, there is a low risk of further impacts to structures, sites, or things of historical, archaeological, paleontological, or architectural significance.

With respect to Gitxsan Wilp Nii Kyap's concern on potential impacts to Thutade Lake, Condition 3.3 requires that the proponent comply with federal regulations regarding the deposit of effluent in water frequented by fish. As Thutade Lake is a water body frequented by fish, the proponent must ensure the health of the Lake and its inhabitants in compliance with the associated regulations.

The Decision Statement includes conditions related to any structures, sites, or things of historical, archaeological, paleontological, or architectural significance that are brought to proponent's attention. Should a structure, site, or thing of historical, archaeological, paleontological, or architectural significance be discovered or brought to the proponent's attention of by an Indigenous group, Condition 7.1 requires the proponent to immediately halt work, conduct an assessment, and allow for Indigenous groups (including Gitxsan Wilp Nii Kyap) to conduct archeological work at the location. In addition, Condition 7.1 requires that the proponent comply with all applicable legislative or legal requirements and associated regulations and protocols respecting the discovery, recording, transferring, and safekeeping of previously unidentified archeological structures, sites, or things of historical, archaeological, paleontological, or architectural significance.

As such, the Agency is of the view that Condition 7.1 addresses potential effects from the environment on physical and cultural heritage, as well as structures, sites, or things of historical, archaeological, paleontological, or architectural significance.

The Agency is therefore of the view that no changes be required to the mitigation measures previously identified in the environmental assessment.

3.7 Rights of Indigenous Peoples

The impacts to the rights of TKN First Nations and Gitxsan Wilp Nii Kyap, as affirmed in Section 35 of the *Constitution Act, 1982*, were assessed using the information gathered through the environmental assessment. Mitigation measures and follow-up requirements were developed and the Decision Statement includes related conditions.

The Project is located within the traditional territories of Takla Nation and Tsay Keh Dene Nation. The traditional territory of the Kwadacha Nation is adjacent to and downstream from the Project.

3.7.1 Proponent's Assessment

With respect to the proposed increase in daily ore production capacity and shortened mine life, the proponent concluded that there would be no additional impacts on components of the environment related to the practice of Indigenous rights. The components assessed include quantity or quality of water, fish, vegetation, and wildlife. Only the timing of effects on these components as assessed in the environmental assessment would be changed as a result of earlier construction of the East Dam.

The proponent's assessment concluded that modification to the TSF would change the timing of impacts, but have no additional impacts, on valued components related to the practice of Indigenous rights.





The proponent stated that increased concentrate traffic on the ORAR was not anticipated to have any additional impacts to Indigenous peoples' use of lands, nor on the following components related to Indigenous rights: water quality, wildlife, socio-economic, human health, and heritage resources.

The proponent concluded that the realignment of the surface conveyor would not alter the Project's anticipated interactions with Indigenous rights as described in the environmental assessment.

The proponent is of the view that the proposed changes would have no additional adverse effects on Indigenous peoples' practice of their rights.

3.7.2 Comments Received

Gitxsan Wilp Nii Kyap expressed that further information is needed on the environmental effects of the increase in concentrate truck traffic on the ORAR. Gitxsan Wilp Nii Kyap noted that the ORAR is also used for extensive logging purposes. Gitxsan Wilp Nii Kyap is currently working with the Mackenzie Forest District on a collaborative agreement regarding the ORAR.

Gitxsan Wilp Nii Kyap also commented that more in depth information is needed on mine closure plans; they are awaiting response from the proponent on this request, and noted that post-closure should include plans to return the environment to a sound state, as well as monitoring for insurance purposes.

3.7.3 Agency's Analysis and Conclusions

The Agency concurs that given the increased ore production capacity, shortened mine life, and realignment of the surface conveyor route are within the areas anticipated to be disturbed assessed during the environmental assessment, as well as the minimal predicted effects to wildlife and its habitat, the proposed project changes would be unlikely to result in further restrictions on Indigenous peoples' practice of rights. Effects to caribou, fish, other wildlife species, and harvestable plants are not anticipated.

The Agency agrees with Gitxsan Wilp Nii Kyap that the proponent should implement effective plans for decommissioning as defined in the Decision Statement. The Decision Statement requires that the proponent mitigate the adverse effects of the Project on water quality from the start of construction to the end of decommissioning (condition 3.3). The Decision Statement also requires that the proponent develop, prior to construction and in consultation with Indigenous groups and relevant authorities, follow-up programs to determine the accuracy of the environmental assessment and effectiveness of the mitigation measures regarding impacts to fish and fish habitat (Condition 3.7), migratory birds (Condition 4.3), and wildlife associated with the current use of lands and resources for traditional purposes (Condition 6.11). Pursuant to these conditions, the proponent must implement these follow-up programs from the start of construction to the end of decommissioning.

The Agency agrees with the proponent's conclusion that the modification to the TSF would only impact the timing of effects on the practice of Indigenous rights, but no further impacts are anticipated.

The Agency is of the view that the increase in six to nine trucks per day on the ORAR will have a minimal effect due relative to the current usage of the road and the assessment for effects resulting from an additional 12 trucks per day from the Project that was conducted during the environmental assessment. Therefore, any further restrictions or interference to the practice of Indigenous rights would be negligible.





The Agency anticipates that the proposed Project changes would not change the residual effects assessment on environmental effects within federal jurisdiction, and is therefore satisfied that there would be no additional impacts to Rights of Indigenous Peoples beyond those assessed in the environmental assessment.





4. Consultation and Engagement

4.1 Consultation with Indigenous Groups

For the purpose of the Project, “Indigenous groups” as defined in the Decision Statement includes the following Indigenous groups:

- Takla Nation
- Tsay Keh Dene Nation
- Kwadacha Nation

Though Gitxsan Wilp Nii Kyap is not included in the definition of “Indigenous groups,” the Decision Statement requires that the proponent consult with and notify the community on certain aspects of the Project for which they expressed interest during the initial environmental assessment. These aspects are:

- consultation on the development of the follow-up program for fish and fish habitat (Condition 3.7);
- notification of archeological discoveries during construction (Condition 7.1);
- notification of any accident or malfunction (Condition 9.4); and
- consultation on the development of the communication plan related to accidents and malfunctions (Condition 9.5).

4.1.1 The Proponent

According to the proponent, consultation on the Project changes occurred with Tsay Keh Nay (TKN), an alliance of the Takla Nation, Tsay Keh Dene Nation, and Kwadacha Nation, through meetings with leadership and representatives on the Environmental Monitoring Committee. The proponent began this consultation on April 10, 2019. This initial meeting involved discussion around how TKN would be involved in consultation with regards to the proposed Project changes and British Columbia’s *Mines Act / Environmental Management Act* permitting process. On September 13, 2019, the proponent met with TKN to assess the changes to the water management strategy and results of the updated water balance and water quality model.

The Environmental Monitoring Committee provided additional comments and questions at monthly in-person meetings and conference calls with the proponent. The proponent provided drafts of the Joint Information Requirements Table for review. The proponent considered the input provided in assessing the impacts of the proposed project changes.

The proponent entered into a consultation and capacity funding agreement with Gitxsan Wilp Nii Kyap. The proponent met with representatives of Wilp Nii Kyap on October 23, 2019 to address updates to the water management strategy and findings from hydrological modelling.

4.1.2 Crown Consultation

The federal government has a common law duty to consult and, where appropriate, accommodate Aboriginal peoples when the Crown contemplates conduct that might adversely affect section 35 rights. Consultation is



also undertaken more broadly as part of good governance, sound policy development and appropriate decision making.

On February 7, 2020, the Agency notified TKN and Gitxsan Wilp Nii Kyap of the proposed amendment. The Agency provided the proponent's submission titled *Application for an Amendment of the Decision Statement* to the Indigenous groups for a review and comment period. Takla Nation, Tsay Keh Dene Nation, Kwadacha Nation, and Gitxsan Wilp Nii Kyap indicated interest in participating in the amendment process. Each group entered, individually, into a funding agreement with the Agency and were provided with \$5,000 in participant funding.

The Agency received comments from Gitxsan Wilp Nii Kyap on a number of issues, which were incorporated into the Agency's analysis of the proposed Project changes and summarized in the preceding sections of this Report. The Agency received responses from Kwadacha Nation and Tsay Keh Dene Nation indicating that they had no comments on the proponent's submission, respectively. Takla Nation did not provide any comments.

The draft Analysis Report was also provided to Indigenous groups for further comment. No comments in relation to the proposed changes to the Project were received.

4.2 Engagement with the Public

The Agency held a public comment period on the Project changes between August 17 and September 17, 2020. No comments from the public were received during the public comment period.



5. Conclusion

The Agency is of the view that existing mitigation measures and follow-up requirements included as conditions in the Decision Statement are still applicable to address the potential adverse environmental effects of the proposed project changes and the Agency recommends that no changes are required in the Decision Statement for that purpose. However, the Agency recommends that the following amendments be made to the Decision Statement to reflect the proposed changes and to clarify other issues raised since the Decision Statement was issued:

Section or condition	Original Decision Statement (March 9, 2017)	Proposed Amendment to the Decision Statement	Rationale for the Proposed Amendment
Description of the Designated Project	The Designated Project would have an ore production capacity of approximately 24,650 tonnes per day (105,000 ounces of gold and 44 million pounds of copper per year) using underground block caving methods, over a predicted 13 -year mine life.	The Designated Project would have an ore production capacity of approximately 37,500 tonnes per day (149,000 ounces of gold and 63 million pounds of copper per year) using underground block caving methods, over a predicted 11 -year mine life.	The proposed amendment would change the description of the daily and yearly ore production capacity and mine life of the Designated Project to reflect detailed planning optimization that the Proponent conducted with respect to the Designated Project since the Minister of the Environment and Climate Change issued the Decision Statement on March 9, 2017.
Condition 1.14	<i>Indigenous groups</i> means Takla Lake First Nation , Tsay Keh Dene First Nation, and Kwadacha First Nation	<i>Indigenous groups</i> means Takla Nation , Tsay Keh Dene First Nation, and Kwadacha First Nation	The propose amendment would reflect the new name of Takla Nation.
Condition 3.6	The Proponent shall divert all runoff from the East Pit quarry into the tailings storage facility during construction and operation.	The Proponent shall divert all runoff from the East Pit quarry into the Kemess Underground tailings storage facility during construction and operation.	The proposed amendment would clarify the condition. There are two tailings storage facilities in the immediate area; the proposed amended condition



			specifies the tailings storage facility associated with the Designated Project and which was part of the scope of the project for the environmental assessment. This change does not change the assessment of the potential adverse environmental effects of the Designated Project.
Condition 8.4	If occurrence(s) of non-compliance are observed by the independent environmental monitor, the Proponent shall require the independent environmental monitor to report all occurrence(s) of non-compliance directly to the Agency, Indigenous groups, and relevant federal authorities <u>immediately</u> .	If occurrence(s) of non-compliance are observed by the independent environmental monitor, the Proponent shall require the independent environmental monitor to report all occurrence(s) of non-compliance directly to the Agency, Indigenous groups, and relevant federal authorities <u>within 24 hours</u> .	The proposed amendment would align the timeframe for reporting of non-compliance incidents by the independent environmental monitor with the timeframe included in the provincial <i>Kemess Underground Project Independent Environmental Monitor Terms of Engagement</i> developed to meet Condition #9 of the provincial Environmental Assessment Certificate. This change does not change the assessment of the potential adverse environmental effects of the Designated Project.

In the event that any additional material changes to the Project that could result in adverse environmental effects are proposed by the proponent, the proponent would be required to comply with Conditions 2.13 and 2.14 of the Decision Statement for the Project, including consulting Indigenous groups and providing the Agency with a description of the environmental effects of the changes and proposed mitigation.

