



# KEMESS MINE 2022 ANNUAL IAAC REPORT

*Canadian Environmental  
Assessment Act, 2012*



**Submitted to:**

**Impact Assessment Agency of Canada**

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## EXECUTIVE SUMMARY

Aurico Metals Inc., a wholly own subsidiary of Centerra Gold Inc., obtained the Canadian Environmental Ministers Decision Statement on March 13, 2017 for the Kemess Underground Mine (KUG), an underground mine located in the mountains of north-central British Columbia (BC), 430 kilometres northwest of Prince George. The Implementation Schedule was provided to Aboriginal groups and the Impact Assessment Agency of Canada (IAAC) in 2017. Construction activities (road building, clearing, etc.) for the Kemess Underground Project Commenced July 16, 2018. In 2020, construction of the KUG project was paused and Kemess Mine was put into Care and Maintenance.

At the mine site, fish and fish habitat protection continues to be achieved through the implementation of erosion and sediment control (ESC) techniques as part of our Care and Maintenance phase of the project. Very limited construction activities are located within the Mine Site Water Management Area (MSWMA). Runoff water from the East Pit Quarry continues to flow into the Kemess Underground (KUG) tailings storage facility (TSF).

All water that reports to the MSWMA is pumped back to the KUG tailings storage facility (TSF). Kemess has implemented supplementary construction site water management and erosion control measures, including the implementation of check dams, French drain features, placement of rip-rap, and hydroseeding efforts. In addition, the SP27 ditch was constructed in 2022 to divert seepage coming from the Waste Rock Dump (WRD) to the Southern Collection System Pond (SCSP) for subsequent pumping back to the KUG TSF.

In 2022, discharge from the KUG TSF was re-initiated to Attichika Creek, which occurred between June 8 to August 6. Substantive effects on most environmental components of Attichika Creek were not observed in 2022: water quality, sediment quality, periphyton communities, benthic invertebrate abundance, composition, and diversity, and fish tissue concentrations were generally consistent within pre-discharge measurements; and were considered consistent with those of healthy aquatic ecosystems in the region. Selenium concentrations of benthic invertebrate and bull trout tissue in Attichika Creek increased in 2022 relative to pre-discharge levels; however, have remained below relevant provincial guidelines for the Protection of Aquatic Life (4 mg/kg dry weight).

Consistent with previous monitoring years, selenium concentrations remain elevated in water, sediments, and biota of Waste Rock Creek, relative to applicable guideline thresholds. However, despite elevated selenium concentrations, substantive effects on benthic and periphyton community productivity or composition were not observed in Waste Rock Creek.

During all snow-laden months in 2022, the Omineca Resource Access Road (ORAR) was not kept open; therefore, there was no need for monitoring to ensure safe passage of ungulates exiting plowed roads. A Hunting, Fishing and Gathering Policy was implemented in 2018 to prohibit fishing, hunting, and trapping within the Project area.

Approximately 0.30 hectares of vegetation was cleared for the construction of the SP-27 ditch. A pre-clearing survey was completed before vegetation removal on July 29<sup>th</sup>, 2022 including pond areas in close proximity that could be suitable habitat for the Western Toad (*Anaxyrus boreas*). Similarly, no maternal roosts were discovered for little brown myotis (*Myotis lucifugus*) nor Northern myotis (*Myotis septentrionalis*). No furbearer dens or migratory bird nests were found during the survey. Furthermore, no wildlife mortalities were reported in 2022 due to mine-related activities but mortalities of two ptarmigans were observed due to natural predation by foxes.

During a site tour, an employee noticed a rock that resembled obsidian and had the markings of some kind of tool. The rock was put back in its original location and the site was flagged off with a buffer and signage. The B.C. Archaeological branch and the local indigenous groups were notified of the find. The chance find encounter has been recorded and included within our Annual Heritage Report.

Two environmental incidents occurred at the Kemess Mine site in 2022. On July 5<sup>th</sup>, an IAAC inspection found some hydrocarbon staining on the ground at the heavy equipment hotline, a laydown area where vehicles are parked. The cause of the staining was determined to be drips of oil or hydraulic fluid from the parked heavy equipment. The surficial nature of the hydrocarbon staining indicated that the volume was not of a reportable quantity per the *BC Environmental Management Act Spill Reporting Regulation*. Under the direction of the inspectors, an Accident and Malfunctions Notification was completed for the incident.

On July 6<sup>th</sup>, water spilled from a manhole and air vent during routine discharge to Attichika Creek. The spill was estimated to be 9 cubic metres of water from the KUG TSF, which pooled in a gravel laydown and had no impact to the environment.

## RÉSUMÉ

Aurico Metals Inc., une filiale en propriété exclusive de Centerra Gold Inc., a obtenu la déclaration de décision des ministres canadiens de l'environnement le 13 mars 2017 pour la mine souterraine Kemess (KUG), une mine souterraine située dans les montagnes du centre-nord de la Colombie-Britannique (Colombie-Britannique), à 430 kilomètres au nord-ouest de Prince George. Le calendrier de mise en œuvre a été fourni aux groupes autochtones et à l'Agence d'évaluation d'impact du Canada (IAAC) en 2017. Les activités de construction (construction de routes, déboisement, etc.) pour le projet souterrain de Kemess ont commencé le 16 juillet 2018.

Sur le site minier, la protection du poisson et de son habitat continue d'être assurée grâce à la mise en œuvre de techniques de contrôle de l'érosion et des sédiments (ESC) dans le cadre de notre phase d'entretien et de maintenance du projet. Des activités de construction très limitées sont situées dans la zone de gestion des eaux du site minier (MSWMA). Les eaux de ruissellement de la carrière East Pit ont continué de s'écouler dans l'installation de stockage des résidus (ISR) souterraine de Kemess (KUG).

Toute l'eau transmise au MSWMA est pompée vers l'installation de stockage des résidus du KUG (TSF). Kemess a mis en œuvre des mesures supplémentaires de gestion de l'eau et de contrôle de l'érosion sur le site de construction, notamment la mise en place de barrages de contrôle, de dispositifs de drain français, de mise en place d'enrochements et d'efforts d'hydroensemencement. En outre, le fossé SP27 a été construit en 2022 pour détourner les eaux d'infiltration provenant de la "Waste Rock Dump" (WRD) vers le bassin du Système de Collecte Sud (SCSP) en vue d'un pompage ultérieur vers le KUG TSF.

En 2022, le déchargement du KUG TSF dans le ruisseau Attichika a repris, entre le 8 juin et le 6 août. La qualité de l'eau, la qualité des sédiments, les communautés de périphyton, l'abondance, la composition et la diversité des invertébrés benthiques, ainsi que les concentrations dans les tissus des poissons étaient généralement conformes aux mesures prises avant le déchargement, et ont été considérées comme conformes à celles des écosystèmes aquatiques sains de la région. Les concentrations de sélénium dans les tissus des invertébrés benthiques et de l'omble à tête plate dans le ruisseau Attichika ont augmenté en 2022 par rapport aux niveaux d'avant la décharge ; cependant, elles sont demeurées inférieures aux lignes directrices provinciales pertinentes pour la protection de la vie aquatique (4 mg/kg de poids sec).

Conformément aux années de surveillance précédentes, les concentrations de sélénium restent élevées dans l'eau, les sédiments et le biote du ruisseau "Waste Rock", par rapport aux seuils des lignes directrices applicables. Cependant, malgré les concentrations élevées de sélénium, aucun effet important sur la productivité ou la composition des communautés benthiques et du périphyton n'a été observé dans le ruisseau "Waste Rock".

Pendant tous les mois chargés de neige en 2022, la route d'accès aux ressources d'Omineca (ORAR) n'a pas été maintenue ouverte ; par conséquent, aucune surveillance n'était nécessaire pour assurer le passage en toute sécurité des ongulés sortant des routes déneigées. Une politique sur la chasse, la pêche et la cueillette a été mise en œuvre en 2018 pour interdire la pêche, la chasse et le piégeage dans la zone du projet.

Environ 0,30 hectare de végétation a été défriché pour la construction du fossé SP-27. Une étude préalable au défrichement a été réalisée avant l'enlèvement de la végétation le 29 juillet 2022, y compris les zones d'étangs à proximité qui pourraient constituer un habitat approprié pour le crapaud de l'Ouest (*Anaxyrus boreas*). De même, aucun gîte maternel n'a été découvert pour le petit myotis brun (*Myotis lucifugus*) ou le myotis à longues oreilles du Nord (*Myotis septentrionalis*). Aucune tanière d'animaux à fourrure ni aucun nid d'oiseau migrateur n'ont été découverts au cours de l'étude. En outre, aucun décès d'animaux sauvages n'a été signalé en 2022 en raison d'activités liées à la mine, mais deux lagopèdes ont été tués par des renards en raison de leur prédation naturelle.

Lors d'une visite du site, un employé a remarqué une pierre ressemblant à de l'obsidienne et portant les marques d'une sorte d'outil. La pierre a été remise à son emplacement d'origine et le site a été signalé par un tampon et des panneaux de signalisation. La branche archéologique de la Colombie-Britannique et les groupes autochtones locaux ont été informés de la découverte. Cette découverte fortuite a été enregistrée et incluse dans notre rapport annuel sur le patrimoine.

Deux incidents environnementaux se sont produits sur le site de la mine de Kemess en 2022. Le 5 juillet, une inspection de l'IAAC a révélé la présence de taches d'hydrocarbures sur le sol de la ligne directe de l'équipement lourd, une aire de stationnement où les véhicules sont garés. La cause de ces taches a été déterminée comme étant des gouttes d'huile ou de fluide hydraulique provenant de l'équipement lourd stationné. La nature superficielle des taches d'hydrocarbures indique que le volume n'est pas une quantité à déclarer selon le règlement de déclaration des déversements de la loi sur la gestion de l'environnement de la Colombie-Britannique ("BC Environmental Management Act Spill Reporting Regulation"). Sous la direction des inspecteurs, une notification d'accident et de dysfonctionnement a été remplie pour l'incident.

Le 6 juillet, de l'eau s'est déversée d'un trou d'homme et d'un évent d'aération lors d'un déversement de routine dans le ruisseau Attichika. Le déversement a été estimé à 9 mètres cubes d'eau provenant du TSF de KUG, qui s'est accumulée dans un dépôt de gravier et n'a pas eu d'impact sur l'environnement.

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## 1. Introduction

AuRico Metals Inc. (AuRico) is a wholly owned subsidiary of Centerra Gold, which operates the Kemess property. The Kemess Mine is located in north-central British Columbia, 430 kilometers northwest of Prince George in the Peace River Regional District. The closest communities to the Project by air are Kwadacha (also known as Fort Ware; 79 km), Tsay Keh (111 km), and Takla Landing (182 km). The Kemess South (KS) complex consists of an open pit mine, a processing mill and various ancillary support facilities, including maintenance shops and housing for 400 full-time employees during operations. The KS mine ceased operations in 2011. The Kemess Underground (KUG) Project is an approved 37,500 tonne per day copper and gold mine with a 17-year mine life. The KUG Project is designed to utilize the existing KS facilities, as well as newly constructed infrastructure. Construction of KUG began in 2018. In 2020, construction of the KUG project was paused and Kemess Mine was put into Care and Maintenance.

AuRico received both a BC provincial Environmental Assessment Certificate (#M17-01) and a Canadian Environmental Ministers Decision Statement in March of 2017. All the various provincial and federal permits required to construct the mine have been received. Initial surface Construction activities began at the Kemess Mine Site on July 6, 2018.

This report has been developed to meet Decision Statement Condition 2.9: *“the Proponent Shall, commencing in the reporting year during which the Proponent begins the implementation of the conditions set out in this Decision Statement, prepare an annual report”*. The report is laid out such that each heading addresses an annual reporting requirement defined within the subheadings of Condition 2.9.

## 2. Consideration for consultation

The following sections identify the Decision Statement conditions that required consultation and how the Proponent has considered the views and information received as per the requirements set out in Conditions 2.2 to 2.14.

*2.2 The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement:*

*2.2.1 provide a written notice of the opportunity for the party or parties being consulted to present their views and information on the subject of the consultation;*

*2.2.2 provide sufficient information on the scope and the subject matter of the consultation and a reasonable period of time to permit the party or parties being consulted to prepare their views and information;*

*2.2.3 provide a full and impartial consideration of any views and information presented by the party or parties being consulted on the subject matter of the consultation; and*

*2.2.4 advise in a timely manner the party or parties being consulted on how their views and information have been considered by the Proponent.*

*2.3. The Proponent shall, where consultation with Indigenous groups is a requirement of a condition set out in this Decision Statement, communicate with each Indigenous group with respect to the manner by which to satisfy the consultation requirements referred to in condition 2.2, including methods of notification, the type of information and the period of time to be provided when seeking input, the process for full and impartial consideration of any views and information presented on the subject of the consultation, and the means by which Indigenous groups will be informed of how their views and information have been considered by the Proponent.*

*2.4. The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, determine, as part of the development of the follow-up program and in consultation with Indigenous groups and relevant authorities, the following information, for each follow-up program:*

*2.4.1. the methodology, location, frequency, timing, and duration of monitoring associated with the follow-up program as well as the scope, content, and frequency of reporting of the follow-up results;*

*2.4.2. the levels of environmental change relative to established baseline conditions that would require the Proponent to implement additional mitigation measure(s), including instances where the Proponent may require Designated Project activities to be stopped; and*

*2.4.3. the range of technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.4.2 have been reached or exceeded.*

*2.5. The Proponent shall submit the information referred to in condition 2.4 to the Agency prior to the implementation of a follow-up program. The Proponent shall update that information in consultation with Indigenous groups and relevant authorities during the implementation of the follow-up program, and shall provide the updated information to the Agency, Indigenous groups, and relevant authorities within 30 days of the information being updated.*

*2.6. The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement:*

*2.6.1. conduct the follow-up program according to the information determined pursuant to condition 2.4;*

*2.6.2. undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s);*

*2.6.3. determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken pursuant to condition 2.6.2; and*

*2.6.4. if modified or additional mitigation measures are required pursuant to condition 2.6.3, develop and implement the modified or additional mitigation measures in a timely manner and monitor them pursuant to condition 2.6.2.*

*2.7. Where consultation with Indigenous groups is a requirement of a follow-up program, the Proponent shall discuss with each Indigenous group opportunities for the participation of that Indigenous group in the implementation of the follow-up program, including the analysis of the follow-up results and whether modified or additional mitigation measures are required, as set out in condition 2.6.*

*2.8. The Proponent shall follow the consultation process outlined in conditions 2.3, 2.4, 2.5, and 2.7 when consulting Gitxsan Wilp Nii Kyap for the purpose of conditions 3.7 and 9.5.*

*2.9. The Proponent shall, commencing in the reporting year during which the Proponent begins the implementation of the conditions set out in this Decision Statement, prepare an annual report that sets out:*

*2.9.1. the activities undertaken in the reporting year to comply with each of the conditions set out in this Decision Statement;*

*2.9.2 how the Proponent complied with condition 2.1;*

*2.9.3. for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation;*

*2.9.4. the information referred to in conditions 2.4 and 2.5 for each follow-up program;*

*2.9.5. the results of the follow-up program requirements identified in conditions 3.7,*

*4.3, 5.1, 6.10, and 6.11; and*

*2.9.6. any modified or additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.6.*

*2.10. The Proponent shall submit to the Agency the annual report referred to in condition 2.9, including an executive summary in both official languages, no later than March 31 following the reporting year to which the annual report applies.*

*2.11. The Proponent shall publish on the Internet, or any medium which is widely publicly available, the annual reports and the executive summaries referred to in conditions 2.9 and 2.10, the reports related to accidents and malfunctions referred to in conditions 9.4.3 and 9.4.4, the communication plan referred to in condition 9.5, the implementation schedule referred to in condition 10.1, and any update(s) or revision(s) to the above documents, upon submission of these documents to the parties referenced in the respective conditions. The Proponent shall keep these documents publicly available throughout construction and operation and until the end of decommissioning. The Proponent shall notify the Agency, Indigenous groups, and Gitxsan Wilp Nii Kyap of the availability of these documents upon publication.*

*2.1.2. The Proponent shall notify the Agency and Indigenous groups in writing no later than 60 days after the day on which there is a transfer of ownership, care, control, or management of the Designated Project in whole or in part.*

*2.1.3. The Proponent shall consult with Indigenous 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).*

*2.1.4. 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.*

### **3. Condition 3: Fish and Fish Habitat**

#### **3.1. Condition 3.1**

*The Proponent shall implement erosion and sedimentation control measures within the Project during all phases of the Designated Project to avoid the deposit of deleterious substances in water frequented by fish.*

As per the Erosion Prevention and Sediment Control Plan, erosion and sediment control (ESC) techniques were implemented as part of KUG Care and Maintenance activities in 2022. There were ongoing stabilization earthworks performed in the Kemess Lake Valley (KLV) throughout the year, as well as hydroseeding being done in the fall before snowfall and repairs to existing silt fencing. In addition, the bank on the road to the Attichika Creek Diffuser and banks along River Jordan were stabilized and hydro/hand seeded. Furthermore, the overburden stockpile north of the WRD was also stabilized through re-contouring. Elsewhere, routine maintenance on roads, the airstrip and other surfaces were maintained as needed to protect against erosion and subsidence. All water that reports to the mine site water management area (MSWMA) is either pumped to the KUG Tailings Storage Facility (TSF) or flows to sediment settling features (i.e. settling ponds, check-dams) prior to release into the natural environment.

Settlement ponds were successful in reducing sediment transport within the MSWMA, verified by in-situ turbidity measurements at discharge points.

#### **3.2. Condition 3.2**

*The Proponent shall, taking into consideration Fisheries and Oceans Canada's Measures to Avoid Causing Harm to Fish and Fish Habitat Including Aquatic Species at Risk, implement mitigation measures when conducting Designated Project activities to avoid causing harm to fish and fish habitat, including timing work in or around water to respect the timing windows identified to protect fish.*

No in-stream works were conducted during the reporting period. To avoid and mitigate any potential for serious harm to fish, the following measures will be implemented when in-stream works are necessary:

- Works will be completed during the November- February low flow period;
- A qualified environmental professional will be present to monitor for the presence of fish in the immediate construction areas; and
- Riparian clearing will be kept to a minimum.

#### **3.3. Condition 3.3**

*The Proponent shall comply with the Metal Mining Effluent Regulations and subsection 36(3) of the Fisheries Act regarding the deposit of effluent from the Designated Project in water frequented by fish, taking into account the Canadian Council of Ministers of the Environment's*

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*Water Quality Guidelines for the Protection of Aquatic Life, from the start of construction to the end of decommissioning. In doing so, the Proponent shall:*

*3.3.1 place all acid-generating and potentially acid-generating material into the tailings storage facility and submerge all such materials placed in the tailings storage facility under a permanent water cover; and*

During construction activities at the Kemess Mine site in 2018, all acid-generating and potential acid-generating material was deposited into the KUG TSF under a permanent water cover.

*3.3.2 collect and treat all waters affected by the Designated Project that do not meet the requirements of the Metal Mining Effluent Regulations and subsection 36(3) of the Fisheries Act, as applicable, prior to the affected waters being deposited in waters frequented by fish.*

Water quality sampling will take place as per the Metal and Diamond Mining Effluent Regulation (MDMER) and the *Fisheries Act*, when production triggers that requirement, and will be conducted in accordance with the Canadian Council of Ministers of the Environment's Water Quality Guidelines for the Protection of Aquatic Life.

Select seepage water from the NAG Waste Rock Dump, which has relatively high selenium concentrations, was originally collected in the Selenium Collection Pond (SeCP). This water was then pumped directly to the KUG TSF through a pump and pipeline system. The Southern Collection System Pond (SCSP), which was completed and commissioned in September 2020, receives flow by gravity from the SeCP via the Southern Collection Ditch (SCD). The SCSP, which allows for a greater quantity of seepage water from the NAG waste rock dump to be captured, including seepage points located to the west (SP7, SP7a), was continually pumped to the KUG TSF in 2022.

In October 2022, the SP27 ditch was constructed to divert additional seepage coming from this area in the Waste Rock Dump to the SCSP for subsequent pumping back to the KUG TSF.

For the selenium monitoring program investigating seepage in and around the Kemess mine footprint, results from 2022 indicate selenium water-borne levels in all environmental compartments of Waste Rock Creek continue within the range of concentrations observed in previous years, but still exceed selenium provincial guidelines at some stations. In November 2022, new EMA Permit Interim Attainment Schedule guidelines for water quality stations WQ-14ds and WQ-14F in Waste Rock Creek were implemented. Due to a quick freeze-up and low-flow conditions, this led to selenium exceedances at both stations in November and December 2022. Continued monitoring and investigation into further mitigative actions to better understand flow patterns will help elucidate any further steps needed to avoid any exceedances. However, it is important to note that despite some elevated selenium concentrations, there is no evidence of effects on biological communities of Waste Rock Creek.

### **3.4. Condition 3.4**

*The Proponent shall install hydraulic plugs in the declines before the underground mine is flooded to direct seepage from the flooded underground mine towards East Cirque Creek.*

Construction of the underground has not started, and hydraulic plugs will be implemented at the time of flooding.

### **3.5. Condition 3.5**

*The Proponent shall, in a manner that complies with the Metal Mining Effluent Regulations and subsection 36(3) of the Fisheries Act, discharge water from the tailings storage facility into Attichika Creek during construction and the first year of operation such that flow rates downstream of the discharge location are within the range of minimum and maximum flow rates naturally occurring in Attichika Creek, and shall only discharge water into Attichika Creek during open water months.*

Discharge into Attichika Creek in 2022 from the tailings storage facility occurred in accordance with the limits and dilution ratios stipulated in EMA Permit 15335 to protect aquatic life. Discharge only occurred during open water months.

### **3.6. Condition 3.6**

*The Proponent shall divert all runoff from the East Pit quarry into the tailings storage facility during construction and operation.*

Runoff from the East Pit Quarry drainage reports directly into the KUG TSF via existing drainage ditches. Most flow is captured by gravity, and the rest is collected in a ditch that reports to Dump Pond 1, which is then pumped to the KUG TSF. No additional measures or works were implemented in 2022. Monitoring of the drainage pattern from the East Pit Quarry will continue through the construction and operations phases of the mine life in accordance with the Mine Site Water Management Plan.

### **3.7. Condition 3.7**

*Discuss consultation activities relative to Condition 3.7: The Proponent shall develop, prior to construction and in consultation with Indigenous groups, Gitxsan Wilp Nii Kyap, and relevant authorities, and implement, from the start of construction to the end of decommissioning, a follow-up program to verify the accuracy of the environmental assessment as it pertains to fish and fish habitat and to determine the effectiveness of mitigation measures referred to in conditions 3.1 to 3.6. As part of the follow-up program, the Proponent shall:*

*3.7.1 monitor quality of water discharged in Attichika Creek during the dewatering of the Kemess South Pit and treat that water to meet the requirements of subsection 36(3) of the Fisheries Act;*

AuRico Metals submitted its permit application to the Major Mines Permitting Office (MMPO) on August 31, 2017. Prior to the official permit application submission, AuRico Metals consulted with Tsay Keh Nay (TKN) on the development of a Fish and Aquatic Effects Monitoring Plan (FAEMP), a Wildlife Management and Monitoring Plan (WMMP), and a Mine Site Water Management Plan (MSWMP); circulating draft copies of these plans on June 30, 2017, which was 60 days in advance of the official permit application submission. These plans were developed in consideration of Condition 3.7. AuRico and TKN continued to consult on management plans throughout the permitting process and established collaboration and consultation methods espoused within the 2017 Impact Benefit Agreement (IBA). Permitting and permitting consultation activities with relevant authorities and TKN for KUG are ongoing.

During the permitting process, TKN, via their consultants at Environment Dynamics Incorporated (EDI), provided feedback on fish and fish habitat. TKN comments focused on the Selenium Management Plan, which outlines selenium monitoring, as well as mitigation measures for capturing flows with elevated selenium and addressing potential flow reduction in Waste Rock Creek. TKN was concerned that reduced flows in Waste Rock Creek may result in the environmental flow needs for fish and fish habitat not being met in Waste Rock Creek. In response, AuRico installed an additional monitoring station (WQ-14ds) in 2018 to gather flow data to verify model flow predictions; data from which is being used to inform management decisions if the environmental flow needs in Waste Rock Creek are not being met.

In 2022, discharge occurred to Attichika Creek between June 8 to August 6. The Attichika Diffuser is shown in photo plate 3.5.1.

Results from the 2022 Fish and Aquatic Effects Monitoring Study showed that condition of water quality, sediment quality, periphyton communities, and benthic invertebrate abundance, composition, and diversity, and fish tissue concentrations in Attichika Creek remained within pre-discharge levels, and were consistent with those of healthy aquatic ecosystems in the region.

*3.7.2 monitor surface water quality in Amazay Lake and groundwater movement between the subsidence zone identified by the Proponent during the environmental assessment and Amazay Lake;*

A baseline characterization of Amazay Lake and Amazay Creek was conducted in September 2019 to support the Amazay Lake Adaptive Management Biological Monitoring program by providing background data of biological communities at Amazay Lake and Amazay Creek prior to the start of the KUG mine operations. The baseline characterization included water quality, sediment quality, periphyton, benthic invertebrate communities, and fish tissue metal concentrations.

*3.7.3 monitor changes in channel form and sediment load downstream of the discharge location in Attichika Creek;*

Fish monitoring in Attichika Creek has shown that there is no direct evidence that juvenile fish were avoiding habitats within a short distance downstream from the active diffuser. This reinforces the understanding that channel form and sediment load remain unchanged from previous years.

*3.7.4 monitor changes in water quality in Waste Rock Creek and the tailings storage facility, including changes in selenium concentrations;*

As mentioned previously, water-borne selenium concentrations remain elevated at most stations in Waste Rock Creek, although are in the range of previous years. However, selenium concentrations were substantively less in the Attichika wetlands relative to upper Waste Rock Creek sampling stations.

*3.7.5 monitor the presence and use of spawning habitat by bull trout (Salvelinus confluentus) and rainbow trout (Oncorhynchus mykiss) downstream of the discharge location in Attichika Creek prior to and after the installation of the discharge pipeline into Attichika Creek. The Proponent shall offset any loss of spawning habitat for bull trout (Salvelinus confluentus) and rainbow trout (Oncorhynchus mykiss) in Attichika Creek if monitoring results show that spawning habitat loss has occurred;*

Annual fisheries monitoring in 2022 showed that there has not been any loss of spawning habitat for bull and rainbow trout spawning habitat downstream of the discharge location in Attichika Creek.

*3.7.6 monitor contaminants, including mercury, in the tissue of fish species harvested by Indigenous groups in Thutade Lake, including bull trout (Salvelinus confluentus)*

Bull trout tissue mercury concentrations were greater in 2022, relative to 2019 data, but were similar to 2020 results. Although tissue mercury concentrations have been greater in recent years compared to 2019, previous monitoring programs have reported relatively high mercury concentrations in other local lakes that are not exposed to mine activities, which suggests mercury levels may be naturally elevated in fish communities of the area; particularly in large, piscivorous fish such as Thutade Lake bull trout.

## 4. Condition 4: Migratory Birds

### 4.1. Condition 4.1

*The Proponent shall carry out Designated Project activities in a manner that protects migratory birds and avoids harming, killing, or disturbing migratory birds or destroying, disturbing, or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's Avoidance Guidelines. The Proponent's actions in applying the Avoidance Guidelines shall be in compliance with the Migratory Birds Convention Act, 1994 and with the Species at Risk Act.*

In 2022, the construction of SP27 ditch required the clearing of approximately 0.3 ha of area, of which approximately 0.15 ha had vegetative cover. This area consisted of non-merchantable vegetation, and no merchantable trees were harvested within the clearing area. The vegetation clearing occurred outside of the bird nesting window on August 17<sup>th</sup>, but a pre-clearing survey was still completed on July 29<sup>th</sup>, 2022 prior to construction.

Bi-weekly surveys of infrastructure potentially used by barn swallows for nesting during the breeding season were completed. These surveys showed that both barn and tree swallows preferred the Accommodations area for nesting, possibly due to availability of more open-sheltered areas to protect their nests. In comparison, it was noted that tree swallows nested on higher abandoned buildings, where the swallows were able to access old air intakes. Cliff swallows preferred to nest around the Mill area, where the conveyor is located approximately 80 meters from the ground, as it appears that these swallows prefer the high areas on-site to protect their nests from predators.

Please refer to the 2022 Annual Reclamation Report for more information, which has the nest data per location for each swallow type and description of monitoring methods utilized.

### 4.2. Condition 4.2

*The Proponent shall deter migratory birds from accessing the tailings storage facility and seepage ponds until water quality is not harmful to migratory birds.*

Use of the KUG TSF and seepage ponds by migratory birds was monitored throughout the 2022 reporting year as part of the on-site wildlife reporting. No instances of birds accessing or inhabiting the KUG TSF or seepage ponds were reported in 2022. Monitoring for use by migratory birds will continue in 2023 and deterrent(s) will be implemented as necessary. Although the water quality of the KUG TSF does not meet chronic aquatic life guidelines for some parameters, it is not considered harmful to migratory birds.

As an additional measure, non-harmful bird deterring mechanisms will be implemented in the spring of 2023 to ensure no migratory bird nesting occurs on KUG-TSF or seepage ponds.

### **4.3. Condition 4.3**

*The Proponent shall 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, including the mitigation measures used to comply with conditions 4.1 and 4.2. The Proponent shall implement the follow-up program from the start of construction to the end of decommissioning.*

A follow-up program will be developed and implemented once a decision is made to initiate construction of KUG.

## **5. Condition 5: Human Health**

### **5.1. Condition 5.1**

*The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to adverse effects on the health of Indigenous Peoples caused by changes in concentrations of contaminants of potential concern identified during the environmental assessment in air, soil, water, and sediment. The Proponent shall implement the follow-up program during construction and operation. As part of the development of the follow-up program, the Proponent shall:*

*5.1.1 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; and*

*5.1.2 if monitoring results demonstrate that concentration levels for contaminants of potential concern are greater than the identified levels of environmental change, update the human health risk assessment for the consumption of traditional foods exposed to these contaminants and communicate the results of the updated human health risk assessment to Indigenous groups.*

AuRico Metals circulated the proposed Human Health Follow-up Program to TKN via email on March 20, 2018. A reminder of requests for feedback was discussed at the April 20, 2018 EMC meeting. To date no comments have been received.

As per Section 4.4 of the Human Health Follow-up Program and Section 3.4 of the Ecosystem Management Plan, soil and vegetation sampling was conducted in 2022. Vegetation used by wildlife for forage was targeted, including sedges, lichens, and willows. Soil and vegetation were sampled on-site in different areas exposed to industrial activities, as well as at non-impact

control sites.

The soil and vegetation were analyzed for trace metal uptake. The soil sample results were compared to both CCME and BC Contaminated Site Regulation soil quality guidelines. The vegetation sample results at exposure sites were compared to the non-impact control sites using statistical analyses.

This sampling was conducted to match the frequency of the Reclamation and Closure Plan update, which also occurred in 2022. Detailed results will be presented in the Human Health Follow-up Program report, which will be submitted by 31 March 2023. This report is also included in Appendix B.

## **6. Condition 6: Current Use of Lands and Resources for Traditional Purposes**

### **6.1. Condition 6.1**

*The Proponent shall install and maintain, during construction and operation, ramps every 100 to 300 metres over the discharge line between the tailing storage facility and Attichika Creek to provide passage for moose (*Alces alces*), woodland caribou (*Rangifer tarandus caribou*), grizzly bear (*Ursus arctos*), and furbearers. The Proponent shall identify the locations of ramps in consultation with Indigenous groups and relevant authorities.*

The discharge line between the KUG TSF and Attichika Creek was installed in 2018. There are no other impediments relating to this condition. As the entire discharge line was buried at the time of installation, wildlife access has never been impeded, thereby removing the need for installation of ramps.

### **6.2. Condition 6.2**

*The Proponent shall create and maintain, during construction and operation, escape pathways along all access roads associated with the Designated Project, including the northern section of the Omineca Resource Access Road, to allow ungulates to exit the plowed roads. The Proponent shall identify the locations of escape pathways in consultation with Indigenous groups and relevant authorities.*

During all snow-laden months in 2022, the Omineca Resource Access Road (ORAR) was not kept open; therefore, there was no need for monitoring to ensure safe passage of ungulates exiting plowed roads. Additionally, on mine roads snowbank breaks are created every 300 meters adjacent from each other to allow movement of wildlife through the winter months.

In the spring, summer and fall of 2022, a contractor was retained as per the IBA to complete brushing and road maintenance on the ORAR.

### **6.3. Condition 6.3**

*The Proponent shall, from the start of construction to the end of decommissioning, remove carrion within 24 hours of its discovery by the Proponent from all access roads associated with the Designated Project, including the northern section of the Omineca Resource Access Road.*

No carrion were observed by AuRico staff or contractors in 2022. As per the Wildlife Management and Monitoring Plan (WMMP), Kemess tracked incidental wildlife occurrences on the mine site and also on the ORAR corridor. All wildlife observations by Kemess staff and contractors were communicated to the Kemess environmental department via in-person communication, radio communication, or self-documentation. Employees have always been encouraged to submit photos along with the location, date and time of observation to help

confirm the ID of the species and track movement. As the ORAR was closed during snow-laden months, there were no reports of carrion being observed in 2022. Carrion monitoring and removal will continue through the life of mine to the end of decommissioning.

#### **6.4. Condition 6.4**

*The Proponent shall prohibit employees and contractors associated with the Designated Project from fishing, hunting, and trapping within the Project Area, unless an employee or a contractor is provided access by the Proponent for traditional purposes or for exercising Aboriginal rights, to the extent that such access is safe.*

As per condition 6.4, AuRico created the No Fishing, Hunting and Gathering Policy on June 29, 2018, which is reviewed as part of the new worker mine site orientation. The Kemess Mine Fishing and Hunting Policy (FaHP) is designed to ensure safety of Kemess Mine personnel, contractors and the general public in the Kemess Mine area, as well as for the protection of fish, wildlife and plant resources at the mine site. The policy defines that hunting, fishing or trapping, mushroom, berry picking, or the gathering of plants is not permitted by mine personnel or contractors at the mine site at any time. The policy is communicated to all employees at the Kemess Mine site when undergoing mine site orientation. Supplementary signage is posted around site displaying the policy.

#### **6.5. Condition 6.5**

*The Proponent shall, prior to construction and in consultation with Indigenous groups and relevant authorities, conduct pre-clearing surveys to identify Western toad (*Anaxyrus boreas*) breeding habitat, and shall implement measures to mitigate the loss of Western toad (*Anaxyrus boreas*) breeding habitat caused by the Designated Project.*

Prior to the official permit application submission, AuRico Metals consulted with Tsay Keh Nay (TKN) on the development of the WMMP. To date, no comments on the Western Toad pre-clearing surveys have been received. AuRico and TKN continue to consult on management plans and follow up program development through established collaboration and consultation methods espoused within the 2017 IBA.

AuRico, through its joint Environmental Management Committee (EMC) with TKN, discusses plans for any major pre-clearing surveys and the subsequent results with TKN.

A pre-clearing bird, furbearers and amphibian survey was conducted on July 29<sup>th</sup>, 2022 prior to construction of the SP27 ditch, which did not show any signs of the Western Toad (*Anaxyrus boreas*) or any other species of concern.

#### **6.6. Condition 6.6**

*The Proponent shall conduct pre-clearing surveys to determine the distribution of little brown*

*myotis (Myotis lucifugus) and Northern myotis (Myotis septentrionalis), and establish, in consultation with Indigenous groups and relevant authorities, buffer zones around active hibernacula and active roosts.*

During the permitting process, TKN, via their consultants at Environment Dynamics Incorporated (EDI), provided feedback on the bat pre-clearing surveys, submitting seven questions. TKN comments focused on the methodology used to identify what species of bat were roosting in the area and which roosting structures or nursery bat boxes were actively used.

AuRico conducted initial bat habitat surveys in November of 2017 to inform the initial offsetting requirements for roosting structures. In April, 2018, pre-clearing surveys were conducted prior to construction initiating in July and thirty-five nursery bat boxes were installed. Installed bat boxes will be subject to ongoing monitoring to determine usage and if active, will assist in identifying active hibernacula and active roosts and establishing buffer zones. During 2020, surveys of the bat boxes showed only one instance of bat activity at these sites.

In 2022, liner was placed under bat boxes to better detect usage during non-hibernating months. There were no observations of guano on the liner in 2022, and there were no incidental observations of bats at the Project. Given the very limited observation of bats using the bat boxes or in undisturbed habitat on the Project Site, it appears that the presence of bats in the Kemess area has been over-rated. Additionally, for two years there has been no further disturbance to potential bat habitat and limited anthropogenic activity on site which would deter bat habitation. In 2023, the need for further mitigation of bat habitat will be assessed to determine next steps in accordance with the Wildlife Management and Monitoring Plan.

### **6.7. Condition 6.7**

*The Proponent shall install, prior to construction, and maintain, during construction and operation, roosting structures to offset any loss of little brown myotis (Myotis lucifugus) and Northern myotis (Myotis septentrionalis) roosting habitat.*

Once a decision has been made to initiate construction, more roosting structures will be planned and implemented to offset any loss of little brown myotis (*Myotis lucifugus*) and Northern myotis (*Myotis septentrionalis*) roosting habitat.

### **6.8. Condition 6.8**

*The Proponent shall develop and implement a follow-up program to monitor the little brown myotis (Myotis lucifugus) and Northern myotis (Myotis septentrionalis) usage of buffer zones and roosting structures to determine the effectiveness of the mitigation measures during construction and operation.*

During construction and operation, a follow-up program will be implemented to determine the

effectiveness of mitigation measures involving the use of buffer zones for little brown myotis (*Myotis lucifugus*) and Northern myotis (*Myotis septentrionalis*).

A follow-up program will be implemented to monitor mitigation measures for the little brown and Northern myotis upon initiation of construction activities.

#### **6.9. Condition 6.9**

*The Proponent shall, in consultation with Indigenous groups, undertake progressive reclamation of the habitats disturbed by the Designated Project. The Proponent shall use native species when undertaking that progressive reclamation.*

Upon initiation of construction activities, progressive reclamation of the habitats disturbed by the Project will be planned and conducted.

#### **6.10. Condition 6.10**

*The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the presence of hoary marmot (*Marmota caligata*), white-tailed ptarmigan (*Lagopus leucura*), and short-eared owl (*Asio flammeus*) within the subsidence zone identified by the Proponent during the environmental assessment and within a buffer area of 250 metres along the limits of that subsidence zone. The Proponent shall implement the follow-up program during construction and operation.*

AuRico Metals submitted its initial draft permit application to the Major Mines Permitting Office (MMPO) on August 31, 2017. Prior to the official permit application submission, AuRico Metals consulted with Tsay Keh Nay (TKN) on the development of the WMMP and circulated a draft copy of the plan for comment and feedback on June 30, 2018, 60 days in advance of the official permit submission. Permitting and permitting consultation activities with relevant authorities and TKN as part of the Mine Review Committee (MRC) for KUG concluded in Q2 2018. To date, no specific feedback has been received on the subsidence zone follow-up program. AuRico and TKN continue to consult on management plans and follow up program development through the permitting process and established collaboration and consultation methods espoused within the 2017 IBA.

As per the WMMP, field surveys need to be conducted in areas deemed important habitat for the hoary marmot, white-tailed ptarmigan and short-eared owl prior to clearing and/or construction activities in the subsidence zone. There was no disturbance in the subsidence zone in 2022.

From January to May, 2022, there were 13 ptarmigan sightings. In November, 2022, there were 14 sightings of white-tailed ptarmigan and 16 of the same species in December, 2022. There were two sightings of marmot during July, 2022 and two sightings of short-eared owls within

April and May, 2022.

### 6.11. Condition 6.11

*The Proponent shall develop, prior to construction and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of changes caused by the Designated Project to the Chase herd of Southern mountain caribou (*Rangifer tarandus caribou*) and the Thudade herd of Northern mountain caribou (*Rangifer tarandus caribou*) on caribou hunting activities for traditional purposes and to determine the effectiveness of the mitigation measures. The Proponent shall implement the follow-up program from the start of construction to the end of decommissioning. As part of the follow-up program, the Proponent shall:*

*6.11.1 monitor, during construction and the first three years of operation, the use by moose (*Alces alces*), woodland caribou (*Rangifer tarandus caribou*), grizzly bear (*Ursus arctos*), and furbearers of the ramps referred to in condition 6.1 and of the escape pathways referred to in condition 6.2; and*

*6.11.2 monitor mortality of wildlife on all access roads associated with the Designated Project, including the northern section of the Omineca Resource Access Road.*

Follow up programs for conditions 6.11.1 and 6.11.2 are outlined in sections 6.1 and 6.2, respectively.

As part of the on-site monitoring program, all wildlife sightings observed on the mine site are tracked. In addition, there are game cameras set up at Kemess North, KLV, Attichika Diffuser, and above the KUG TSF.

For caribou, bear and moose, there were the following sightings on the Kemess Mine site and on the ORAR in 2022: **April:** 1 moose; **May:** 5 black bear; 1 grizzly bear; 2 moose; 1 caribou; **June:** 13 black bear; 47 grizzly bear; 13 moose; 14 caribou; **July:** 14 black bear; 29 grizzly bear; 11 moose; 11 caribou; **August:** 10 grizzly bear; 6 moose; 12 caribou; **September:** 2 black bear; 5 grizzly bear; **October:** 7 grizzly bear; 2 moose; **November:** 6 moose; **December:** 9 moose.

A graph showing the total number of wildlife sightings on the mine site for 2022 is present in Appendix C.

Mortalities of two ptarmigans were observed due to natural predation by foxes. No other wildlife mortalities were noted.

## 7. Condition 7: Physical and Cultural Heritage and Structures, Sites, or Things of Historical, Paleontological, or architectural

## Significance

### 7.1. Condition 7.1

*The Proponent shall, for any previously unidentified archeological structures, sites, or things of historical, archaeological, paleontological, or architectural significance discovered by the Proponent or brought to the attention of the Proponent by an Indigenous group, Gitxsan Wilp Nii Kyap, or another party during any phase of the Designated Project:*

- 7.1.1 immediately halt work at the location of the discovery;*
- 7.1.2 have a qualified individual conduct an assessment at the location of the discovery;*
- 7.1.3 inform, forthwith, in writing, Indigenous groups and Gitxsan Wilp Nii Kyap of the discovery, and allow for monitoring by Indigenous groups and Gitxsan Wilp Nii Kyap during archeological work; and*
- 7.1.4 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.*

In early August 2017, an Archeological Impact Assessment (AIA) of five ancillary development areas to the proposed KUG was conducted to ensure compliance with the Heritage Consultation Act (HCA) prior to any ground altering activities. A total of 70 ha of area was surveyed, 295 tests were excavated, and 15 exposures were inspected. The field crew consisted of Millennia personnel and members of Tsay Keh Dene, Kwadacha, and Takla Lake First Nations.

In 2018, an Archaeological Chance Find Procedure was developed for the Project. It provides a standard operating procedure should heritage sites, not identified during baseline studies, be discovered during Construction or Operations. The Archaeological Chance Find Procedure includes the following steps if personnel suspect archaeological, traditional use, and paleontological materials or human remains are discovered:

- Immediately contact the Environmental Superintendent or Construction Manager to implement a stop work order to reduce/minimize impacts to the site;
- Leave the material in place and protect and/or mark the area around the site, and do not disturb or collect any archaeological, paleontological, heritage materials, or human remains; and
- Report the discovery to their immediate Supervisor.

The General Manager and the Project Archaeologist will also be notified as outlined in the management plan. The Archaeology Branch and local Aboriginal groups/organizations will be advised of the discovery, if necessary. Final mitigation measures will be determined through consultation with the Archaeology Branch.

During a site tour in July 2022, a Kemess Environmental employee noticed a rock that resembled obsidian and had the markings of some kind of tool. The rock was put back in its original location and the site was flagged off with a buffer and signage. The B.C. Archaeological branch and the

local indigenous groups were notified of the find. The incidental finding was reported to the TKN and included within the 2022 Annual Heritage Report.

## **7.2. Condition 7.2**

*The Proponent shall not undertake any ground altering activities within 50 metres of the boundaries of archeological sites, unless authorized by relevant authorities.*

As per the Heritage Management Plan, all known archaeological sites within 150 m of the Project footprint have been clearly indicated on development maps in relation to the Project footprint components. If construction is occurring within 150 m of a protected heritage site, the site will be flagged or temporarily fenced to serve as a visible barrier. The Kemess Environment Monitor will monitor for archaeological site impacts or situations where construction activities occur less than 50 m from a site. Should impacts be anticipated or found to have occurred within 50 m of an archaeological site, the Project Archaeologist will be contacted to determine if additional mitigation measures are required. Environment Department staff members will be fully briefed on the HMP and resulting mitigation measures.

During construction activities, the preferred mitigation measure for archaeological sites is avoidance.

The clearing and construction of the SP27 ditch at the toe of the Waste Rock Dump did not occur in close proximity to any known archaeological sites, nor were there any chance finds during construction.

## **8. Condition 8: Independent Environmental Monitor**

### **8.1. Condition 8.1**

*Prior to the start of construction, the Proponent shall retain the service of an independent environmental monitor, who is a qualified individual as it pertains to environmental monitoring of mining projects in British Columbia, to observe, record, and report on the implementation of the mitigation measures set out in this Decision Statement.*

Environmental Dynamics Inc. (EDI) was retained in 2018 as the KUG Mine Site independent environmental monitor (IEM). A formal Terms of Engagement Document was submitted to AuRico by EDI in May, 2022.

EDI (Environmental Dynamics Inc.) was retained as IEM throughout the 2022 reporting period.

### **8.2. Condition 8.2**

*The Proponent shall give the independent environmental monitor the authority to stop*

*Designated Project activities that do not comply with the conditions set out in this Decision Statement.*

As per the 2018 IEM Terms of Engagement document, the IEM will have authority for stop work and will keep record of all stop work orders where works are resulting in, or are at imminent risk of, causing material environmental damage, in accordance with the EA Certificate and applicable legislation.

A Stop Work Order may be issued under two circumstances:

- In the event where an environmental incident, or where the completion of works at or in proximity to the location of the incident, has the potential to cause material unauthorized environmental impacts.
- In the event that a lack of compliance with the Certificate conditions, authorizations/permits and management plans has the potential to cause unauthorized adverse material environmental effects and previous communications with the responsible parties have not led reasonable corrective action.

Under both circumstances, the IEM will inform the responsible parties, EAO, IAAC and the Holder of the issue within 24 hours and provide rationale and high-level options/considerations for achieving compliance as soon as possible. A recommendation to lift the stop work order will occur when the IEM is satisfied that the appropriate steps have been taken to ensure compliance.

To date, no stop work orders have been issued by the IEM.

### **8.3. Condition 8.3**

*The Proponent shall require the independent environmental monitor to prepare reports that include:*

*8.3.1 a description, including through photo evidence, of the Designated Project activities that occurred and the mitigation measures that were applied during the period covered by the report; and*

*8.3.2 if any, a description, including through photo evidence, of occurrences of non-compliance related to the implementation of mitigation measures set out in this Decision Statement Page 12 of 14 observed during the period covered by the report, the date of the occurrence(s) of non-compliance, whether Designated Project activities were stopped as a result of non-compliance, how the occurrence(s) of non-compliance was or were corrected by the Proponent, the date that the corrective action(s) was or were completed by the Proponent, or, if any, the status of pending occurrence(s) non-compliance that have not been corrected yet, and a description of any adverse environmental effect(s) associated with the occurrence(s) of non-compliance.*

As per the July 2022 Environmental Monitoring Committee Terms of Reference document, an annual meeting was proposed to occur with the IEM, the Holder, EAO, IAAC, and other Regulators and Aboriginal Groups. This will be aligned with EMC meetings.

At each meeting, the Holder will provide a summary of Project activities since the last meeting and forecasted construction activities. The IEM will provide an update on the following items.

- Review of previous environmental concerns and status; and
- Summary of new environmental non-compliances and incidences, all corrective actions undertaken and successes of those actions.

A summary of compliance will be provided in a yearly report. The IEM will document, through written and photo documentation, any relevant inspections and communications pertaining to any non-compliance within the IEM checklist and the issue tracking log. Non-compliances will be closed out pending corrective action and removed from the issue tracking log in the subsequent report following indication of closure. Corrective actions by the Holder will be documented in the monthly report along with the date of corrective actions, the status of pending occurrences that have not been corrected yet, and a description of any adverse environmental effects associated with the occurrences of non-compliance.

The first IEM inspection occurred July 11-12, 2018.

In 2022, due to Covid-19 travel restrictions preventing the IEM from coming to site, some inspections were done by questionnaire. In total, we received reports in February, May, August, October and December 2022.

In 2022, the IEM accompanied enforcement officers from IACC to the Kemess Mine site during an inspection that occurred on July 4-7, 2022.

The IEM also accompanied the BC EAO to Kemess Mine site for an inspection that occurred on September 27-28, 2022.

#### **8.4. Condition 8.4**

*The Proponent shall require the independent environmental monitor to retain the reports referred to in condition 8.3 until the end of decommissioning. The Proponent shall require the independent environmental monitor to provide the reports referred to in condition 8.3 to the Agency, Indigenous groups, and relevant federal authorities within 10 days of their production. 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 immediately.*

AuRico has communicated the requirement for the IEM to retain compliance reports until the

end of decommissioning. The IEM and IEM Support will be tasked with documenting compliance with the Certificate conditions and management plan commitments throughout all Project phases. The IEM will provide information to EAO, IAAC, Ministry Energy and Mines (MEM), Ministry of Environment (ENV), Forests, Lands, Natural Resources Operations & Rural Development (MFLNRORD) and to Aboriginal Groups as directed by EAO and set out in the Decision Statement. The IEM will not provide such information or reports to the Holder in advance of providing such information or reports to the EAO and IAAC. The IEM will submit monthly (or following their site visit) a report to the Holder, the EAO, and IAAC simultaneously via email. Information or reports related to non-compliance will not be submitted to the Holder in advance of providing the information to the EAO and IAAC.

To align with Condition No. 12 of the Provincial EA Certificate related to the Environmental Monitoring Committee (EMC), and item 8.4 of the Decision Statement to provide reports to Indigenous groups, the IEM will submit the monthly (subject to site visit) and end of phase reports to the EMC on behalf of the Holder.

## **9. Condition 9: Accidents and Malfunctions**

### **9.1. Conditions 9.1, 9.2, 9.3, 9.4**

*9.1 The Proponent shall take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects.*

*9.2 The Proponent shall, prior to construction, consult with Indigenous groups and relevant authorities on the measures to be implemented to prevent accidents and malfunctions.*

*9.3 The Proponent shall, prior to construction and in consultation with Indigenous groups and relevant authorities, develop an emergency response plan in relation to the Designated Project.*

*9.4 In the event of an accident or malfunction with the potential to cause adverse environmental effects, the Proponent shall implement the emergency response plan referred to in condition 9.3 and shall:*

*9.4.1 notify Indigenous groups, Gitxsan Wilp Nii Kyap, and relevant authorities of the accident or malfunction as soon as possible, and notify the Agency in writing;*

*9.4.2 implement immediate measures to mitigate any adverse environmental effects associated with the accident or malfunction;*

*9.4.3 submit a written report to the Agency no later than 30 days after the day on which the accident or malfunction took place. The written report shall include:*

*9.4.3.1 a description of the accident or malfunction and of its adverse environmental effects;*

*9.4.3.2 the measures that were taken by the Proponent to mitigate the adverse environmental effects of the accident or malfunction;*

*9.4.3.3 any views received from Indigenous groups, Gitxsan Wilp Nii Kyap, and relevant authorities with respect to the accident or malfunction, its adverse environmental effects, and measures taken by the Proponent to mitigate adverse environmental effects; Page 13 of 14*

*9.4.3.4 a description of any residual adverse environmental effects and any modified or additional measures required by the Proponent to mitigate residual adverse environmental effects;*

*9.4.3.5 details concerning the implementation of the emergency response plan referred to in condition 9.3; and*

*9.4.4 submit a written report to the Agency, no later than 90 days after the day on which the accident or malfunction took place, on the changes made to avoid a subsequent occurrence of the accident or malfunction, and on the implementation of any modified or additional measures to mitigate and monitor residual adverse environmental effects and to carry out any required progressive reclamation, taking into account the information in the written report submitted pursuant to condition 9.4.3.*

AuRico Metals submitted its permit application to the Major Mines Permitting Office (MMPO) on August 31, 2017. Prior to the official permit application submission, AuRico Metals consulted with Tsay Keh Nay (TKN) on the development of the Emergency Response Plan, circulating a draft copy of the plan for comment and feedback on June 30, 2018, which was 60 days in advance of the official permit submission. The Mine Emergency Response Plan (MERP) is developed in consideration to conditions 9.3 and 9.5.

To date, no comments from TKN have been received on the draft Mine Emergency Response Plan or the draft Accidents and Malfunctions Communication Plan.

AuRico and TKN continue to consult on management plans through the permitting process and through established collaboration and consultation methods espoused within the 2017 Impact Benefit Agreement. Permitting and permitting consultation activities with relevant authorities and TKN for KUG is ongoing. The Mine Review Committee is paused until construction is initiated at the mine site for development of KUG.

Regarding Condition 9.5, AuRico circulated the draft Accidents and Malfunctions Communication Plan to Gitxsan Wilp Nii Kyap on December 22, 2017.

On July 5th, an IAAC inspection found some hydrocarbon staining on the ground at the heavy equipment hotline, a laydown area where vehicles are parked. The cause of the staining was

determined to be drips of oil or hydraulic fluid from the parked heavy equipment. The surficial nature of the hydrocarbon staining indicated that the volume was not of a reportable quantity per the BC Environmental Management Act Spill Reporting Regulation. Under the direction of the inspectors, an Accident and Malfunctions Notification was completed for the incident.

## **9.2. Condition 9.5**

*The Proponent shall develop and implement a communication plan in consultation with Indigenous groups and Gitxsan Wilp Nii Kyap. The Proponent shall develop the communication plan prior to construction and shall implement and maintain it up to date from the start of construction to the end of decommissioning. The plan shall include:*

*9.5.1 the types of accidents and malfunctions requiring the Proponent to notify the respective Indigenous groups and Gitxsan Wilp Nii Kyap;*

*9.5.2 the manner by which Indigenous groups and Gitxsan Wilp Nii Kyap shall be notified by the Proponent of an accident or malfunction and of any opportunities for the Indigenous groups and Gitxsan Wilp Nii Kyap to assist in the response to the accident or malfunction; and*

*9.5.3 the contact information of the representatives of the Proponent that the Indigenous groups and Gitxsan Wilp Nii Kyap may contact and of the representatives of the respective Indigenous groups and Gitxsan Wilp Nii Kyap to which the Proponent provides notification.*

As per Condition 9.5, the Accidents and Malfunctions Communication Plan was developed in 2018 to guide the co-ordination of communications between the organization and any applicable outside agencies (e.g. regulatory agencies, stakeholders, and the public) in the event of an accident and/or malfunction resulting from the KUG Project.

This plan identifies the types of accidents and malfunctions requiring notification to external stakeholders and the timeframe of notification (including updates subsequent to the initial notification) to each Aboriginal Group community and other users of the area that could be affected by the accident and/or malfunction. The Accidents and Malfunctions Management Plan is present in Appendix D.

## 10. Closure

Respectfully submitted,

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# APPENDIX A

## *2020 Human Health Follow Up Program Plan*

# APPENDIX B

## *2022 Human Health Follow Up Program Report*

## **APPENDIX C**

### ***Wildlife Sighting at Kemess Mine and on the Omineca Resource Access Road (ORAR)***

# APPENDIX D

## *Accidents and Malfunctions Communication Plan*