United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Northern Alaska Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
March 10, 2023

VIA ELECTRONIC MAIL, NO HARD COPY TO FOLLOW

Alaska Department of Natural Resources / Office of Project Management & Permitting
Attn: Ashlee Adoko, Large Project Coordinator
550 West 7th Avenue, Suite 1430
Anchorage, AK 99501-3577
manh.choh.comments@alaska.gov

Re: Peak Gold LLC, Manh Choh Project: Draft Waste Management Permit 2023DB0001 & Reclamation Plan Approval F20232626RPA

Dear Ms. Adoko:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced Public Notice for application of a State of Alaska Integrated Waste Management Permit and Reclamation Plan Approval to serve the proposed Manh Choh open pit gold mine. The Manh Choh Project (Project) includes development of two gold mine sites within the Tetlin Hills, located approximately 12 miles west from the Upper Tanana Athabascan Village of Tetlin, Alaska, and approximately 10 miles south of the town of Tok. The mine site would be situated on top of a group of low hills in the northern part of a lease between Tetlin and Peak Gold LLC and would be accessible from the Alaska Highway. Access to the mine sites requires two gravel roads, the Manh Choh Twin Road and the Manh Choh Site Road, both on Tetlin Land. The ore would be hauled more than 250 miles one-way to Fort Knox, northeast of Fairbanks, Alaska for processing. Development of the Project site would take about two years, and subsequent mining on site would continue for approximately 4.5 years. Termination of mine operations would include reclamation and revegetation of disturbed areas to minimize erosion and sedimentation.

Background: The Service previously commented on the proposed Project's potential impacts to 5.2 acres of wetlands and waters of the U.S. during the U.S. Army Corps of Engineers (USACE) Public Notice Comment Period (Attachment 1, February 11, 2022; POA-2013-00286). We provided additional comments to the USACE regarding effects to trust species during development of the compensatory mitigation plan for losses under the Clean Water Act (May 18, 2022). Our comments were associated specifically to Waters of the U.S. and the local impacts to aquatic resources presented in the USACE's public notice and not for the entire proposed Project. Based on the information provided to us at that time, we provided an assessment of potential impacts to Bald and Golden Eagles, migratory birds, and floodplain impacts and

recommended strategies to avoid and minimize effects to fish and wildlife. These are incorporated here by reference.

Our comments that follow are in response to two public notices: one from the State of Alaska Department of Environmental Conservation (DEC) draft Waste Management Permit (No. 2023DB0001), and the other from the Department of Natural Resources (DNR) - Division of Mining, Land, and Water, draft Reclamation Plan Approval (F20232626RPA). The DEC permit would authorize the storage and disposal of potentially acid-generating (PAG) rock and potentially metal leaching waste rock associated with mining activities. It would also cover secondary containment for hazardous substances/fuel and monitoring requirements for waste rock characterization and water quality. However, this draft permit does not address waste rock and water management off-site (e.g., along the haul route or at the final dumping location of Fort Knox). The second permit constitutes DNR approval of the applicant's reclamation plan including financial assurances for reclamation, and stabilization of the following major facilities: North and South Pits, Main and North Waste Rock Dumps, site facilities and buildings, haul roads, and other disturbances generated throughout mining activities.

Potentially Affected Fish and Wildlife Trust Resources: The Service's trust resources are natural resources we are entrusted to protect for the benefit of the American people. Within the proposed project area these resources may include migratory birds including bald and golden eagles, inter-jurisdictional fish, wetland and upland habitats used by these species, and lands managed by the Service (e.g., national wildlife refuges and their fish and wildlife management goals for the refuge).

Tetlin National Wildlife Refuge (NWR): Tetlin NWR was established in 1980 to conserve fish and wildlife populations and habitats in their natural diversity to provide subsistence hunting opportunities to rural inhabitants, and interpretation and environmental education to the public. Tetlin NWR is visited by thousands of migratory birds each spring and fall, its lands provide wetlands and waterbodies needed to rest and renew calorie stores for species on their way to the Arctic and beyond. In particular, the Trumpeter Swan (*Cygnus buccinator*), Lesser Scaup (*Aythya affinis),* Mallard (*Anas platyrhynchos*), and Whimbrel (*Numenius phaeopus*) use the aquatic resources of the refuge and surrounding lands.

Tetlin NWR's 730,000 acres are located about 20 miles east of the project site in the Tetlin River/Manh Choh Lake watershed. Tetlin NWR's close proximity and its downstream location from the proposed mine site potentially expose it to secondary effects of the mine operation and transport of ore. Such exposures include increased intensity and duration of noise, fugitive dust, and/or accumulation of leachate where groundwater discharges into waterbodies.

Eagles and Their Nests: The Bald and Golden Eagle Protection Act protects eagles from take, as well as from disturbance to their nests, roosts, and foraging sites. The density of eagles (juveniles and breeding adults), especially Golden eagles (*Aquila chrysaetos*), within Alaska is highly variable statewide and varies by season (McIntyre et al. 2008). The Service can offer guidance on past eagle use, but we cannot predict future use or potential use in areas where we have little or no data, such as the proposed project area. Both Bald (*Haliaeetus leucocephalus*) and Golden

eagles are present within the project area in early summer and fall.[1] However, the mountainous regions of the Alaska Range, including the proposed project location, are more suited to cliff-nesting Golden eagles.

Bald Eagles: Alaska supports a population of Bald eagles greater than that in all other states combined. Bald eagles nest on the south side of the Alaska Range near lakes and rivers.[2] Bald eagles may be present, and may nest, in trees adjacent to anadromous and resident fish waters, [3] and are documented nearby on the Tanana, Tetlin, and Kalutna Rivers.[4]

Golden Eagles: Golden eagles occur throughout much of Alaska. The Alaska population consists of nesting adults and non-nesting juveniles (Kochert and Steenhof 2002), most of which migrate in fall to wintering areas across a vast region of western North America (McIntyre et al. 2008, McIntyre 2012). Recent migration/movement studies of Golden eagles in similar habitats north of the Talkeetna Mountains indicate a density of 0.80 potentially breeding eagles/100 km2 and an overall estimate of 12,717 eagles of all ages within Alaska (Booms et al. 2021). Recent population estimates are three to five times larger than previous estimates and likely represent about one quarter of the total U.S. population (Booms et al. 2021). Tetlin NWR's 2015 raptor survey (Feierabend and Berg 2015) identified seven golden eagle nesting territories in the Upper Tanana Region (essentially, within and around the Refuge).

Migratory Birds: The Migratory Bird Treaty Act (MBTA) prohibits the take (attempt to or to pursue, hunt, shoot, wound, kill, trap, capture, sell, trade, transport) of protected migratory bird species without prior authorization by the U.S. Fish and Wildlife Service.[5] About 185 bird species migrate through, nest, and/or overwinter within interior Alaska.[6] The Service's birds of conservation concern that may nest or migrate through the project area include: Lesser yellowlegs (*Tringa flavipes*) and Olive-sided flycatcher (*Contopus cooperi*).[7] Additional species of concern using the adjacent Tetlin NWR which are likely to be found in the project area include the Olive-sided Flycatcher (*Contopus cooperi*) and Gray-headed Chickadee (*Poecile cinctus*).[8] Additionally, the density of osprey nests along the east shore of Tetlin Lake is unusually high, possibly the largest in the state). Osprey could be adversely impacted if the water quality of Tetlin Lake declines and affects their primary prey (humpback whitefish) during their nesting and breeding season.

Humpback whitefish: Managing humpback whitefish (*Coregonus pidschian*) is one of Tetlin NWR's management goals to conserve fish and wildlife populations representative of the natural diversity of the Upper Tanana Valley and boreal forest ecosystem (USFWS 2008). Tetlin NWR provides two significant spawning areas for humpback whitefish within the Refuge: one on the Nabesna River and the other on the Chisana River, as well as several important fishing areas (Brown 2006). Two other whitefish species are known to occur on the refuge: round whitefish

[1] https://ipac.ecosphere.fws.gov/location/KPGCTLMDI5D6ZOGWHZL7WMBI5Q/resources#endangered-species
[2] https://www.us-parks.com/denali-national-park-and-preserve/golden-eagle.html
[3] https://www.adfg.alaska.gov/index.cfm?adfg=baldeagle.printerfriendly
[4] https://eagle.abrinc.com/
[5] https://www.fws.gov/law/migratory-bird-treaty-act-1918
[6] https://avibase.bsc-eoc.org/checklist.jsp?region=USak02
[7] https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf
[8] https://www.fws.gov/refuge/tetlin/species?category=%5B%22Birds%22%5D

and least cisco, collectively referred to as whitefish, but humpback white fish are the primary subsistence fishery within the Refuge (USFWS 2008).

Brown (2006) described the migrations of humpback whitefish to spawning areas in braided regions of the lower Nabesna River and the Chisana River near the mouth of Scottie Creek on Tetlin NWR, and subsequent migrations downstream into the Tanana River and then for many, up the Tetlin River to overwintering habitat in Tetlin Lake. This is a major fishery resource, one that people in the upper Tanana River cannot afford to lose or have adversely impacted through contamination or other environmental impacts.

Subsistence Uses: Subsistence uses by local residents was one of the purposes for establishing Tetlin NWR (Section 302(4)(B) of ANILCA), and humpback whitefish are the major fish species targeted for subsistence in and adjacent to the Tetlin NWR (U.S. Fish and Wildlife Service (USFWS), 2008). Although Tetlin Tribal members harvest a variety of fish and game; whitefish and moose make up the majority of the harvest each year (Native Village of Tetlin, 2020). Whitefish are harvested throughout the summer while moose are harvested primarily in the fall. Tetlin residents depend on their whitefish catch and moose harvest to make it through the winter (Native Village of Tetlin, 2020). Most subsistence fishing is done by families from the communities of Northway and Tetlin. Case (1986) estimated the average household harvest in Northway was 170 kg per year. Similarly, Halpin (1987) estimated the average household harvest in Tetlin was 258 kg per year. While salmon have been documented in the region, they have never been abundant and are not targeted in the fishery. Halpin (1987) described the fishery in the Tetlin River near the community of Tetlin as a dipnet fishery during migrations into and out of Tetlin Lake. Additional fishing takes place in the Tetlin River upstream from Tetlin Lake as well, in the seasonal camp called Last Tetlin.

Invasive Species: The introduction of non-native species into intact ecosystems is recognized by scientists and land managers as one of the primary causes of biodiversity loss, ranking second only to outright habitat loss (Pimm & Gilpin, 1989, Myers, 1997, Stein, et. al, 1997). When non-native plants displace native plants, habitats may be altered and become no longer suitable for some wildlife. The Alaska Exotic Species Database (Carlson et al. 2008) has documented twenty-seven non-native species on the road system within 20 miles of the proposed project site,[1] though only 8 are ranked above 59 on the invasiveness index (Table 1). These species in and near the moderate to extremely invasive range pose a significant threat to trust species through habitat displacement.

[1] https://aknhp.uaa.alaska.edu/apps/akepic/#map?lg=f37ef462-d080-11e3-a36b-00219bfe5678&z=9&ll=63.26607%2C-141.98302

Table 1. According to the Invasiveness Ranking System for Non-Native Plants of Alaska (2008). ratings from 50–59 are modestly invasive; 60–69 are moderately invasive; 70–79 are highly invasive; and species above 80 are extremely invasive.

Common Name	Scientific Name	Invasiveness Rating
quackgrass	*Elymus repens (L.) Gould*	59
white clover	*Trifolium repens L.*	59
smooth brome	*Bromus inermis Leyss.*	62
foxtail barley	*Hordeum jubatum L.*	63
yellow alfalfa	*Medicago sativa L. ssp. falcata (L.) Arcang.*	64
yellow sweetclover	*Melilotus officinalis (L.) Lam.*	69
bird vetch	*Vicia cracca L. ssp. cracca*	73
white sweetclover	*Melilotus albus Medik.*	81

Comments and Recommendations: We offer the following comments and recommendations to help avoid and minimize the proposed project's impacts on fish and wildlife habitat and impacts to the natural resources within Tetlin NWR.

Golden and Bald Eagles: If project-related disturbances, such as blasting, jackhammering, or piledriving, cannot be timed to occur outside the eagle nesting season (March 1–August 31),[1] the Service recommends, prior to construction, conducting Bald and Golden eagle nest surveys within a half-mile of the project footprint, including cliffs of tributary streams, to determine if and where eagles may be nesting. If nests are located, the Service will work with the project sponsor to recommend buffers and timing windows, within which certain project activities, such as blasting, may be postponed until fledging has occurred. For additional guidance, please see our webpage for measures on how to avoid disturbing eagles and how to determine the likelihood of bald eagle nest disturbance, as well as our national eagle management webpage.[2]

Migratory Birds: Since the proposed project may disturb migratory bird habitat during the nesting season, the Service appreciates the Project employing any measures to help avoid disturbing habitat during the nesting season when eggs, nestlings, and fledglings are most vulnerable. The most effective Best Management Practice (BMP) to minimize injury or mortality to migratory birds is to conduct land disturbing activities (e.g., tree and vegetation clearing, excavation, gravel fill, brush hogging, etc.) before or after the breeding season, which is generally May 1–July 15 at the proposed site.[3] Raptors, such as owls, hawks and eagles, may nest two or more months earlier than other birds, so late summer through mid-winter activities to make the site unsuitable for breeding birds would be preferred in forests and for cliff ledges. Additionally, we appreciate and support employing other conservation measures to minimize impacts to migratory birds. For some example conservation measures to avoid and minimize impacts to birds, please refer to our Migratory Bird Program website.[4]

[1] https://www.fws.gov/birds/management/managed-species/bald-and-golden-eagle-information.php
[2] https://www.fws.gov/birds/management/managed-species/eagle-management.php
[3] https://www.fws.gov/alaska-bird-nesting-season
[4] https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

Invasive Species: The Service recommends implementing Best Management Practices for minimizing the introduction and proliferation of invasive species, including thoroughly washing equipment before entering the jobsite to remove dirt and debris that might harbor invasive seeds; using weed-free fill, if available, and certified weed-free erosion control materials; appropriately disposing of spoil and vegetation contaminated with invasive species; and revegetating the area with local native plant species. To assist on-the-ground operators in understanding their role in preventing and controlling the introduction and spread of invasive species, we recommend project operators review a free, self-paced training course on invasive species control, which can be found at: http://weedcontrol.open.uaf.edu.

Water Quality: The Service agrees with the draft permit's prohibition on the discharge of wastewater to surface water. Similarly, we do not find the use of wastewater from dewatering wells and storm water runoff to be problematic when repurposed as a dust suppressant on mine roads, provided that no puddling or runoff occurs and assuming well water meets State safety thresholds for any toxicants such as naturally occurring arsenic. The use of microfiltration and reverse osmosis treatment for recaptured surface water runoff is also appreciated by the Service as it limits negative offsite effects to trust species habitats.

However, there are still concerns toxicants from the proposed mine may enter downstream waters and habitats. Maintaining good water quality adjacent to the proposed mine is essential to supporting Service trust species such as migratory birds, anadromous and resident fisheries (e.g., humpback whitefish), and the food webs and habitats they rely upon. Supporting documents to Peak Gold, LLC (SRK Consulting 2021) and other studies (Illig, 2015) describe arsenic and acid-forming sulfides in the ore body of both proposed pits and provide various plans to manage exposure and escapement of these toxicants to the surrounding environment. Both proposed pits sit atop a ridgeline in the Tetlin Hills and shed surface and ground waters via runoff and perennial streams to both the Tok River watershed to the west and the Tetlin Lake watershed to the east. In its August 2022 letter to the USACE (Attachment 2), the Environmental Protection Acenge (EPA) outlined multiple ways in which the current plans do not sufficiently address protections for arsenic leaching into the ground and perennial surface streams, and from there potentially into Tetlin Lake and Tok River. The EPA also identified insufficiencies in the plan to manage potentially acid generating tailings underwater in the south pit and contained multiple cautionary recommendations for minimizing the spread of contaminants to adjacent waters. The logic for EPA's cautionary letter is well established. Acid mine drainage and associated metal leaching into surface and sub-surface waters are the biggest environmental consequences of hard rock mining ventures. Sulfides acidify upon exposure to air and can be leached into surface water through rain and snowmelt. These and other metalloid chemicals in the ore, such as arsenic, become toxic to living things, especially fish and other aquatic life, and can persist for many years in lakes and ponds receiving the runoff where these chemicals concentrate. From other legacy clean-up operations, we know that acid mine drainage and metal leaching have the longest-lasting consequences and are the most expensive to mitigate (Kempton et al. 2010; Skousen, et al. 2017; Rambabu et al., 2020).

The Service agrees with the EPA, and we share several additional concerns. First, the proponent's hydrologic modeling and assumptions regarding infiltration rate and the potential for contaminated groundwater to discharge into surface perennial streams cannot be assured. Factors affecting infiltration are not static, and many such as discontinuous relic bedrock permafrost

subsidence, bedrock fracturing from mining activity, and seasonal melt/precipitation fluctuations all greatly affect groundwater at the site (SRK Consulting 2023). Secondly, the current plan does not fully account for groundwater infiltration from PAG waste rock leachate from on-site or dispersion of PAG fugitive dust from Project Site operations and uncovered waste rock dumps. Water quality in several downgradient waterbodies is already degraded by high background levels of chemicals associated with the ore body. Increased exposure of groundwater through mining activities will only add to concentrate levels downstream.

As even the most comprehensive plans cannot account for all outcomes, we recommend additional downgradient water quality monitoring (both extended timeframes and sampling intensity) and the publication for agency and public review of proactive adaptive contingent plans if downgradient degraded water quality occurs. As per the draft Permit, the current protocol for remediating exceedances or noncompliance with water quality standards is to submit a plan of action after the fact (draft Permit Section 2.5.3). However, the Service believes an after-the-fact response puts important habitats, subsistence resources, and trust species at risk of harm, so a remediation plan should be proactively submitted and reviewed by stakeholders to assure effective and immediate response.

According to the geochemical characterization report the ore and much of the waste rock is acid producing and metal leaching, which means it must be handled carefully at every step of the process and contained in such a way that the contaminated effluent can be captured and mitigated before it causes harm in downstream aquatic habitats. The proposed draft permit focuses on the project site consisting of the North Pit, South Pit, North Waste Rock Dump, Main Waste Rock Dump, and Water Quality Monitoring Sites. However, the project site is only one of five areas in which the material must be contained to process the ore at Fort Knox. Our concerns for each of these areas are discussed below.

1) Onsite Waste Rock and Exposed Pit Wall: The reclamation and closure plan for the mine site, once the ore has been removed, is to move the waste rock back into the two pits, the primarily metal leaching rock in the north pit and the primarily acid producing rock in the south pit. The North Pit will be filled with non-reactive waste rock until it is slightly domed over the pit. An impermeable cap layer will be just below the top layer where vegetation will be reestablished. As such, snow and rain are expected to mostly run off and not fill the north pit, which will have groundwater saturating the lower reaches of the pit. Minimizing the rain and snowmelt is expected to reduce the metal leaching of the buried rock. The Service agrees this is a reasonable minimization strategy to manage metal leaching into groundwater. However, through the process of gold extraction, bedrock below this pit may undergo changes in fracturing or compaction that will affect the rate of groundwater movement. Based on the groundwater flow experiments that were conducted, the proponent believes there will be a slow exchange of water from the pit to the larger groundwater reservoir and then into perennial streams that flow to the Tetlin Lake and Tetlin River on the south and east side of the Tetlin Hills, and the Tok River on the north and west side of the Tetlin Hills. The assumption is that acid and dissolved metals will be sufficiently diluted once they reach surface waters that they will achieve State of Alaska water quality standards. The intent to monitor water quality for at least 10 years following mining, and seven years following

closure may not be sufficient to detect changes in water quality if these time periods are calculated from current rates of groundwater flow and diffusion. We recommend a longer period of monitoring to account for unknown changes in the rates of groundwater flow due to the potential for disturbance in expected bedrock hydraulic conductivity.

The most reactive acid producing waste rock in the south pit will be below the level where the top of the groundwater is expected to reach. Submerging the reactive rock in water will minimize oxygen exposure and subsequent sulfuric acid production. A thick layer of nonreactive waste rock will cap the reactive material and elevate the surface above the expected water level, but not as high as the rim of the pit. There will then be a depression in the south pit, rather than a dome, but the project proponents are not expecting a lake to form. The remaining uncovered South Pit wall will be exposed to weathering by rain and snow, which could increase the expected amount of acid leachate in this waste rock location. The Service recommends the South Pit be filled and capped similarly to the North Pit to minimize the potential for continued exposure of PAG rock. Fill and capping would also prevent any possibility for ponding to occur at this location, which would attract waterfowl and potentially expose them to toxicity or acidic conditions beyond the environmental background levels.

Four Waste Rock Dumps (WRD) at the project site will be used during operations (North Pit, South Pit, North Waste Rock Dump, Main Waste Rock Dump) and remain uncapped until reclamation. Water in contact with tailings in WRDs outside of both pits will be routed via perimeter ditches, be recaptured in ponds, and directed through water treatment facilities. Prior to treatment, we assume this water will not meet water quality standards after it interacts with the WRDs and could have negative effects to fish and wildlife in the surrounding area. Long-term studies of waterbirds exposure to acidified mine waters and metal leachate generally point to elevated arsenic accumulation in muscle and liver tissue (Gomez, et al., 2004), especially in certain species such as geese and gulls. Other than having a detrimental influence on aquatic food webs (McNicol et al. 1987), it is difficult to assess the effects of acidic waters to waterfowl when no pH range is available, but it is safe to assume the lower the pH, the more likely fish and wildlife will be adversely affected. When open water is present, it can attract birds and other species. To avoid attracting additional wildlife, especially waterbirds, to these open waters and putting them at risk of exposure to toxicants and acidic waters, we recommend using bird deterrents at these locations, such as the Brine Pond and Untreated Water Pond in the North sector of the mine, to minimize the risk of wildlife interactions.

2) Transport of Ore to the (Offsite) Ore Transfer Station: Large dump trucks unsuitable for public roads will be used to transport the ore to a transfer station where the ore will be transferred to trucks suitable for travel on the Alaska Highway system. Transporting ore from the mine site to the transfer station is poorly described in the mine plan and is not addressed in the draft Waste Management Permit. It is not clear if the large dump trucks used for this segment of the ore transportation operation will or will not be covered, how load and truck body dust will be minimized, or if plans are in place for spill response of ore and/or hazardous materials. If there are no covers on the large dump trucks, unmitigated amounts of

fugitive dust will contaminate the landscape and continue to waterbodies through surface waters. The Service is concerned that fugitive dust could adversely impact adjacent vegetation and permafrost. Studies of other similar ore transport has shown particulate contamination up to 328 feet (100 meters) from the roadbed (U.S. Department of the Interior 2020), risking contamination to adjacent waterbodies important for subsistence fisheries and waterfowl. We recommend the Waste Management Permit include provisions for the management and mitigation of fugitive dust and surface-water runoff contaminated by fugitive dust, and the applicant submit a clear mitigation plan for accidental spills, including ore, along the entire transportation route.

3) Management of Ore Stockpile at the Ore Transfer Area: The draft permit and associated documents are not clear whether there will be any indoor facility, wash station, or wind shelter at the transfer area where ore will be dumped from the mine trucks and then reloaded onto the highway haul trucks. The Manh Choh Document "Support Document for the Waste Management Permit and Plan of Operations" (2023, pg. 39) states the ore Transfer Area Stockpile and the Mine Site Ore Stockpile will be a total of 20.55 acres. The Mine Site Ore Stockpile is currently covered under this Permit application, the Ore Transfer Area Stockpile is not. No detail is provided on how waste management will be handled outside the main Permit Site at the Ore Transfer Area. The Service has concerns that without an indoor facility or other protection, the dumping and transfer of ore will cause large cumulative concentrations of fine material to blow away and deposit across a large landscape, impacting and the wetland habitats that prevail in that area. Surface runoff at the site will also have high concentrations of ore dust, and therefore PAG and metal leaching materials. We recommend monitoring groundwater for toxicant infiltration, and the Waste Management Permit include the management and mitigation of fugitive dust and contaminated surface water from runoff at this location.

4) Fugitive Dust along the Alaska Highway System: A 250-mile route along a series of public highways and roads will be used to transport the ore to Fort Knox for processing. The highway haul trucks are designed to have covers over their load beds to minimize fugitive dust. However, residue from vehicle bodies and wheels of covered trucks are equally concerning as vectors which deposit mine contaminants along haul routes (U.S. Department of the Interior 2020). Studies along the Red Dog haul road in northwest Alaska showed that despite truck covers, contaminants still concentrated in the transport route roadbed at 6 to 12 times the ambient background levels (Brumbaugh and May 2008). Another study in the same area discovered fugitive dust dispersal from covered trucks as far away as 25 kilometers (15.5 miles) (Hasselbach et al. 2005), likely transported on wheel wells, tires, underbeds, and other external features of the trucks. The route between the Tetlin transfer area and Fort Knox will intersect multiple wetlands and streams important to trust species that rely upon uncontaminated sources of forage and water for critical stages in their lifecycles. The contamination risk from fugitive dust to trust species habitats adjacent to this haul route could be substantial during the life of the Manh Choh mine. Similar to mining operations, we recommend the Waste Management Permit include provisions for the management and mitigation of fugitive dust and surface-water runoff contaminated by fugitive dust along the entire transportation route, including the Alaska Highway System, and the applicant submit a clear mitigation plan for accidental spills, including ore.

5) Waste Rock Processed at Fort Knox: The Fort Knox milling facility will be used to process and extract gold, leaving all the acid producing and metal leaching tailings at the Fort Knox mine, which currently does not produce acid or large quantities of dissolved metals and must be retrofitted for these new materials. Ore from the Fort Knox mine does not generate acid mine drainage or substantial amounts of metal leaching. Their reclamation and closure plan suggests when Fort Knox exhausts the local mineral deposits, they will be able to attain complete closure and stabilization of the mine site, the affected environment, and associated effluent within 100 years. However, the imported Manh Choh ore is high in both acid and arsenic producing compounds and will require a much longer timeline of active management for reclamation and mitigation of toxic effluents. Due to the introduction of acid-producing waste materials after processing Manh Choh ore, we expect the character of Fort Knox waste-water management, reclamation, and closure plans to change. The Manh Choh geochemical characterization report describes blending Manh Choh ore with Fort Knox ore at 20:80 and 30:70, presumably to see whether tailings with a mix of ore types would neutralize acid production and metal leaching. The report concludes that all ore samples produce acid and elevated levels of dissolved metals. The Manh Choh documents suggest that Fort Knox will not require any additional permits or oversight to accept these additional ore imports.

   Based on the available information, the Service recommends the DEC's Integrated Waste Management Permit account for the effects of all ore coming from the Manh Choh mine. We recommend the Manh Choh's waste management plan consider all aspects from cradle to grave, including potential effects on the adjacent environment from the ore-generating mine site, the transportation route to Fort Knox, and at the Fort Knox mine site. Oversight of the waste and effluent from Fort Knox is of great importance to Service trust species because it effects the downstream anadromous waters of the Little Chena and Chena Rivers (Brown et al. 2017), which are second only to the nearby Salcha River in the Yukon River watershed when considering Chinook salmon returning to spawn. We recommend the management and mitigation of imported ore from Manh Choh be incorporated into either this draft Waste Management permit or be incorporated in a modified Waste Management permit at Fort Knox, and that these permits undergo public comments and review through a regular public notice period.

Finally, the Service recommends the permit account for bonding and financial assurances to facilitate long term monitoring, restoration, and reclamation activities, including provisions for monitoring and reclamation at the off-site areas described above.

Conclusion: We appreciate the DEC and the DNR considering our concerns. While the project appears on the verge of detailed design and construction, there remains room for informed discussion regarding how to best minimize the negative effects of PAG waste rock and arsenic release into an otherwise pristine environment. We would welcome an opportunity to discuss our

comments with you. Please contact Amy Tippery at 907-456-0558 or amy_tippery@fws.gov should you have any questions concerning these comments.

Sincerely,

Charleen Buncic

for Robert J. Henszey
Branch Manager,
Conservation Planning Assistance

Attachments:

1. USFWS Comments and Recommendations Letter in response to U.S. Army Corps of Engineers Public Notice POA-2013-00286, dated February 11, 2022
2. Environmental Protection Agency, Region 10 Comment Letter in response to U.S. Army Corps of Engineers Public Notice POA-2013-00286, dated August 19, 2022

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Literature Cited:

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