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U.S. Army Corps of Engineers, Regulatory Division
Don Kuhle, Project Manager
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RE: Scoping Comments for the Proposed Donlin Gold Mine

Thank you for the opportunity for the Native Village of Napaimute to express our concerns and comment on the proposed Donlin Gold mine project. Being less than 40 air miles from the proposed site, and the first village downstream of the proposed Junjuk Creek port facility, we will be in many ways, directly or indirectly, affected by such an enormous endeavor. Although a project of this magnitude will have beneficial economic outcomes to a region that is lacking in economic opportunities, we must consider other potential impacts to our culture, traditional food gathering, and concern with our natural environment that a large-scale mining operation will have.

Very few could argue that if this project proceeds as proposed, the character of the Kuskokwim would be drastically changed for a very long time – a conservative estimate would be forty years, the estimated mine life. However, if something were to go awry, the Kuskokwim would be potentially changed for hundreds of years…if not forever. First and foremost would be the ecological toll of a large-scale mishap; the Kuskokwim is Alaska's second largest river and is used as an important food source, transportation thoroughfare, and supports numerous fish migration and spawning grounds, not to mention waterfowl, moose, caribou, and other animals. Along with the ecological impact would be a tremendous financial burden on the mining companies and/or government agencies…and quite likely, the public and private businesses too. But along with such a scenario would be an immense social and cultural encumbrance that people who have never experienced our way of life could not begin to understand.

In the Kuskokwim region where no development of this magnitude has ever occurred before…and the vast majority of residents never heard of NEPA, an EIS or scoping, it's one thing to point out known and potential impacts like that described below, but it's another to get the public to be aware of, and understand, what all the potential consequences could be. We hope that the Corps of Engineers will readily make available an easy to understand summary of the concerns expressed though the scoping process to all villages up and down the river,

through means other than just the Internet. We suggest that written summaries be part of the information distributed by the Corps to those entities requesting such.

As far as Napaimute's concerns we'll start in the proximity of the mine and work out from there, eventually discussing the potential of future cumulative effects. The text in *italics* denotes excerpts taken from the submitted permit application documents by Donlin Gold LLC.

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Water Quality

One of the bigger concerns the residents of the region have is degraded water quality, most notably the potential for acid rock drainage (ARD) to affect the fishes and other aquatic biota not only in Crooked Creek and its tributaries, but also the Kuskokwim River. Although by industry standards the purported percentage of potentially acid generating material (i.e., 7 %), the massive quantities of land disturbed and material processed (about 3 billion tons) is still a great concern.

Even relatively small amounts of acid rock drainage during the life of the mine from the tailings dam or waste rock facility or after closure from the pit into fish bearing streams can be harmful to aquatic biota. Impaired respiration of fishes is just one ill effect; exposure can also occur indirectly through the ingestion of contaminated food items and sediments. Severely impaired waters can leave them totally devoid of fish, macroinvertebrates and other life forms. In short, ARD can degrade the physical, chemical and biological components of a stream (USFWS).

Because of this, it's imperative that the fish and macroinvertebrate populations be monitored in Crooked Creek and its tributaries not only for the life of the mine, but long after the mine ceases to operate. In fact, as long as any waters leaving the mine site are treated, monitoring of the aquatic life must be monitored as well.

Adequate buffering material (i.e., limestone) to counteract the formation of acid drainage is - at the present time - expected to be available on site. However, there are no guarantees that sufficient limestone does exist. A contingency plan should be required that shows the likely sources of additional material. In the past, Donlin Gold (then Placer Dome) officials stated that any necessary buffering material would be barged from as far away as British Columbia. However, knowing how expensive brining such material from so away would be, and knowing that there are limestone deposits not too far away in the Holitna drainage, we fear that someday if adequate buffering is not present on site that there may be a request to access what exists in the Holitna. If that were to occur, then that should be deemed as a totally separate activity and require another EA or possibly an EIS. Such a request, and any other significant unforeseen endeavors (e.g., the need to dredge the Kuskokwim), should be considered in a cumulative effects assessment.

Another reason for the need to monitor the aquatic biota throughout the life of the mine is that the potential exists for the removal of substantial quantities of water for mining operations, water that obviously is vital for aquatic organisms particularly during base flows. "*The proposed Donlin Gold project has the potential to affect the quantity and distribution of surface water flows within the upper Crooked Creek drainage…"* and "*Groundwater flow modeling predicts that the baseflows to Crooked Creek above Crevice Creek during different stages of mining activities in American Creek and Anaconda Creek would be reduced by an annual average of 12% to 25%. After closure of the mine, it would take approximately 50 to 55 years for stream flows in Crooked Creek to recover to within 98% (on an average annual basis) of pre-mining baseflow conditions below the confluence with Crevice Creek."* and "*Reduction in stream flow during the winter at the CCBO gauging station is predicted to increase from 12% in the Year -2 to 28% at the end of mining. During the summer months (i.e., May through October), reductions in stream flow are predicted to be between 7% and 17% as stream flows from upstream of the gauging point make up a greater proportion of the total flow."*

Also: "Conversely, during dry years when the freshwater process requirement exceeds annual runoff to the contact water ponds, fresh water would be pumped from storage in the Snow Gulch freshwater reservoir." and "To account for the possibility of a series of successive dry years occurring early in the proposed project life, which could result in a process water shortage, the water management strategy also focuses on the provision of sufficient water storage capacity early in the construction phase of the project."

In regards to climate change influences, "*However, concomitant increases in temperature may increase evapotranspiration rates such that an increase in precipitation does not equate to a similar increase in runoff. These findings indicate that accounting for climate change for the site is complex with respect to runoff estimates."* Given the uncertainties of climate change or just dealing with the weather in general, the reality is that the reduced rates could actually be **greater** than what is modeled in some years.

Subsequently, in extremely low water years, some salmon may be have a difficult time entering Crooked Creek because of the broad alluvial fan that exists at the mouth.

Other than reducing the available habitat, reduced water flows could negatively affect water temperatures throughout the various reaches of Crooked Creek (i.e., warmer summer temperatures and colder winter temperatures).

Basically, the effects of the mining operation will likely significantly affect the aquatic resources in Crooked Creek without even considering such concerns as acid rock drainage.

Roads

The road from the Jungjuk Creek port facility will cross numerous fish bearing streams – most notably Getmuna, which is Crooked Creek's most productive tributary. "*Some 50 stream or drainage crossings have been identified along the route, but only five would require bridging—one two-lane bridge and four multi-plate arch structures."* and "*One of the major material sites for road construction is in the Getmuna Creek drainage. Getmuna Creek FSA Material Site 10, the largest of the sites proposed, is also a potential fish habitat enhancement project site post closure (Sheet 3a-6, and Sheet 27 through Sheet 30). This site has a proposed footprint of 204.54 acres (82.77 ha), of which 34.46 acres (13.94 ha) are mapped as wetlands. The site is located in the floodplain of Getmuna Creek, and the post extraction ponds have been conceptually designed to facilitate fish rearing habitat and nesting habitat for waterfowl."*

In some years, ½ of all Chinook salmon in the Crooked Creek drainage spawn in Getmuna Creek. It's questionable whether or not the proposed mitigation of "fish habitat enhancement" could negate any negative impacts that over 200 acres of land disruption, including 35 acres of wetlands, could trigger.

Although, "*Appropriate BMPs would be applied during construction and operations. Silt fences and other protective devices would limit the amount of sediment runoff into adjacent wetlands*.", the concern is still there for sediment to enter Getmuna Creek and eventually Crooked Creek from such large-scale disturbance, thereby degrading the spawning and rearing habitat (e.g., interstitial spaces) prior to any mitigation. "*Within the Crooked Creek drainage, several of the smaller tributaries can freeze to the stream bottom during winter (Northern Ecological Services and HDR Alaska Inc. 1999). In addition, the underlying geology of the area causes siltation in the Crooked Creek drainage, which leads to a highly armored (or embedded) stream bottom. Heavy silt loads fill the interstitial spaces in the gravel, which limits the available habitat for macroinvertebrates (Waters 1995) and exacerbates the effects of winter freezing by limiting the amount of habitat available for colonization."*

Additional sediment would be of particular concern in Crooked Creek considering the anticipated reduction in water volume mentioned above. A reduction in stream flow will lessen Crooked Creek's ability to flush sediments out.

Roadside ditches not only transport water, but sediment as well. Since there are so many drainage crossings, sediment catchments must be installed and regularly maintained at every crossing.

Road construction is a significant land disturbing activity, and disturbed soils are susceptible to the establishment of invasive plants. First and foremost, any construction equipment brought in from outside the region must be thoroughly cleaned of mud and seeds since they are the most likely vectors of unwanted species. In addition, the seed mixes used in the soil stabilization process must be certified weed free.

Port at Jungjuk Creek

The major concern at the Jungjuk Creek port is the amount of fuel that will be stored there – about 2.8 million gallons during summer months immediately after barges have made their deliveries; therefore, the emergency spill plan must be sufficient to contain the worst possible scenario.

Water quality monitoring in the immediate vicinity of the port and downstream areas must occur year round to detect any degradation of water quality and protocol must be in place to rectify the problem.

Although the 600 kW diesel generator at the port will be the permitted through the Alaska Department of Environmental Conservation, it's likely that the continual emissions of nitrogen oxide and carbon dioxide will impair the air quality to some degree in the vicinity of the port and Crooked Creek.

Pit Closure And Water Treatment

Considering that we are strong adherents to the 7 Generations concept, it's hard for us to imagine treating the water leaving the pit forever – particularly when this source of water is less than 20 miles from the Kuskokwim River and flows directly into the Kuskokwim, which is the lifeblood of the region. When one takes into account the likelihood that there will be some mechanical failure during that time…which again is forever, it's impossible to ensure that someday during, or beyond, those seven generations, that the Kuskokwim's waters won't be fouled.

Ultimately, our concerns hinge around the uncertainty of bond assurances, especially during times of economic downturns…keep in mind the current federal sequestration and its implications on government services. The last thing the State of Alaska or federal government (which ends up being the public) needs is to shoulder the financial burden of treating water forever (we already have one potential Superfund site in the Red Devil Mine that could cost **many** millions of dollars to rectify). However, the bigger concern lies with the potential for inadequate treatment that leaves our pristine environment fouled.

The Project Description Plan of Operations Vol. 1 states: "*Water discharged from the pit would be managed by passing it through a post-closure High Density Sludge Process WTP, where chemical precipitation technology would be applied to remove elements such as aluminum, antimony, arsenic, manganese, mercury, and selenium. The sludge from the WTP would be a chemically stable material that would be sent to the bottom of the pit lake for final storage*."

Other than the typical concerns for potentially treating water leaving the pit forever, one must ask what happens way down the road, sometime during perpetuity, if the pit totally fills up with the so-called "chemically stable" sludge? This issue must be addressed in the EIS.

Social & Cultural Changes

With the influx of thousands of workers from outside the area, some proportion of which may choose to live locally, the increase in population will put increased pressure on moose, salmon and other subsistence resources making it that much more difficult to harvest some of the already dwindling resources (e.g., Chinook salmon are currently on the decline). Moose populations may be building in some areas like the Holitna drainage, but they tend to experience periodic declines while caribou numbers are way down from the recent past.

With the potential for many new jobs being created in Bethel (just for the vast port facility alone) that will bring residents from surrounding villages as well as a certain amount of outsiders, the reality exists that Bethel will lose its rural preference status when it comes to subsistence hunting and fishing. This will certainly cause a hardship for many of the residents who have relied on a subsistence lifestyle their entire lives…particularly for Bethel's elders.

Consequently, these, and other cultural issues must be addressed in the upcoming draft EIS.

Subsistence/Biological Concerns

The following excerpt from the Vessel Operations Oil Discharge Prevention and Contingency Plan is incorrect in regards to the scenario of a spill occurring in August: "*The Kuskokwim River supports subsistence and commercial fishing activities; however, given the date of this scenario, these are not a concern. Fishing activities generally conclude at the end of July (Andrews and Coffing, 1986).*" We're surmising that that reference (which is from 1986) is in regard to the Chinook salmon commercial and subsistence fishery; however, there are still silver salmon commercial and subsistence fisheries occurring in July and August.

Relatively little is known about the anadromous rainbow smelt (*Osmerus mordax*) that enter the Kuskokwim shortly after ice out. What is known is that they are broadcast spawners (i.e., release their eggs to the current) and spawn shortly after appearing in the vicinity of Upper and Lower Kalskag. In most years they spawn somewhere above and below both villages, but their actual spawning habitat has not been delineated.

The Transportation Plan Volume VI states: "*To avoid delays in moving the material upriver, and to take advantage of the higher river levels expected in early June, up to 4 Mgal (15 ML) of fuel would be brought to Bethel in September of the previous year and stored there over the winter months. This would allow the river barge operation to start as soon as the river upstream of Bethel has cleared of ice, or up to two weeks before the ice clears at the mouth of the Kuskokwim River*."

Tugboat captains have noted that the turbulence from the tug's props is strong enough to bring large Chinook salmon up to the surface from the depths, so it's uncertain what effect that turbulence or barge wakes will have on smelt, particularly the developing eggs or emergent larvae as they prepare to make their way down to the mouth of the Kuskokwim to rear. Studies should be conducted to learn more about where exactly the smelt spawn (this would be critical if dredging was ever considered), the developmental timing of the juveniles, and when the juveniles migrate downstream to rear in the mouth of the river. This information would be helpful in determining if the barge activity would have a negative effect on the smelt population, which is an important subsistence resource.

Mercury

Although Barrick has developed certain techniques to reduce the mercury emissions generated through the milling processes, it's possible that fugitive emissions wafting off the waste rock and tailings may contribute

substantial amounts into the environment. Currently the state only requires mine operators to address the mercury emanating from the milling operation where it is released from the autoclave, carbon kiln, gold furnaces and retort facilities when the ore is subjected to high levels of heat.

Such offgasing of mercury could potentially wind up miles away in the environment, possibly contaminating subsistence resources and harming area residents.

It's suggested that the Draft EIS require monitoring not only the tailings and waste rock facilities but also downwind villages? Because the prevailing winds tend to be from the southeast, the villages of Shageluk, Holy Cross and Anvik – at a minimum - should have air quality monitoring stations to assess whether or not fugitive mercury is reaching them. Likewise, since northerly winds are not uncommon, Crooked Creek, Napaimute, Chuathbaluk and Aniak may also be exposed to any airborne mercury emitted from the mine's operation and should also have their air quality monitored.

Another concern we share is what exactly will happen with the mercury captured in the abatement processes; i.e., how mercury will be transported off the premises and where it will ultimately be transported to. According to the Integrated Waste Management Plan a management plan for mercury will follow, but at this time no such plan has been submitted (*2.16 Specific Hazardous Materials Handling Requirements: Certain hazardous materials require special handling, including the key materials discussed below. Additionally, co-product mercury and mercury-containing materials would be managed in accordance with a mercury management plan (forthcoming) and all applicable regulations.*).

Without such documentation, it's difficult to know what all the ramifications of such a massive undertaking will be, and how deleterious it could be for the region.

Barging

Although this may seem inconsequential, but for those individuals affected by the increased barge traffic in several middle river villages, it surely will be a burden – especially since there are few, if any, aluminum welders. In Crow Village, Chuathbaluk and Napaimute for example, the shorelines consist of angular, sharp cobble and small boulders that when beached boats are subject to considerable wave action, will wind up leaking. Some people may be able to circumvent this problem by building log rafts with which to moor their boats, but others will not. Either way, this will be an added expense that people in those villages will have to contend with over the course of the mine life.

One question that must be addressed in the EIS is what if the river is not navigable during prolonged periods during the open water months? A contingency plan should be required explaining exactly how materials will then be transported to the site. Of particular concern are climate change related impacts, or just normal drought periods. The concern that we have is that if dredging is required, depending on its extend, that could drastically affect the river's hydrology and channel geomorphology…leading to consequences for aquatic biota.

The Plan of operations calls for five million gallons of fuel to be transported upriver every 4 days – or roughly 1 millions gallons/day. The obvious concern is if there was an accident that ends up discharging petroleum products into the river.

The spill response plan states that much of the critical response activities will occur within 24 hours of detection of any spills. *"Devices to clean up and store discharged oil must be in place within 24 hours of detection. Chadux will arrive on scene within 24 hours or less of discovery, and 15,000 feet of boom must be deployed within the first 24 hours to protect shorelines."*

"Lightering: *Must have the capability to lighter the volume of the largest cargo tank on the river barge within the first 24 hours of the spill = 1,334 bbls (212,110 liters)"*

"*Must have effective daily recovery capacity of 50% of maximum most probable discharge within 24 hours (400 bopd [63,600 lopd])"*

However, given the remoteness of the region and distances between villages and village hubs, we believe that that is not realistic. We would like to see a more detailed plan as to how a large fuel spill will be contained.

More Distant Concerns

Although water quality issues were already discussed for the middle sections of the river, with the steady stream of barge traffic carrying millions of gallons of fuel and other developmental aspects (e.g., mass fuel storage at Jungjuk Creek), some degradation of the water quality in the Kuskokwim is almost a certainty. Several villages between Lower Kalskag and Bethel get their drinking water directly from the river. Looking decades ahead, what assurances are there that people in those villages would still be able to drink the water without concerns for their safety?

Cumulative Effects

Knowing that many developmental activities have been, and are, unfeasible at this time in the Kuskokwim region due to a lack of infrastructure, the onset of an immense infrastructure in place resulting from the construction and operation of the mine will open the door for other similar activities…albeit most of them much smaller. None-the-less, these potential activities must be considered in the context of cumulative effects. Examples include future mining in the mining district that the Donlin Gold project is located, a roadway from the Yukon River to Kalskag, and potential mining in the Aniak and Holitna drainages where substantial exploration has occurred over the past few years.

Once again, thank you for allowing the Native Village of Napaimute to voice our concerns as part of the National Environmental Policy Act process for the Donlin Gold project.

Brook Kristovich - President Napaimute Traditional Council Date