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Tongass National Forest
Admiralty Island National Monument
Submitted via web portal

May 23, 2023

Re: Comments on No. 20230041, Draft Supplement, Environmental Impact Study Greens Creek Mine North Extension Project (2023 sDEIS).

Mr. Reece,

Please accept these timely comments on behalf of Friends of Admiralty Island (FOA) and their members.

FOA was established in 1987, and is an all-volunteer, non-profit organization advocating for the continued protection of Admiralty Island's unique values; and to support Admiralty's role in providing sustainable, wilderness-based, recreational, educational, and economic and cultural opportunities. FOA has been involved in past public actions as well as provided citizens funded science to aid in the decision-making process. We support the protection of the unique values for which the island was declared a National Monument. Members of FOA include sport and commercial fishers, hunters and guides, citizens of the federally recognized Tribes, outdoor recreation enthusiasts and visitors to this national and global treasure.

These comments incorporate the 2013 EIS and Record of Decision (ROD) by reference and all other records of actions taken by the Forest Service, the mining company, contractors, State of Alaska agencies since the early 1970's as well as the Monument Declaration and Congressional record when passing the Alaska National Interest Lands Conservation Act (ANICLA) governing mining in the Admiralty Island National Monument. We also support the comments of Dave Chambers with the Center for Science and Public Participation and John Shane by reference.

I. General Comments

- A. The Forest Service has failed to elevate ANILCA conditions for mining in the Monument and therefore failed to require a monitoring program able to measure compliance with ANICLA and the protection of the Monument values.**

Proclamation 4611 creating the Admiralty Island National Monument cites three main reasons for the action. These are; the numerous individual values cited in the Proclamation, the fact that it is an intact natural ecosystem, and how rare such places like Admiralty Island have become.

The Proclamation further states that the spatial boundaries described in the Declaration, including submerged lands, are the smallest area compatible with the proper management of the monument and protection of those three unique characteristics. These boundaries cannot be infringed upon or reduced without having adverse effects to the Monument.

The Monument's individual values cited for protection in the Proclamation are the scientific, historic, continuing cultural opportunities and natural ecology of the island.

Ecology stands out among the values because it forms the foundation of the others. Ecologically speaking, the island is described as being a unique, diverse, entire and relatively unspoiled ecosystem. It was set aside 45 years ago because places like this were becoming increasingly rare.

In the intervening years it has become known that intact ecosystems such as Admiralty Island function less like isolated ecosystems and more like a global storehouse of carbon and genetic diversity. Admiralty Island does both and both are necessary to buffer the adverse impacts of climate change. The Monument is of global significance.

Congress recognized this when it debated the Alaska National Interest Lands Conservation Act (ANICLA) two years later. Congress thoughtfully balanced the competing interests of allowing development of existing mining claims with the protection of the Monument. Congress conditioned mine development under additional protections to safeguard the Monument. These protections are unique to the Greens Creek Mine. The Greens Creek mine is the only mine allowed to operate in a National Monument because the claims preexisted the Declaration and it was predicated on not harming the Monument. It was to be a model mine.

Alarming, the Forest Service has for 35 years and now three expansions, acted as if ANICLA's extra conditions are secondary to the right to mine and use federal lands for tailing disposal.

36 CFR 228.2 notes that where United States Mining Laws of May 10, 1872 may conflict with a special act of congress, the provisions of the special act shall apply (16 U.S.C. 482a-482q).

43 CFR 3802.0 5(l) defines ***Undue and unnecessary degradation*** as degradation greater than those described in the plan of operations. *See also*, 43 CFR 3802.1 5(b)(2). Plans covering operations on a claim with a valid existing right are approved subject to measures that will prevent undue and unnecessary degradation of the area. This is the minimum standard applicable under 1872 General Mining Act. ANICLA 505(a) amends this requirement to the 'no irreparable harm' and 'maintain and protect' standard regardless if the degradation was necessary to carry out the mining operation. Plans of Operation cannot describe due and necessary degradation that harms any Monument value.

The Forest Service in this dSEIS continues to fail in its duty under 36 CFR 228.2 to elevate Monument protections over its duty to implement 1872 Mining Law.

Such an interpretation was clearly not what Congress intended. The no irreparable harm standard under ANILCA is a strict requirement, not aspirational. It is neither subordinate nor equal to the right to mine. It is superordinate to the right to mine, a strict condition imposed to allow development.

Background.

At the beginning, ANICLA protections guided the first ten years of exploration and planning through and including the 1984 EIS and ROD. The unique, diverse ecological system was the focus of the baseline documentation and description of the existing conditions. Baseline data collection as stated in the objectives, was based on ecosystem-level thresholds, species diversity and populations designed to measure long terms changes to the ecosystem. This baseline analysis was to be used to measure the effects of the mine on Hawk Inlet in subsequent years. *See*, Record of Decision Greens Creek Mining Project Final Environmental Impact Statement Admiralty Island National Monument 1983.

Instead, the direct measurement of ecosystem diversity and population dynamics was replaced by a state waste water discharge permit in 1988. Protection of the Monument values is now defined in terms of compliance and monitoring and effluent quality limits on single point-source outfall¹ along with several non-point sources of waste water into Hawk Inlet. The current monitoring measures the levels and trends of five metals in water, sediment and the tissues of 2 species of lower-order benthic consumers. These species are chosen as *indicators* of protection for the entire Hawk Inlet ecosystem because they may be exposed and many animals eat them. They are a stand-in for all species that call Hawk Inlet home including humans. The monitoring collects no direct evidence of what the metals and other impacts are doing to the health of the population of target species or the health of ecosystem as a whole. For an ecosystem the rests on diversity, the monitoring program can only record trends of these five metals metals over time.

More recently this limited data set (limited in scope, not quantity) of tissue concentrations was plugged into a risk assessment model for each metal individually and assessed against the known ERL level at which biological effects are rarely observed or predicted. This model too, cannot inform land managers as to changes in the overall ecosystem dynamics of Hawk Inlet. Ecosystems, as any complex system will do, have a tendency to collapse catastrophically (and unpredictably) when perturbed.²

The wastewater permit-driven monitoring plan was quickly expanded to cover a second non-point source of waste, the 1989 concentrate spilled into the marine sediments of Hawk Inlet.

¹ Itself removing almost 600,000 cubic feet (13,200 square feet times an average of 45 feet deep) from the aquatic life criteria protections in the form of a mixing zone in the waters of Hawk Inlet.

² Pettersson, Susanne. V.M. Savage and M. N. Jacobi. Predicting Collapse of Complex Ecological Systems: Quantifying the Stability–Complexity Continuum. The Royal Society.13 May 2020 at <https://doi.org/10.1098/rsif.2019.0391>

Since mining began, fugitive dust was predicted to be a major non-point source of pollution, contributing primarily lead, into the Monument. Yet, fugitive dust discharges into Hawk Inlet remain neither accurately measured nor regulated.

The directive from Congress in ANICLA 505(a) to avoid irreparable harm is now replaced with a state permit under the Alaska Pollution Discharge Elimination System (APDES) program and an Alaska Solid Waste Permit. Neither permit or associated monitoring are designed to measure the degree of harm mine development may be causing to the Monument's biological ecosystem.

In addition, it gives no direct information as to how these metals may be migrating within the ecosystem to the top consumers including the human users of Hawk Inlet.

In the 2013 ROD, the Forest Supervisor struggled with this issue. 43 CFR 3802.0 2(b) assures that management programs reflect consistency between the U.S. Mining Laws of 1872, and other appropriate statutes.

Information submitted by the public raised significant concerns about whether mining operations at the Greens Creek Mine “are compatible, to the maximum extent feasible,” with preventing or minimizing potential adverse impacts to monument values. He noted that this is particularly important here, where “unforeseen [environmental impacts] may result in the incompatibility of the operations with the protection of [monument] values” See 36 C.F.R. §228.80(d)(1). In the 2013 decision, the original expansion request from Hecla was for enough tailing's storage for 30 to 50 years of continued mining. Based on the issues raised, the Forest Supervisor only authorized a 10-year expansion and requested more information be developed to guide the land manager in the next decision.

The 2023 dSEIS does not reflect the primacy of ANICLA conditions over 1872 mining Law. Agency discretion consistently weighted too often toward approval and expediency over environmental protections or unequally weighing the law becomes a bias. Decisions cannot be arbitrary, lack a reasonable basis, not be supported by substantial evidence, or be an abuse of discretion. *E.g., Alaska State Comm'n for Human Rights v. United Physical Therapy*, 484 P.3d 599, 605 & n. 19 (Alaska 2021) (citing *Hodges v. Alaska Constructors, Inc.*, 957 P.2d 957, 960 (Alaska 1998)); *Miners Advocacy Council v. State, Dep't of Env't Conservation*, 778 P.2d 1126, 1137 (Alaska 1989).

The Forest Service is required to honor the intent of Congress and apply the protections under which mining is allowed including protection of Admiralty Island Ecosystem; its keystone value. To accomplish that goal requires a monitoring program able to discern the nature and degree, if any, of harm to these values from the mining operation. That includes Hawk Inlet.

We request that the Forest Service prioritize the requirements of ANICLA over and in addition to the requirements of 1872 mining law as Congress clearly intended.

B. The 2013 ROD and the current 2023 dSEIS fails to take into consideration the apparent degradation of the Hawk Inlet’s ecosystem as documented in the repeated expansion and monitoring reports since mining began.

NEPA requires agencies to “take a hard look at environmental consequences” of their proposed actions, consider alternatives, and publicly disseminate such information before taking final action.³ A NEPA analyses also must assess cumulative effects, which are the effects on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. *See*, 40 CFR 1508.7.

The goal of an EIS is to describe the current conditions of the area (No-Action Alternative), identify and predict the potential impacts of alternative methods of implementing the Plan of operation and give enough information for the public to make an informed decision. The Greens Creek Mine has been the subject of three such analysis plus the current supplement. Each of these actions document existing conditions at the time they were written. When these analyses are compared over time, they record evidence that degradation of the Hawk Inlet environment has occurred. It is critical that consecutive actions by the federal government are not based against a sliding baseline of incremental harm.

The record in the 2023 sDEIS contains no such analysis. The information is available and yet remains unanalyzed. Thirty-plus years of monitoring data is examined as a trend analysis (not as an effects analysis), but still documents disturbing trends apparent in successive descriptions in the No-Action Alternatives over thirty years and now four federal actions. This ‘meta’ analysis of the record is lacking. We recommend that this analysis is be conducted.

A cursory examination of the documents gives some examples.

Pacific Herring is a keystone species because several other species in the food web rely on herring to sustain their diets (more so than mussels and benthic worms). Changes in herring populations can have a ripple effect on the entire ecosystem.⁴

In the 1983 EIS and ROD herring are observed in *spawning* condition in Hawk Inlet. *See*, 1983 EIS at 3-35. Twenty years later, the 2003 EIS states that “though there is no formal documentation of herring in Hawk Inlet, it is highly probable that herring and eulachon *occur* in Hawk Inlet in the winter and the spring.” *See*, 2003 Greens Creek EIS Volume I at 3-85. By the 2013 EIS and 2023 dSEIS herring “had been reported spawning near the inlet entrance. . .”. *See*, 2013 EIS at 3-90 and the 2023 DSEIS at 3-117. This indicates that herring no longer spawn inside Hawk Inlet representing a loss of this critical component of the food chain.

The presence of eagles too seems to be declining. The 1983 documents show 23 identified eagle nests in and around Hawk Inlet. The documents give no indication if they are occupied or unoccupied. *See*, 1983 EIS Figure 3-4 at 3-19. The 2003 EIS has roughly the same map. *See*, 2003 EIS figure 3-26 at 3-

³ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (emphasis added).

⁴ OCEAN FISHES, Pacific Herring (*Clupea pallasii*), Oceana. Available at: <https://oceana.org/marine-life/pacific-herring/>

77. In 2019, an aerial survey for eagle nests located 16 nests, of which only six were occupied by bald eagles. See, 2023 DSEIS at 3-205.

It remains to be seen if these changes to populations of eagles and herring are due to natural variation or the effects of the Greens Creek Mine or what other species may be affected after a thorough examination of the available data. The 2023 sDEIS is incomplete without such an examination of the existing record.

Adding to the lack of direct measurements is the Forest Service's deference to the State of Alaska for everything water and solid waste (fugitive dust). The state takes a much narrower view of ecological protection as they authorize permits to discharge waste water and dump solid waste into public waters and land. Both State permit require some form of monitoring. These monitoring reports also indicate degradation of the Admiralty Island ecosystem.

Over the lifetime of the mine, monitoring indicates that populations of organisms have declined. As pointed out elsewhere, in anticipation of the Greens Creek Mine development, government agencies, scientists and biological consultants carried out surveys of marine life population and species diversity baseline studies and levels of heavy metals in the environment beginning in the early 1980s. Since that time, no examination of the population and diversity of Hawk Inlet benthic has occurred.

The current monitoring program collects tissue samples of sediment dwelling polychaete worms (*Nephtys procera*), and *when available* Cockles and Littleneck Clams. To measure precision and to check for analytical interferences, additional samples were collected for duplicate and spike duplicate analysis. See 2006 Hawk Inlet monitoring Report (HIMR) at 4.0 (italics added).⁵

The baseline population as documented in the 1981 report estimates the population of Littleneck clams (*Protothaca steaminia*) at the Greens Creek Delta at 58 individuals per square meter (M²) in the intertidal region and 137 individuals/M² in the subtidal region. The 1981 sample sites correspond to the current sampling sites at STN1, STN2 and the ESL being monitored for metals.

In 1981, the intertidal region at the cannery had an estimated 157 individual/ M² Littleneck clams⁶. This is roughly the location of Site S-4 and Sites S-5N and S-5S currently monitored.

The Southern Reference Area in Pile Driver Cove estimated populations at 1750 individuals/M² in the intertidal and 2078 individuals/M² subtidal. This sample site is near the current monitoring site S-2.

Twenty-seven years later, 21 of which were during the construction and operation of the Greens Creek Mine, Littleneck clams seem scarce. The 2007 Hawk Inlet Monitoring Reports notes that "duplicate samples are not taken for all species due to the negative impact such removal would have on the relatively sparse populations present on the Hawk Inlet bioassay monitoring sample sites." See, 2007 Hawk Inlet Monitoring Report at 4.1.⁷ There remained enough mussels and polychaete worms to sample.

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⁶ See, Final Field Results of the 1981 Field Program for the Greens Creek Project. Part 1-Hawk Inlet and Young Bay

⁷ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/hawk2007.pdf>

By 2016, Littleneck clams and Cockles are no longer collected at all and are dropped from the monitoring program. The disappearance of Littleneck clams is confirmed by ADF&G the same year when researchers could not find a single living Littleneck clam on the Greens Creek Delta *See*, Memorandum to file: State of Alaska Department of Fish and Game Kyle Herbert, Dec 15, 2016. This limited field examination of populations living in the Hawk Inlet remains the only direct measurement of how the ecosystem in Hawk Inlet is responding to the Mine.

The narrow model of effects monitoring required by the State of Alaska may not be as protective of the overall ecosystem in general and throughout the food chain. Bioaccumulation of heavy metals in higher order consumers is still unmeasured and there is no information as to possible changes to the species make up and populations in the Monument's ecosystem.

It is obvious through the sequence of baseline conditions as described in the series of federal actions and in the monitoring reports that the population and diversity of species in Hawk Inlet may have been negatively impacted by the mine's activities. Yet the Forest Service still refuses to conduct repeats of the population and diversity studies designed to measure harm to the ecology of the Monument. The unwillingness to conduct the very studies designed to measure such harm constitute a willful blindness or conscious avoidance on behalf of the federal government to close their eyes to the high probability that harm may have occurred.

II. The Forest Service Erred in the 1988 Decision on the Proposed Changes to the General Plan of Operation by not Analyzing the Possible Impact of Those Changes to Hawk Inlet.

As stated above, the Intent of Congress when passing ANICLA was clear. Mining on the Monument was conditioned on meeting a higher standard as set out in section 503(i)(1)(B) of ANILCA, which entitles Greens Creek Mine to a lease for mining and milling purposes only if it would not cause irreparable harm to the Monument.

Congress chose the term irreparable harm to focus on the nature of the harm to Monument values, not necessarily the intensity of the harm. 5th Edition of Black's Law Dictionary (1979) which defines irreparable harm "as an injury, great or small, which ought not to be submitted to."

Yet somewhere between the original 1983 ROD and the 1988 Plan of operation Modification, the standard of no harm to the aquatic community was substituted for a much narrower look by the State of Alaska specific only to the effects of a wastewater outfall. The state sets regulatory restrictions on the effluent quality allowed to be released and then defines a non-regulatory monitoring program (with the exception of edge of mixing zone water quality monitoring) to measure the effects of that single outfall.

As covered in General Comments at I., Admiralty Island National Monument was set aside due to the outstanding ecology. Ecology is commonly understood to mean the relationships between living organisms, including humans, and their physical environment. The relationship between living

organisms in Hawk Inlet was characterized by the original biological community. The standard the Forest Service is held to is the protection of the biological community of Admiralty Island.

Prior to the first application to mine, the mining company at the time undertook studies of the aquatic biology of Hawk Inlet over a period of three years to assess potential impacts of the mining operation and to provide a basis for establishing preoperational and baseline conditions.⁸ These studies included an inventory of the macro-invertebrate biological community within the tidal and intertidal area of Hawk Inlet and near-by Young Bay chosen as a reference area. This study was for “use in monitoring to ensure the detection of any effects of mine operation.”⁹ This monitoring was to be conducted annually during construction and operation of the mine.

Fully aware of the requirements under ANILCA and the baseline studies conducted prior to the first application to mine, the Forest Supervisor adopted Alternative 6 in 1983, a wastewater discharge into Chatham Straits rejecting a Hawk Inlet discharge “because the lack of definitive data about regarding the potential biological effects within Hawk Inlet and the lack of discharge standards from ADEC.”¹⁰ This decision was supported by ADEC.

It was noted in the 1983 ROD that “if at a future date at a future date, the permitting agencies are satisfied that potential biological effects have been identified and/or that no significant deterioration of the biological community will occur, the Forest Service will not oppose effluent discharge into Hawk Inlet.”¹¹

Five years later, the mine plan was changed from tailings pond to dry stack tailings facility and the applicant applied for an amended Plan of Operations. It was then the waste water discharge was moved from Chatham Strait into Hawk Inlet. ADEC established receiving water quality standards and effluent limits to allow discharge into a mixing zone in Hawk Inlet. The permit is unauthorized degradation of a Tier 2 allowed to support a public benefit, the mine. A monitoring program based on monitoring the trends of certain heavy metals in water, sediment and tissue of two types of benthic organisms, replaced the tidal and intertidal species population and diversity monitoring. The objective of the monitoring program was established to determine compliance with effluent limits under AS 46.03.110(d).¹²

There was no description of possible effects of the discharge to the biological community. It was then that the Forest Service abandoned any responsibility for the protection of the ecology of Admiralty Island National Monument and any commitment for monitoring designed to detect the nature and intensity of harm, if harm were to occur. No effects analysis or risk analysis at the ecosystem level was conducted in the EA. 43 CFR 3802.1 6(b)(1) Modifications of a to Plan require all reasonable measures

⁸ Final Results of the 1981 Field Program for the Greens Creek Mine Part 1 Hawk Inlet and Young Bay A.F. Holland, M. Hagel and W. Richkus Environmental Center Martin Marietta Corporation.

⁹ *Id.* At C. Conclusions

¹⁰ USDA Record of Decision Greens Creek Mining Project Final Environmental Impact Statement for Admiralty Island National Monument, 1983.

¹¹ *Id.*

¹² USDA Environmental Assessment for the Proposed Changes to the General Plan of Operation for the Development and Operation of the Greens Creek Mine. March 1988.

were taken by the authorized officer to predict the environmental impacts of the proposed operations. This was not done in 1988.

The Forest Service failed its duty to determine if all reasonable measures were taken to predict environmental impacts of the proposed operation prior to approval.¹³ Even the possibility of fugitive dust emission from the new dry stack was not mentioned or considered.

Monitoring for potential harm to Monument values has been replaced by monitoring the effects of waste water discharges by the State of Alaska. The higher standard set by Congress to protect the ecosystem from irreparable harm is not reflected in the objective of the monitoring programs. The Forest Service remains blind to the possible larger effects the mine could be having on the Monument.

It was then that the 1981 species diversity and populations studies disappeared from the public for almost 24 years despite showing up in references and in the supporting documents for the next two expansions and despite numerous requests by the public.

III. The Hawk Inlet Monitoring program has shifted its objective and thresholds and still does not measure effects to ecosystem-wide species diversity and populations of aquatic life in Hawk Inlet.

The determination of effects using quantitative thresholds, based on field and laboratory studies must provide a measurable and repeatable evaluation approach. Quantitative thresholds are supposed to specify a clear delineation between acceptable and unacceptable levels of impact; a decision point at which action must be taken to prevent unacceptable negative outcomes. For a monitoring program to fulfil that promise, it is essential that the determination of impact significance is transparent and systematic. The current monitoring program offers no clear thresholds or a measurable evaluation of potential harm to the Monument.

Ironically, in full knowledge of the requirements of ANILCA and the fact that the baseline species diversity and populations studies were somehow missing (until they weren't). The first nine years of Hawk Inlet Monitoring Reports reviewed by the Forest Service contained the quote: "The current status of the health of the marine diversity, and aquatic ecosystem can be viewed based on the number of types of species in an area (species diversity, or "biodiversity"), the number of individuals from each species in an area (species abundance), and the quality of the environment (habitat integrity relative to pristine conditions)." This was the original intent of the 1983 ROD and is in compliance with intent of ANICLA to avoid irreparable harm to the ecology of the Monument.

However, the very next sentence states, "For the marine environment, there are no data available to numerically compare diversity or abundance of organisms between pre-mining and post-mining years."

¹⁴ Since the original available data was missing or did not exist, the health of the biological community,

¹³ See, 36 CFR § 228.4 (e)(1)

¹⁴ Every Hawk Inlet Monitoring Report from 2006 to 2014 at 5.0.

as an indicator of harm, could not be measured. *See*, Comments on repeating the 1981 Intertidal Study at VI. This statement was misleading and its continued acceptance by the Forest Service after the baseline was “re-discovered” has never been addressed.

The monitoring by the State of Alaska is very narrow in scope. The monitoring objective under the APDES permit is “to gather effluent and receiving water data to determine if additional effluent limits are required or to monitor *effluent impact* on the receiving waterbody quality.”¹⁵

The APDES permit also requires the mining company to monitor seawater, sediments, and toxicity in Hawk Inlet to assess whether sediments or aquatic organisms may be affected by the facility’s discharges.¹⁶ The aquatic organisms named include flatfishes (e.g. yellowfin sole, arrowtooth flounder, flathead sole, and rock sole), cod, halibut, sculpin, crab species, migratory and resident fish, mammals, and birds which consume seafloor-dwelling organisms.¹⁷

Possible impacts to these species are assessed through trends or changes in the concentration of 5 metals (down from the original 11) as measured in the tissues of one species of benthic worm and (now) one species of bivalve at various sites in Hawk Inlet. The assumption is sediment dwelling organisms are the most exposed to metals and all the listed species eat them as part of their diet. Therefore, if the metals in those few species are not trending upward or not significantly higher than data from sample sites removed from the outfall, all the listed species listed are not affected. This assumption has never been tested.

But, as the Hawk Inlet Monitoring Reports note “[t]here are no data available to evaluate whether metals are increasing through trophic transfer, or biomagnification at higher trophic levels in Hawk Inlet marine species such as fish, crab and mammals.”¹⁸ These data also give no information on changes or trends in species diversity or populations on the aquatic life in the Hawk Inlet ecosystem.

The Hawk Inlet Monitoring reports however have fuzzy and sometimes changing significance thresholds. Also, differences in benthic habitats and salinity between sampling sites is unaccounted for. “Bottom areas are varied, including muddy, sandy, cobble, and bedrock conditions, depending on location, depth, and flow within the inlet.” *See*, 2023 sDEIS at 3-115. Concentrations in sediment and tissues are compared between sites without consideration of the differing benthic habitats. For instance, Site S-3 at the head of the inlet is characterized as a muddy-sand tidal flat of low salinity yet is used to compare with samples taken in high salinity gravel and sand subtidal bottom at the Greens Creek Delta. *See*, Final Results of the 1981 Field Study.

The outfall 002 monitoring required in the APDES Permit for water column chemistry is for mixing zone compliance. Sediments and tissues are monitored near the terminus of the Greens Creek Delta near

¹⁵ Alaska Pollutant Discharge Elimination System Permit Fact Sheet Permit Number: AK0043206 5.0 at 15. Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens>

¹⁶ *Id.* at 16.

¹⁷ 2006 HIMR at 5.0

¹⁸ *Id.*

the outfall mixing zone and the 1989 spill area. Natural areas are Chatham Strait for water chemistry and Site 2 in Pile Driver Cove for sediments and tissues.

After the existence of the 1981 baseline population and diversity studies was re-discovered in 2012, the conclusion of the 2021 Hawk Inlet report changed but basically echoed the 1981 baseline parameters. “The current status of the health of marine and aquatic ecosystems can be viewed in a number of ways; 1) based on the number of types of species present in an area (species diversity, or “biodiversity”), 2) the number of individuals from each species in an area (species abundance), and 3) quality of the environment (habitat integrity relative to pristine conditions).”¹⁹

The significance threshold is a comparison between Site S-1 near the outfall with a background site S-2 located over 1.5 miles to the south. The report concludes that “it is evident that metal concentrations at the two sites exhibit similar concentration ranges. Furthermore, the yearly variability is similar between the two sites. Given the spatial distance but similar concentrations and the temporal similarity (trends) between the sites, the sediment metals concentrations at S-1 appear within the range of natural conditions.” *Id.*

This is fine except Outfall 002 is not the only source of metals to the Inlet. Fugitive dust could be affecting both S-1 and S-2 resulting in the same correlation between the sites and masking any effect of the Outfall.

In the 2011 Hawk Inlet Monitoring Report (HIMR), The significance threshold changes to become a comparison between pre-mining and production eras. The 2011 Hawk Inlet Monitoring Report states that “[s]ampling sites S-1 and S-2 were chosen to represent natural conditions; therefore, results from these sites from June of 1984 until August of 1989 were used to calculate baseline, pre-production values.” *See*, 2011 HIMR 2011 at 3.2.

In 2019, the threshold changes again to include a third site. The 2019 HIMR states that sample sites “S-1, S-2, and S-3 were chosen to represent natural conditions; therefore, results from these sites from September of 1984 until January of 1989 were used to calculate baseline, pre-production values” (emphasis added). *See* 2019 HIMR at 3.2.

The significance test in 2019 as stated in the report becomes a geographical comparison in sediment values between three different locations. Results at S-1 near the Outfall are compared with S-3 six miles north as well as S-2 1.5 miles to the south in Pile Driver Cove. The report concludes that given that concentrations at S-1 were lower than S-3 and higher than S-2 the lowest, and that “S-1 is geographically located between the two sites, it is evident that metals concentrations at S-1 are within the range of natural conditions.” If by natural conditions one means the rough mean between two sample sites. *See*, 2018 HIMR at 24.

S-3 is a curious location for comparison to S-1. Not only does it represent a completely different benthic substrate as found at S-1 but it is known to be influenced by sources of metals at Hawk Inlet's

¹⁹ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/gc2014hawk.pdf>

head that are not associated with the Greens Creek Mine. *See, Id.*, at 20. S-3 is known to be contaminated but as long as S-1 remains lower, then effects at S-1 are not significant.

The exact sources contributing to the metal's concentrations at station S-3 are unknown, but potential sources include fugitive ore dust.²⁰ Geographical proximity cannot be relied on for comparison between sites exhibiting such a variety of morphological characteristics. S-3 is not an appropriate natural condition site for comparison.

More recently, the mine has used yet another method to measure threshold significance and possible impacts to Hawk Inlet. The current risk characterization is based on comparison of measured levels of metals in tissues to the published concentrations below which toxic effects are scarcely observed or predicted for those species (ERL levels). The report finds little to no risk.

Although this method can provide information into long-term trends in tissue concentrations, it cannot be used to reliably predict effects to aquatic organisms. "There are no effects threshold or regulatory criteria for metals in mussel tissues that are considered protective of aquatic biota. As discussed above, tissue concentrations are not useful predictors of adverse effects to aquatic communities."²¹ Therefore, the new risk characterization still gives no information as to harm to the ecology of the monument or changes in species diversity or population dynamics of the aquatic life in Hawk Inlet due to the mine's activities.

The 2023 dSEIS also relies on comparisons to other bays and estuaries in Alaska to set significance thresholds concluding "seawater, sediments, and invertebrate tissues in Hawk Inlet were generally consistent with or lower than other local, regional, and national values, indicating that the Mine is not significantly affecting the Hawk Inlet ecosystem" *See*, 2023 dSEIS at 3-260.

Although the Hawk Inlet monitoring program has been collecting data for a long period of time, shifting quantitative thresholds, various methods of comparison employed and questionable correlations between morphologically different sites, the monitoring lacks a clear delineation between acceptable and unacceptable levels of impact.

The NOAA office of National Marine Fisheries Service concluded in 2003 that "a lack of data due to sampling design does not equate to a negligible impact." Since at least 2004, the Alaska Dept. of Environmental Conservation has regularly concluded, "[d]ata or information [for Hawk Inlet] is insufficient to determine whether the WQS [water quality standards] for any designated uses are attained."²² This includes WQS specifically set to protect aquatic life and habitat. This conclusion is in contrast to the monitoring reports produced by Hecla concluding that uses are protected. Not having

²⁰ ADEC Metals Total Maximum Daily Load for Hawk Inlet, AK. May 2017 at 4. Available at: <https://dec.alaska.gov/media/18462/hawk-inlet-tmdl-final.pdf>

²¹ Revised Jan. 2021 Green Creek Mine company Environmental Risk Characterization Report at 101. Available at:

²² As it did in 2003, 2004, 2006, 2008, and 2010, Alaska Final 2012 Integrated Water Quality Monitoring and Assessment Report, December 23, 2013, listed Hawk Inlet as a Category 3 water. *See* Final 2012 Report, Appendix A at 47 and 50 (available at <http://dec.alaska.gov/water/wqsar/waterbody/2012integratedreport.htm>).

clearly defined significance thresholds allows for differing interpretations of the same data set and is not sound science.

To make matters worse, the reports have not been reviewed or questioned by any regulating agency including the Forest Service. An audit conducted by SRK Consulting in 2009 found that none the reports required under the permits issued by the State of Alaska had been reviewed or commented on. “There have been no documented comments or interpretations of the results from EPA, ADEC, and the USFS (the reviewing agencies) regarding data presented in the HGCMC annual reports.” Parenthetical in original.

A review of the monitoring reports reveals that even where metals in sediment and tissue increase over the baseline, the authors of the monitoring reports used a variety of rationales to demote negative impacts to non-significance. These reasons include combinations of scale (temporal and spatial) of impacts, an already exceeded baseline, changing the data objectives and/or substituting less stringent thresholds.

The thresholds defined in the monitoring reports with the exception of effluent limits at Outfall 002 and Alaska Water Quality Criteria at the edge of the mixing zone are all non-regulatory objectives or voluntary guidelines and generally not legally enforceable. All are completely silent on ANICLA requirements to measure harm. Legal repercussions for exceeding thresholds would help reduce subjective justifications and requiring thresholds capable of measuring harm to the biological community of Hawk Inlet would add much needed clarity in the current environmental assessment.

A monitoring program that lost data and then mischaracterized the lack of that data as an excuse for not repeating the original diversity and populations studies, combined with the changing thresholds to avoid finding of significant effects is neither transparent or systematic.

The Forest Service has the responsibility to assure Monument values so that the pristine and diverse ecosystem are protected in its entirety. The Forest Service must simply apply the language of the standard as written in ANICLA and require Hecla’s use of public lands for tailings disposal to demonstrate that this use will not cause irreparable harm to the Monument lands and waters. This can be done by repeating the original diversity and populations studies and direct measurements of metal loadings in upper trophic level consumers.

A. These Issues came to the forefront in the 2013 decision and have not been reconciled.

The issues around the Forest Services’ management of the Monument under both ANICLA and the laws stemming the 1872 General Mining Act have never been resolved. This is due to the greater extent by the Forest Services’ continued refusal to clearly define what is meant by the cultural, ecological, historic, prehistoric and scientific values of the Monument protected under the declaration in a manner

clear and discrete enough to aid land managers and the public in decision-making under the Multiple-Use Sustained-Yield Act of June 12, 1960,²³ General Mining Act of 1872²⁴ and ANICLA²⁵.

Congress was clear when debating ANICLA that mining in the Monument was only to be conducted under a higher standard to assure the values that made Admiralty Island eligible for monument status were protected. Section 504(f) of ANILCA states that the Secretary may issue a lease to conduct mining activities in Admiralty Island National Monument only if the Secretary determines that the use of the site “will not cause irreparable harm to the monument.”

Yet the Forest Service has handicapped itself from adequately implementing the relevant laws by refusing to accurately define what is meant by the educational or scientific values of the Monument and by extension, how protection from harm should be determined. In short, the Forest Service has defined no thresholds as to how mining on the Monument is or is not in compliance with what Congress intended for allowing a mine to operate in a National Monument. This failure must be rectified in this latest decision.

Comments submitted during the 2013 expansion request raised significant questions about whether mining operations at the Greens Creek Mine “are compatible, to the maximum extent feasible,” with preventing or minimizing potential adverse impacts to monument values. *See* ANILCA, Pub. L. No. 96-487, § 503(f)(2)(A), 94 Stat. 2371, 2400 (Dec. 2, 1980); 36 C.F.R. 228.80(c)(2)(i). This is particularly important here, where “unforeseen [environmental impacts] may result in the incompatibility of the operations with the protection of [monument] values” *See* 36 C.F.R. §228.80(d)(1). The expansion request from Hecla was enough tailings storage for 30 to 50 years of continued mining. Based on the issues raised in the comments concerning the applicability of ANILCA, the Forest Supervisor only authorized a 10-year expansion and requested more information be developed.

This was the primary issue behind the decision choosing a modified Alternative other than those described in the draft 2013 EIS. In the 2013 ROD, the Forest Supervisor identified the problem of how to reconcile a permanent tailing dump in the Monument with the requirement prohibiting irreparable harm to the Monument mandated by Congress in the ANILCA as key to the next (this) decision. In the Record of Decision in 2013, the Forest Service declared that “the Tongass National Forest will work with other appropriate parties . . . to clarify how to apply the complex set of legal requirements . . . specific to Admiralty Island National Monument.” *See*, 2013 EIS and ROD at 9. The 2023 draft supplemental EIS does not address nor remedy these issues. One cannot protect what one cannot define.

B. Lack of Sufficient Auditing

In addition to the lack of review of monitoring reports by state and federal agencies, the performance of the monitoring program lacks from required third-party party review. Periodic third-party audits are required under the waste management permit, 2014DB0003, authorized by the State. The frequency of

²³ Public Law 86–517 [As Amended Through P.L. 108–198, Enacted December 31, 2003]

²⁴ Public Law 103-66

²⁵ Public Law 96-487.

the audits is to be every five years or before the expiration of each five-year permit. The environmental audit is required to verify HGCMC's compliance with applicable environmental laws associated with the permit. *See*, Waste Management Permit 2020DB0001, Hecla Greens Creek Mining Company.²⁶

Despite this requirement, only two audits have been conducted in 33 years of mining. As mentioned previously, the first audit conducted by SRK Consulting in 2009 found that none the reports required under the permits issued by the State of Alaska had been reviewed or commented on.

The second audit conducted ten year later in 2019²⁷ mentions the existence of the first audit, but none of the findings of that audit nor whether any of the findings were rectified. Since each audit looked at different aspects of the mining and facility operations against applicable permit and state regulations, they are essentially independent, the second audit did not build upon the first. Neither audit evaluated whether mining or facility operations complied with the ANILCA criteria.

ANILCA does not allow the Forest Service to substitute its judgment to other agencies, or permit it to ignore and not review monitoring reports for activities taking place on Monument lands. It does require the Forest Service assure that those authorizations satisfy the heightened standards for resource protection imposed by Congress on any mining activities conducted on Monument lands. The Forest Service lacks the discretion to defer to other agencies, state or federal, when satisfying the stringent duties Congress imposed on it under ANILCA to prevent harm and protect Monument values.

C. Fugitive Dust

The no irreparable harm standard under ANILCA is a strict requirement, not aspirational. Past implementation of State of Alaska Waste management Permits (WMPs) has led to the spread of lead contamination due to fugitive dust far into the Monument and Wilderness area lands. There has been no attempt to determine the extent or level, if any, of harm to the ecology of Admiralty Island due to the spread of tailings far from the disposal site. To make matters worse, the WMP does not require adequate, standardized fugitive dust monitoring capable of quantifying the scope of contamination within project boundaries, let alone outside them. The extent and eventual fate of the airborne lead and other contaminants into Monument lands or the level of harm caused is unknown.

Under all Alternatives, fugitive dust is predicted to increase. From the preferred Alternative B: "The 12- to 18-year increased duration of the life of the TDF and resultant increase in time until the reclamation is complete would likely increase the duration of potential impacts on water quality associated with lead transported by fugitive dust compared to the no-action alternative." *See*, 2023 sDEIS at 3-136.

Hecla has been monitoring fugitive dust emissions from the tailings using 10-liter "Atmospheric Depositional Pails". *See*, 2019 Active Tailings and Production Rock Site 23 Annual Report at Section

²⁶ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/2020DB0001-wmp-permit-final.pdf>

²⁷ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/gcaudit2019.pdf>

4.2.7 at 11. Monitoring is based on a requirement from the Forest Service to sample for fugitive dust that utilized federal reference methods for dust monitoring devices. *See* 2013 Record of Decision (ROD) at 3-12. Despite the requirement to use methods and equipment of known precision and accuracy, Hecla invented their own monitoring equipment. “The methodology is an adaptation of an ASTM standard test method (ASTM D1739). It is similar to the Dustfall Jar Particulate Deposition monitoring conducted by Teck Cominco Alaska Red Dog Mine (Teck 2005). The adapted methodology lacks the specified windscreen, uses a variable sampling frequency, and the filtrate is not analyzed.” *See*, 2022-H1 Biannual Report at 4.2.7.²⁸

This equipment is further described in the Integrated Management Plan (IMP); “Though crude and non-specific, this methodology is useful in the study of long-term trends.” *See* IMP at 5-1. There is no further information in the Hecla’s Quality Assurance Protocol Plan about dust monitoring or data quality objectives to be achieved by monitoring. There is no information regarding how the current equipment was “adapted” from the required standard ASTM D1739. Method D1739 does allow for adaptations, but precision and accuracy must be established by comparison to standard equipment. There is no evidence that such a comparison was ever conducted. There are no significance thresholds defined.

The fact that the monitoring program failed to include a filter blank analysis from 2011 to 2019 until they noticed that the filter being used was contained lead, attests to crude and non-standard methods of the monitoring program. *See*, 2022 H1 2022 Biannual Report at 11. Equipment blank analysis is required under Standard Methods.

The 2023 dSIES fails to remedy the lack of accurate monitoring allowing the mine to continue using existing fugitive dust monitoring equipment. (*See*, Section 3.2, “Air Quality and Climate”).

The Mitigation Measure, AQ-1, describes that the mining company will develop a Forest Service-approved fugitive dust mitigation and monitoring plan within 6 months following approval of the final ROD. This plan will identify additional measures and monitor effectiveness to achieve near-zero fugitive dust detection at monitoring sites. Near-zero fugitive dust detection at monitoring sites during a typical dusting season (December through February) would be required prior to proceeding with expansion activities under any of the action alternatives. ‘Near Zero’ is not defined in a threshold sense so offers no delineation between acceptable and unacceptable levels of dust. 100 tons per year is nearer to zero than a million tons.

The fugitive dust mitigation and monitoring plan will include but not be limited to the following:

- Additional deposition and lichen monitoring sampling sites located to reflect areas of potential maximum deposition including sites extending to a distance of at least 2 miles from the TDF. Based on the current modeling described above, sampling sites will be located within the Cannery, Tributary Green, and Zinc Creek watersheds (all alternatives, including the no-action alternative) and the Fowler Creek watershed (proposed alternative and alternatives C and D).
- Atmospheric Deposition Containers should be deployed and samples collected weekly for sites adjacent to the TDF; monthly sampling will occur for sites at extended distances.

²⁸ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/2022-H1-Biannual-Report.pdf>

- Refinement of deposition monitoring sampling methodology, as necessary, to ensure that total mass loadings and metals content are quantified accurately. This should include information on particle size distribution. *See*, 2023 dSEIS at 3-38-39.

Although this reviewer is encouraged by the increased monitoring, we question how the effectiveness will be measured with the “crude and non-specific” data collection that currently operates. We also notice that the requirement to use compliant monitor equipment is still missing. In addition, although the plan has a life-time equal to the expected life of the expansion, 12-18 years for the preferred Alternative B, there are no regulatory thresholds or enforcement described beyond the undefined “near zero” detection.

We recommend that that Mitigation Measure AQ-1 be implemented now and for a year prior to a decision. It is the only way for the mine proponent to show these results are achievable and effectiveness proven. Significance thresholds must be determined and become compliance requirements. Once a decision is made, the Forest Service is locked into the performance of the mitigation measures for the duration of the life of mines with no regulatory recourse. This is the only way the Forest Service can begin to comply with ANICLA.

Fugitive dust has now polluted Tributary Creek, an anadromous stream south of the TDF. Tributary Creek has been designated (downgraded to) a category 4b waterbody due to continued high levels of lead found during annual water quality monitoring. It is notable that the only reason impacts to fugitive dust was noticed at Tributary Creek, was that this was an established fresh water monitoring station. Until an expanded testing program is implemented, the Forest Service has no data on what other lands and waters within the Monument may be affected by fugitive dust. This means that the conditions described in the No-Action Alternative are incomplete.

In addition, fugitive dust must be considered a non-point source of pollution in Hawk Inlet and regulated. As discussed in Section 3.2.2.1, “Fugitive Dust Modeling,” and under “Fugitive Dust” in Section 3.5.2.2, “Alternative A – No-Action Alternative,” fugitive dust monitoring has determined that fugitive dust has resulted in deposition of metals, including lead, at varying distances and directions from the TDF including Hawk Inlet. These metals accumulate in water, sediments and biota. Accumulation of these metals in tissue over time may result in harmful impacts on fish, affecting normal biological function. Fugitive dust must be considered as a discharge into Hawk Inlet.

The idea that fugitive dust deposition in Hawk Inlet must be minimal because lead does not show up in the marine water monitoring is ludicrous because lead in fugitive dust would be in the form of total metals and the marine water is only tested for the dissolved fraction. *See*, Sectional comments below.

We recommend analysis of heavy metal concentrations be required under the APDES permit for the all the species described under Essential Fish Habitat in Hawk Inlet.

IV. The TDF should be categorized as Major Source of Pollutants and Regulated under 40 CFR Parts 51 and 52.²⁹

The 2023 dSEIS states that under all alternatives, fugitive dust emissions will increase. This increase in emissions should be analyzed under the New Source Standards under 40 CFR Parts 51 and 52.³⁰ New Source Review (NSR) under the guidelines includes major modifications at existing major sources. Major NSR is a preconstruction review and permitting program applicable to new or modified major stationary sources (major sources) of air pollutants regulated under the Act. *See, Id.* at II (A). Therefore, this review must be completed prior to a final decision.

The initial step in assessing applicability is to determine whether the source in question qualifies as a “major source.” A proposed or existing source qualifies as a major source if it “emits or has the potential to emit” a regulated NSR pollutant in an amount greater than the specified annual threshold. For the Federal Governments Prevention of Significant Deterioration (PSD) program, the major source threshold is 100 tons per year (tpy) and mining is an NSR pollutant. The rule applies to the Greens Creek TDF and to this expansion. “If an existing major source (i.e., an existing source with actual emissions and/or PTE greater than the applicable major source threshold) is planning a physical or operational change, the project is subject to review under major NSR if it is a “major modification.”” *Id.*

The Final Rule states that *quantifiable* fugitive emissions are included in a stationary source’s PTE when determining whether the source is a major source. *Italics added.* The State of Alaska’s long-standing refusal to require standard dust monitoring equipment handicaps this determination. This further supports the implementation of new monitoring prior to a decision on the expansion.

We recommend, as above, the improved monitoring program be implemented, allowed to collect data for at least 1 year and then a determination be made of the applicability of New Source Standards under 40 CFR parts 51 and 52.

V. Recommendation for Fugitive Dust Best Management Practices (BMT’s)

The usual scenario when considering negative impact for a project is first to avoid harm, second, where harm cannot be avoided, seek measures to reduce the harm, and third mitigate the harm caused through restoration or replacement of the ecological function harmed elsewhere.

We recommend the following fugitive dust management practices be employed at the TDF. These recommendations should be incorporated into the Solid Waste Permit requirements and mandated. The Forest Service should require these mitigation measures.³¹

²⁹ Available at: <https://www.govinfo.gov/content/pkg/FR-2008-12-19/pdf/E8-29998.pdf>

³⁰ 77882 Federal Register / Vol. 73, No. 245 / Friday, December 19, 2008 / Rules and Regulations

³¹ *See also:* <https://www.epa.gov/system/files/documents/2022-02/fugitive-dust-control-best-practices.pdf>

Improved monitoring equipment. Hecla should be required to utilize standard ASTM certified dust monitoring equipment that can produce quantifiable data. If modified equipment is used, then it must be promulgated against equipment with known precision and accuracy.

Monitoring area extended. Fugitive dust monitors must be placed outward from the TDF to the fullest extent of the expected detection of fugitive dust. This can accommodate and inform mediation efforts if necessary and provide background for future expansion.

Fugitive dust must be incorporated into the Hawk Inlet monitoring program as a non-point discharge. One or more monitoring stations should be located on the Greens Creek Delta and at each location designated as a “natural” or background site in the Hawk Inlet monitoring program, sites S-3, S-2 and 106. This is the only way to discern the difference between effects of the wastewater discharge and the effects of fugitive dust. Specific regulatory thresholds must be in place with a mandatory compliance program. The responsibility to avoid harm to the Monument is an affirmative requirement, not voluntary. These requirements must be incorporated into the both the APDES and Solid Waste permits as well as the final Record of Decision.

Avoid surface disposal during high dust weather events. From the Tailings reports it is clear that the majority of dusting events occur during set times of the year and under predictable weather conditions. During these times, Hecla should avoid surface disposal and place tailings only as underground backfill.

Limit the material drop distance between the truck beds and the ground to no more than 3 feet and restrict the flow of material using dead boxes, socks, drop down spouts/sleeves. Immediately spread and compact after each load.

Install and maintain dust curtains around active disposal areas to reduce air movement and isolate dust forming operations.

Limit vehicle speeds to 5 mph on both the A and B roads.

Cover open-bodied trucks when the truck is carrying materials that can be released into the air.

VI. Comments on March 30, 2021 Memo Alaska Department of Natural Resources to Basia Trout, District Ranger concerning Reposting the Species Diversity and Population Baseline Studies.³²

³² Department of Natural Resources Office Of Project Management And Permitting to Basia Trout, District Ranger. March 30th 2021.

It is clear from the opening paragraph of this memo that this request for information was really only a request for justification. The conclusion expected to be reached is stated in the request for information. As such, the memo violates the standards of empirical research. Empirical research is defined as any study whose conclusions are exclusively derived from concrete, verifiable evidence.³³

This memo was the result of a request for “information from the State to assist the USFS in documenting for the administrative record why the 1981 baseline environmental study entitled, “Heavy Metal Concentrations in Aquatic Biota of Greens Creek, Zinc Creek, and Hawk Inlet” (Richkus and Johnson 1981) *cannot and/or need not be replicated.*” Italics added.

Putting the conclusion before the analysis is what is known as sponsorship bias and it relates to the tendency of a scientific study to support the interests of the study's sponsor. This phenomenon is recognized sufficiently that researchers undertake studies to examine bias in past published studies.³⁴

This type of reliance on a pre-determined conclusion has no place in a science-based process and its inclusion here draws into question the reliability of all the science included in the 2023 dSEIS.

If there is any doubt about the State of Alaska’s capitulation to mining companies over the duty of transparency and public process in mine authorization, one need to look no further than recent developments in the State of Alaska’s actions at the Palmer Mine project north of Haines, Alaska.³⁵

The administrative record documented in the appeal the latest Waste Management permit demonstrates that the Alaska Dept. of Environmental Conservation (DEC) and the Alaska Department of Natural Resources (DNR) colluded with the mining company and intentionally concealed its May 2022 decision authorizing a waste water permit for an underground exploration project from the public until the window of appeal had expired. This denied the public from reviewing and commenting on the permit. It also circumvented the public’s right to judicial review.

The record in this case includes the following:

- Dec. 24, 2018 email from Kyle Moselle at Dept. of Natural Resources to Constantine explaining that although there would not be advance public notice when DEC approved the revised permit, the final approvals would be posted to DNR’s large mine project page.
- Feb. 4, 2022 email where Gene McCabe with DEC describes for DEC Division of Water Director Randy Bates the strategy of not telling the public about the approval unless they ask about it and directly and notes that Constantine’s “main concern” was whether there would be a public process for the revised LAD system.

³³ See, <https://research.com/research/what-is-empirical-research>

³⁴ See, https://en.wikipedia.org/wiki/Funding_bias

³⁵ See, Opening Brief Before the Alaska Office Of Administrative Hearings On Referral From The Commissioner Of Environmental Conservation Chilkat Indian Village (Klukwan), et.al; Requesters, V. Alaska Department Of Environmental Conservation, Division Of Water, and Constantine Metals Llc, Respondents.

- May 17, 2022 letter from the Alaska Miners' Association objecting to the Southeast Alaska Conservation Council's (SEACC) request for a public hearing or comment on the changes to the LAD system.
- May 20, 2022 email showing they had prepared the postdated May 27 approval already, on the same day that Director Bates told the public they were still "evaluating" the amendment package. Director Bates repeated this lie to the Chilkat Indian Village, a federally recognized Tribe, four days later, on May 24, 2022.
- An email exchange between DEC and DNR starting on May 27, 2022 transmitting the permit approval to DNR but then telling DNR to avoid posting the documents online.
- A June 3, 2022 DEC email transmitting the approval to J.P. Tangen "Per your request." This was nearly two months before DEC informed SEACC about the approval. J.P. Tangen calls himself "Alaska's Mining Attorney."
- In the midst of all this, the record contains repeated requests by the Chilkat Indian Village, SEACC, the Takshanuk Watershed Council and Audubon Alaska asking DEC to share information, accept public comment, and consult before approving the permit.
- DEC also denied the existence of the approved permit when asked by EPA Region 10.

The March 30, 2021 Memo is along the same lines and should be discarded from the record.

Addressing the (forgone) conclusions of the memo. The memo justifies the reliance on lower trophic level tissue analysis.

"The logic behind using lower trophic level fauna for sampling is that if metals do not concentrate in tissue of the lower trophic level fauna, then excessive metals are not bioavailable for higher trophic levels. Since the mussels and marine worms are confined to the mine-associated areas and that they show no increases in metals, it is even less likely that their relatively mobile predators would show a significant effect. The results of the biomonitoring program indicate no concern over bioconcentrating metals in lower trophic levels, and that it was effectively designed to provide those data. The current biomonitoring results indicate that the marine organism tissues have not significantly changed since pre-mining conditions and validates that the permit conditions are protective of the water quality of Hawk Inlet."

One must first disregard the Memo's apparent confusion about bioconcentration versus bioaccumulation where bioconcentration is those chemicals taken up from water-borne sources only as opposed to bioaccumulation that covers the uptake from all environmental sources, e.g. water, food and sediment as is clearly intended.³⁶ The current monitoring program purports to measure biomagnification or chemical transfer from lower trophic levels to higher trophic levels within a food web. In this case the food web as it exists in Hawk Inlet. The protection from the effects of biomagnification then is an indirect

³⁶ Alexander, D.E. (1999). Bioaccumulation, bioconcentration, biomagnification. In: Environmental Geology. Encyclopedia of Earth Science. Springer, Dordrecht. https://doi.org/10.1007/1-4020-4494-1_31.

extrapolation from tissue analysis at the lower end of the food web. Yet the Risk Assessment states for every tissue type collected that “as discussed above, tissue concentrations are not useful predictors of adverse effects to aquatic communities.”³⁷

Furthermore, the assertion that metals are not accumulating in the lower trophic levels is false. The most recent Hawk Inlet Monitoring Report for water year 2021 shows that for mussel tissue lead has increased at every station sampled in comparison to pre-mining data as much as a 47% increase at the East Shoal Light (ESL) station at the end of the Greens Creek Delta. *See*, 2022 Hawk Inlet Monitoring Report Table 4-2 at 19.³⁸

The same monitoring report shows that lead has also increased in the tissues of the Polychaete worms sampled at S-1 near the ESL and near the mixing zone from 0.49 mg/kg preproduction to 1.00 mg/kg in the period of 1889-2021 and the most recent data, 1.44 mg/kg. This represents a 98% increase in lead concentrations in benthic worm tissues due to the mine’s activities. *See*, *Id.*, Table 4-3 at 20.

The memo further justifies not conducting the species diversity and population studies in the following statements: “Meaningful replication of the specific studies described in Holland et al. (1981) and Richkus and Johnson (1981) is not possible given associated limitations (e.g., sample sites were not described, freshwater water quality data were frequently below detection limits at the time, known contamination is present near some sample locations).”

The first “limitation” cited; sample sites not described is false. Numerous sites of the 1981 study are still sampled by the mining company. The 1981 Site 6 corresponds to the current monitoring site S-3. The 1981 sites 1 and 2 correspond to the Current S-1 and the ESL respectively. The 1981 sites 13 and 16 correspond to S-4 and S-5N and S-5S. The South Reference Area Site in the 1981 study is where S-2 is currently located.

Furthermore, the standard methodology for population studies describes identifying representative locations, not specific sample sites.³⁹ Sampling transects are laid out randomly. The first transect is randomly located. From that point, a systematic sampling design is applied to establish a representative number of transects within the study area. Exact locations are not necessary.

The other limitation cited was that freshwater water quality data were frequently below detection limits at the time (of the 1981 study). Detection limits have nothing to do with species diversity and population studies. The State of Alaska is conflating water chemistry testing with population density testing.

³⁷ *Supra* at 19

³⁸ Available at: <https://dnr.alaska.gov/mlw/mining/large-mines/greens-creek/pdf/2022-Hawk-Inlet-Monitoring-Report.pdf>

³⁹ USEPA National Rivers and Streams Assessment Field Operations Manual, EPA-841-B-07-009

And finally, the 1981 study cannot be repeated due to known contamination is present near some sample locations. Ignoring the question of how they know that since they don't seem to know the original locations, the issue becomes a matter of avoiding the area contaminated by the 1989 ore concentrate spill. Species diversity and population studies can occur at the head of the Inlet, the Greens Creek Delta or south to Pile Driver Cove. They can even be conducted in Young Bay, an appropriate "natural" area tested in 1981.

In short, there is no reason not to repeat the species diversity and population studies in order to directly measure potential impacts throughout the food chain. This is the only way to measure compliance with ANICLA's irreparable harm to the ecosystem standard. The memo just furthers the State of Alaska's obstruction on behalf of the mining companies interests over the duty to protect the public trust. The Forest Service must require a repeat of the species diversity and populations studies.

Furthermore, these studies are designed to detect long-term changes. The States's statement: "the State of Alaska does not speculate about replicating obsolete studies without regulatory justification; state agencies operate within their regulatory obligations and authorities to protect the people and resources of Alaska" is telling if not a circular argument. Changes to species make-up in any particular ecosystem do not occur within a one-year time-frame, but are spread over many years according to the generational lifespan of the species. The State of Alaska errs by characterizing the 1981 study as obsolete without any supporting documentation. The regulatory justification must come from the federal government, in this case the U.S. Forest Service fulfilling its duty to honor Congresses' intent allowing mining in the Admiralty Island National Monument.

The State's memo is silent on any perceived issues with repeating the metal loading levels in the blood of upper trophic level consumers such as eagles, deer and bears. Presumably because no such barrier exists. We recommend this testing also be conducted as it is the only direct measurement available to ascertain whether biomagnification in the food chain is occurring.

VII. Conclusion

The Forest Service has a duty to implement the intent of Congress and the conditions placed on mining within the Admiralty Island National Monument. It cannot abdicate this duty to the State of Alaska.

The Forest Service must protect the entirety of the Monument including the submerged waters from irreparable harm. This means requiring the type of monitoring that can predict harm before it occurs. By definition, irreparable harm cannot be restored or mitigated for. No exchanges of similar lands elsewhere is consistent with protecting the Monument. Harm must be avoided. Not a single square foot can be spared.

The State of Alaska is not under the same requirements as the Forest Service. The State of Alaska's monitoring is too narrow to detect potential harm to the Monument Values. The Forest Service must act to avoid the dilemma faced by the Forest Supervisor described in the 2013 EIS and ROD and required the collection of information necessary to predict and avoid harm. This means using sound science, field verification of models and assumptions, direct measurements and surveys and applying ANICLA's criteria over and above the idea that some harm is necessary to the Monument in order to accommodate mining.

Greens Creek could still be the model mine envisioned by Congress, but only if the Forest Service requires it.

Sectional Comments

Purpose and Need at S-1: *See also*, Section 1.2 "The need for the Forest Service's action is to comply with regulations governing the use of surface resources for operations authorized by the United States mining laws on National Forest System lands under 36 Code of Federal Regulations (CFR) 228, subpart A." This must be balanced with the requirements Under ANICLA. The purpose and need is also regulated on the extra conditions Congress mandated for mining on the Monument. We recommend language making it clear to the public that there are limits to what the mining company and the Forest Service can authorized to fulfill the purpose and need.

Scoping and Significant Issues at S-2. "Scoping comments were distilled into significant issues that were used to develop alternatives to the proposed action and identify key areas that need to be addressed in the environmental impact analysis". Information must be provided to the public on what methods the Forest Service used to define 'significance' versus 'other' issues raised during the scoping period. Many commentators raised the compliance with ANICLA in scoping, yet the Forest Service, despite the language in the last decision about the conflict and the need for more information, this was not significant or even an 'other' issues. This process is opaque to the public. Please explain.

Table ES-2 at S-5. Air quality and climate. Fugitive dust deposition amounts "low to moderate" for all alternatives. Please explain the threshold determination for "low" or "moderate." The 2013 EIS cites an expected 100 tons of fugitive dust per year. How does that expected amount fall into a low to moderate category. The Forest Service has failed to require industry standard dust monitoring so has no accurate data to predict these amounts. This violates the NEPA "hard look" requirement. Please include specific threshold as to what constitutes Low to Moderate to Severe and provide the data for such determination so the public can make an informed decision.

Table ES-2 at S-5. Aquatic resources. Risk of watersheds affected by heavy metals (including lead) from fugitive dust. All watersheds considered a low risk of heavy metal exposure except Tributary Creek. Refer to comment above on lack of threshold determination and lack of accurate data to make such a determination. The 2013 ROD contains no predicted effect from fugitive dust on aquatic resources

despite numerous comments during scoping and the draft pointing out such an issue. *See*, 2013 ROD Table 1 at 22. Please explain to the public how such a determination is made, is it only after a watershed is contaminated such as Tributary Creek? Explain how this approach avoids and or minimizes negative effects to aquatic resources.

Table ES-2 at S-8. Monument resources. Nothing beyond previous decisions and near-natural condition after closure. Please explain how releasing an additional 12,000 to 18,000 tons of fugitive dust (using the estimate of 100 tons per year) for Alternative B into the Monument is not beyond previous decisions. Please explain how these contaminants moving up the food chain will not be affecting Monument resources after closure. Cite the data used to make such assumptions.

1.3 Purpose and need at 1-5. Objectives for the Applicant. Missing the objective to avoid irreparable harm to the Monument. If the applicant is not to avoid harm and the Forest Service is not requiring it, then please explain to the public how this project is compliant with the intent of Congress when it added conditions to mining in the Monument. Please add compliance with all sections of ANILCA as an objective for applicant and all state and federal agencies.

Also add objectives of minimizing fugitive dust and protecting the essential fish habitat of Hawk Inlet or explain to the public why not.

1.4 at 1-6. Decisions to be made. In addition to citing 36 CFR 228, please cite the decisions to be made with under ANICLA requirements at 505, 804, 808, 810 and 901 and how these are to be reconciled with the General Mining Law. Also please explain why the Forest Service will work with ADEC on increased monitoring and mitigation for Tributary Creek but not on Hawk Inlet where the Forest Service has, so far, been silent. Explain exactly where the Forest Services' responsibility over submerged lands within the Monument intersects with Hawk Inlet. Explain how waiting for an impairment to coordinate with ADEC complies with the guidance to avoid and minimize impacts.

1.6 Consultation and Coordination with Alaska Tribal Governments and Native Organizations at 1-8. At the time of the writing, the Forest Service had received no reply to offers of consultation. The Forest Service has a duty to abed by the Tribal Government's process for decision-making, not the federal government's. No decision can be made until accommodations of adequate consultation according to the Tribes' own process has been accomplished.

1.7.1 at 1-9 Issues. Include fugitive dust, and in measures to be used to monitor it. Add monitoring for fugitive dust at all current monitoring data collection sites.

1.7.2 at 1-9. Same comments as at 1.7.1. Under Project-related surface disturbances, add fugitive dust and under 'following measures' add lichen surveys and heavy metal up take studies for all species listed under essential fish habitat of Hawk Inlet.

1.7.3 at 1-9. Please explain how impacts of fugitive dust and bioconcentration and accumulation of metals in subsistence food items used by the Angoon Community Association resulting in impacts on subsistence and traditional tribal uses, which may pose health issues for tribal members and project operation causing irreparable harm to the Monument, are addressed in the Project design and best management practices already employed for the Project when the project design contains no requirements for direct measurement of either one. Please explain how this is related to users from Hoonah, Tenakee Springs and Juneau.

1.8.3.1 at 1-12. “If another agency cannot meet its regulatory responsibilities, the Forest Service is ultimately responsible for ensuring that Federal and State regulations are implemented on National Forest System lands.” Please explain to the public what thresholds are in place for ‘not meeting regulatory responsibilities. Explain what objective decision-making process is employed when making such a determination.

2.3.2 Alternative A: No-action Alternative at 2-5. “The no-action alternative serves as a baseline for evaluating and comparing effects of the proposed alternative and other action alternatives.”

The no-action alternative serves as a baseline only for comparison between the alternatives and the conditions subject to implementing the current 2013 ROD. It does not represent the baseline for an environmental effects analysis. The Forest Service has granted 3 short-term expansions and ignored comments to consider reasonably foreseeable future actions and the possibility of further expansion at each step. The correct baseline for an environmental effects analysis is the no-action alternative description in the 1983 EIS, the Monument Declaration and other documents written prior to mining. An environmental effects analysis starting with the complete implementation of the 2013 ROD as the baseline would constitute basing effects on an ever shifting baseline of incremental damage to the Monument due to repeated Forest Service actions. 40 CFR § 1508 defines cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person who undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. An environmental effects analysis of mining in the Monument must be based on the pre-mining baseline, not based on a series of allowed degradation. Please change the language in this section to reflect this.

2.4.4.4 at 2-41 Flow Augmentation as Contact Water Treatment. “Because the discharge is and will continue to be permitted by agencies with authority for Clean Water Act compliance, the Forest Service considers the approved discharge to be protective of water quality for purposes of this analysis (36 CFR 228.8(h)).” Subsection (h) reads “Certification or other approval issued by State agencies or other Federal agencies of compliance with laws and regulations relating to mining operations will be accepted as compliance with similar or parallel requirements of these regulations” The no-irreparable harm standard of ANILCA is not a parallel standard but an additional and superior condition set by congress. State NPDES (APDES) permits are authorizations to degrade water quality for the public’s benefit. *See*, 40 CFR 122(11)(v). The federal government, however, continues to have ultimate enforcement authority

in all cases. The federal government has oversight responsibility over the states' activities, and monitors state and tribal implementation of EPA approved programs. *See*, <https://www.wolterskluwer.com/en/expert-insights/us-federal-vs-state-environmental-regulations-what-to-follow#:~:text=Which%20takes%20precedence%3F,precedence%20over%20the%20federal%20one>. The Forest Service cannot forgo this duty and is the ultimate decider in how these laws are implemented. Please provide an analysis of how the authorized degradation of the submerged lands within the monument is compliant with ANICLA 505. Absent such analysis, please remove all language alluding to state permits being protective of water quality, they are not. They are authorized degradation of water quality. *See*, Alaska's Antidegradation Guidance at: <https://dec.alaska.gov/water/water-quality/standards/antidegradation>.

2.5.2 at 2-46 Air Quality. Actions. Please add the following actions and those as described in section 2.2.7 at 3-38: The Applicant will utilize standard traceable, independently calibrated dust monitoring equipment. The Applicant will expand the dust monitoring program by placing additional dust monitors throughout the Monument lands up to and including 2 miles away. Applicant will achieve near-zero fugitive dust emissions (based on clearly defined thresholds and objective standards of what defines "near-zero") prior to proceeding with the expansion. Applicant will institute a lichen monitoring program with sampling sites extending to a distance of at least 2 miles from the TDF.

2.5.3 Cultural Resources at 2-47. Please add language to the cultural resources beyond physical objects. The Monument contains many less tangible cultural resources such as food sovereignty and opportunities for cultural practices as described in the Monument Declaration.

2.5.6 Fish and Wildlife Management and Monitoring Plans at 2-48. Actions. Please add the commitment to repeat the species diversity and population studies in order to directly measure impacts to fish and wildlife and to validate the risk assessment models used by the State of Alaska. Also commit to conducting heavy metal analysis on the blood or hair of upper-level consumers to assure biomagnification of metals is not occurring in the food chain.

2.6.1 Table 2.6-1 at 2-50. Additional Mitigation Measures. Forest Service approved dust mitigation plan must be developed before approval of this action. The Forest Service has been aware of the fugitive dust problem going back to the 2005 authorization. It appears the sudden interest is driven by the Tributary Creek impairment. The Forest Service cannot only act retroactively when harm occurs. The mandate under ANILCA is to avoid harm.

AQ-1. "Additional deposition and lichen monitoring sampling sites located to reflect areas of potential maximum deposition including sites extending to a distance of at least 2 miles from the TDF." This is inadequate. Monitoring should include all areas exposed to the dust. It is the nature of the harm, not the intensity that must be monitored and mitigated.

AQ-1. Replace the word “should”, as in “containers *should* be deployed. . .” with “must” throughout Table 2.6-1.

AR-2. Add intertidal benthic macroinvertebrate species diversity and population studies in Hawk Inlet to the Aquatic Resources section. This is population and diversity studies are done for freshwater periphyton, EPT taxa, terrestrial wildlife. deer, bear, and anadromous fish. If not, then please explain why not when it is done everywhere else. The Forest Service cannot continue to turn a blind eye to Hawk Inlet macro invertebrates.

2.9 Comparison of Environmental Consequences of the Alternatives Table 2.9-1 at 2-57. See comments on ES-2 at S-5 on the “low” to “moderate” prediction for fugitive dust.

Environment Justice at 2-61. “Disproportionately affect minority or low-income populations” “No.” This is not accurate and suffers from the same issue of making assumptions in a vacuum of actual evidence apparent throughout the 2023 dSEIS. Angoon no longer feels like it is safe to eat foods collected in Hawk Inlet. Whether the foods are safe or not is not the issue. Hawk Inlet is being avoided. That is a loss to the community and needs to be documented here. Loss of food to Angoon represents an impact to the human health environment. Please change the wording to reflect this.

3.2.1.2 at 3-4. Climate. The 2013 SDEIS lacks any mention of the Tongass National Forest or Admiralty Island in particular, role and value in mitigating global climate change. The Tongass sequesters ~44% of the total carbon of the entire national forest system.⁴⁰ This is a recognized ecosystem value and should be included and protected in the final EIS. We recommend that the values of the Tongass and Admiralty Island as carbon sinks be described and measures taken to avoid, minimize and mitigate any damage to this globally significant treasure.

3.2.1.7 at 3-13. Dust Deposition. “ADC deposition data do not provide quantitative measurements of pollutant loading to the environment due to limitations of the ADC sampler, but are used to understand the direction and distance fugitive dust may travel, providing relative comparisons between sites and allowing evaluation of general trends over time (HGCMC 2020a).” The ADC system does not provide data on the distance dust travels since there are no monitoring stations anywhere near the outward extent of the dust spread. Please correct. The Forest Service must mandate dust collection equipment that does provide quantitative measurements. Placement must cover the expected range out to background or non-detectable levels.

3.5.2.2 at 3-77. “Fugitive dust modeling results suggests that a small volume of fugitive dust is deposited directly into Hawk Inlet (Figure 3.2-2). Water quality monitoring, shown in Table 3.5-8, does not indicate AWQS exceedances due to fugitive dust.” This explanation is inadequate and shows a serious

⁴⁰ Total carbon pools for all national forests obtained from Congressional Research Service. 2020. U.S. forest carbon data: in brief. <https://fas.org/sgp/crs/misc/R46313.pdf>

lack of knowledge on the fate and transport of heavy metals. Lead from fugitive dust would be deposited in the form of Total metals, in its elemental form. For lead to be detectable in water quality sampling it would have to be in its dissolved form.

The pollution of terrestrial and aquatic ecosystems with toxic heavy metals is a major environmental concern that has consequences for public health. Most heavy metals occur naturally, but a few are derived from anthropogenic sources. Heavy metals are characterized by their high atomic mass and toxicity to living organisms. Most heavy metals cause environmental and atmospheric pollution, and may be lethal to humans. Heavy metals can become strongly toxic by mixing with different environmental elements, such as water, soil, and air, and humans and other living organisms can be exposed to them through the food chain. Heavy metals are not flushed with tidal cycles. They compound with carbon or other organic material or are depredated in sediments. Heavy metals are not diluted out, they biomagnify. There is a plethora of evidence on this subject. It is not up to the public to provide this information. This entire section needs to be re-done. If this were an assignment I gave to an 8th grade life science student, I would give this section D-.

Water management at 3-77. This section omits any uncertainty analysis based on climate change as requested in Scoping comments. 25-year, 24-hour duration storm events are no longer predictable. Please provide some measurement of uncertainty or range of probability for these predictions.

These last 4 comments relate to all 5 alternatives.

3.16 at 3-264 Subsistence. The section notes that a survey of the community resulted in asks to repeat the 1981 baseline studies. The Forest Service refused. *See*, comments at VI. Please explain where in the duty to consult with federally recognized Tribes it is the Forest Service's prerogative to ignore the Tribes' concerns on subsistence. Subsistence is a cultural activity. The Forest Service had a choice, repeat the 1981 baseline, or conduct a new study. To minimize the concerns of the community and refuse either remedy was not an option. In doing so, the Forest Service has impacted the community's ability and opportunity for cultural practices. It is the burning of smoke houses all over again.

3.16.1.3 at 3-265. "Residents of Angoon historically used Hawk Inlet more frequently before the 1970s for deer hunting and shellfish harvesting. Since then and currently, residents occasionally use Hawk Inlet for subsistence purposes, but to a much lesser degree than in the past." The reason given; closure of the cannery is not supported by any testimony. As with much of the 2023 dSEIS, it is pure conjecture. Please included any testimony from residents of Angoon or Hoonah to support this conclusion or omit it.

Thank you for the opportunity to submit these comments.

Friends of Admiralty Island