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Subject: APDES Permit No. AK0053708, Niblack Mining Corporation

Mr. Kahn,
Southeast Alaska Conservation Council submits these comments in response to the Draft APDES Permit AK0053708, for Niblack Mining Corporation, for its operation on Prince of Wales Island, Moira Sound.

Niblack Mine
Draft Alaska Pollution Elimination Discharge Permit No. AK0053708

LIST OF ABBREVIATIONS:
APDES—Alaska Pollution Elimination Discharge System
DEC—Alaska Department of Environmental Conservation
NMC—Niblack Mining Corporation
NA—Niblack Anchorage
DFS—Draft Fact Sheet (produced by the DEC)
PAG—Potentially Acid-Generating

Based in Juneau, Alaska (Tlingit/Aak'w Kwáan lands), Southeast Alaska Conservation Council (SEACC) is a regional grassroots organization with more than 7,000 supporters. For over 50 years, SEACC has brought together diverse Alaskans from our region's communities to protect the natural resources of Southeast Alaska, ensuring sound stewardship of the lands and helping to preserve traditional ways of life as well as commercial fishing, tourism, and recreation.

SEACC submits these comments in response to the 2022 Draft Alaska Pollution Discharge Elimination System permit and fact sheet for Niblack Mine on Prince of Wales Island, Alaska.

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The 2022 Draft APDES permit for the Niblack Project contains several major changes from the previously approved 2015 APDES permit (AK0053708) for a new marine discharge for the Niblack mine operation. First and foremost, the mixing zone previously authorized in Niblack Anchorage has grown to roughly 10 times the size originally permitted (from 8.73 x 4.72 meters for acute criteria and 11.82 x 9.03 meters for chronic criteria, to 57 x 53 meters for acute criteria, and 165 x 110 meters for chronic criteria).[1]

Secondly, the proposed copper discharge limit has increased significantly from the previous permit. The limits for copper in the 2015 permit were a daily maximum of 160 ug/L, with a monthly average of 60 ug/L. For the 2022 permit, the limits have approximately doubled, to a daily maximum of 300 ug/L and a monthly average of 150 ug/L.[2] Recent effluent monitoring data show the maximum reported value of copper during 2016-2021 to be at 702 ug/L, a much greater threshold than even the new higher threshold.[3]

Yet, despite these large changes with regard to pollutant levels in the untreated effluent (the "treatment" discussed in the Draft Fact Sheet and other documents at this time consists merely of effluent generated mainly from the Potentially Acid Generating (PAG) waste rock piles, sitting in settling ponds until discharged directly into Niblack Anchorage), no additional monitoring requirements regarding the mixing zone or the receiving water have been imposed by the Alaska DEC. Also, though it is clear at this point several other metals thresholds in the PAG runoff have skyrocketed (aluminum, cadmium, lead, and zinc), the permit is being authorized by the DEC with no additional treatment requirements, despite the capacity to treat the effluent with chemicals, prior to discharge, is available onsite and has been for many years.[4]

Anti-degradation:

18 AAC 70.015 (a)(2)(A): Allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located.

The scope and purpose of the permit are flawed. For the DEC or Niblack to claim that it has provided any tangible economic benefit (or will in the foreseeable future) to Prince of Wales Island (POW) is inaccurate. For a period of 30 years, the Niblack operation has been a small,

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[1] State of Alaska, Department of Environmental Conservation (DEC). (2022). *Alaska Pollutant Discharge Elimination System (APDES) Permit Fact Sheet—Draft.* dnr.alaska.gov/mlw/mining/large-mines/niblack/; State of Alaska, DEC. (2015). *APDES Permit Fact Sheet—Final.* dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/niblackapdes-ak0053708remand.pdf

[2] State of Alaska, Department of Environmental Conservation (DEC). (2022). *Alaska Pollutant Discharge Elimination System (APDES) Permit Fact Sheet—Draft.* dnr.alaska.gov/mlw/mining/large-mines/niblack/.

[3] State of Alaska, Department of Environmental Conservation (DEC). (2022). *Alaska Pollutant Discharge Elimination System (APDES) Permit Fact Sheet—Draft.* dnr.alaska.gov/mlw/mining/large-mines/niblack/, §3.4, Table 4.

[4] State of Alaska, Department of Environmental Conservation (DEC). (2022). *Alaska Pollutant Discharge Elimination System (APDES) Permit Fact Sheet—Draft* (DFS*).* dnr.alaska.gov/mlw/mining/large-mines/niblack/. §6.2.

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mostly inactive exploration project, rather than a working mine, and has been categorized an "inactive mine in a period of temporary closure" by the DEC. The mine operation itself has never provided reliable full-time jobs for POW residents. The 200 jobs claimed by the DFS as a "potential" state of being have not materialized and it is highly doubtful that they will. To allow this discharge is *not* important economically or socially for POW Island.

Regarding financial hardship, the DFS concludes erroneously that "it would be a financial hardship to implement other source control and treatment measures."[5] This statement ignores the fact that chemical treatment capacity already exists onsite and is not being used to treat the effluent. If Niblack is constrained financially to the point where it cannot employ equipment it already purchased and installed, then other financial pieces of this permit need to be re-examined (such as the Company's bonds and sureties for reclamation and closure, at the least).

18 AAC 70.015 (a)(2)(B). Except as allowed under this subsection, reducing water quality will not violate the applicable criteria of 18 AAC 70.020 or 18 AAC 70.235 or the whole effluent toxicity limit in 18 AAC 70.030.

"Discharges authorized under this permit will not violate applicable water quality criteria, as allowed under 18 AAC 70.235. Under this regulation, the Department may establish a site-specific water quality criterion that modifies a water quality criterion set for a water body. Since there are no site-specific criteria established for any receiving waters applicable to this permit, further evaluation is not required."

From the 2022 DFS, § 4.1, p. 17:

> The receiving water for the discharge, Niblack Anchorage, has not been reclassified, ***nor have site-specific water quality criteria been established*** [emphasis added]. Therefore, Niblack Anchorage, must be protected for all marine water designated use classes listed in 18 AAC 70.020(a)(2).

From NMC's 2012 Post-construction Update, § 6:

> As stated in the Niblack Waste Management Permit (2006-DB0037), Section 1.13, ADEC has determined that natural water quality in surface water and groundwater at the Niblack site exceeds water quality for multiple parameters. ***For this reason, site-specific natural condition- based water quality criteria have been established*** [emph. added] for the Niblack Project for surface water and shallow wetland groundwater. Specific procedures for establishing site-specific water quality parameters are specified in the QAPP (Integral 2007) and are based on ADEC's Guidance for the Implementation of Natural-Condition Based Water Quality (ADEC 2006) … As stated in the Permit, if site-

[5] DFS. (2022).

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specific water quality measures are exceeded, the cause of the exceedance will be determined. If natural occurrences cause the exceedance, as determined by ADEC, monitoring per the guidelines set forth in the monitoring plan will be implemented. If the exceedance is due to waste rock leachate, a plan for additional monitoring and remediation will be submitted to ADEC*.*

These statements appear contradictory. Please explain how and why site-specificity is applied to some of the receiving waters in the Niblack project area (i.e., surface and groundwater), but not to the water subject to the new discharge.

18 AAC 70.015(a)(2)(C). The resulting water quality will be adequate to fully protect existing uses of the water.

The DFS states that effluent monitoring data from the land discharge system over the past seven years show that discharges will "protect" existing uses of Niblack Anchorage (which include subsistence fishing) and that the mixing zone has been appropriately sized to protect water quality, but makes no mention of the drastic increase in size of both the acute and chronic mixing zones since the 2015 permit was authorized. In fact, the mixing zone size increase is a direct result of the fact that the limiting pollutant, copper, has increased incrementally in the effluent. The DEC has not provided a convincing argument that the water quality of the discharge will be adequate to be protective of the waters of NA.

18 AAC70.015(a)(2)(D) The methods of pollution prevention, control and treatment found by the Department to be the most effective and reasonable will be applied to all wastes and other substances to be discharged.

The DEC justifies its finding that Niblack's treatment program, which consists only of settling ponds, is adequate by once again referring to Niblack as a "remote site that is in a period of temporary closure, with minimal staffing …"[6] and makes the claim that, thus, Niblack cannot provide the necessary monitoring required with use of the chemical mixing tanks. The DEC is acting disingenuously by referring to Niblack as "inactive" when that status suits its aims, but then using other language to describe the mine as an active employer and investor in the local economy. The inconsistency is misleading and inappropriate. In its annual 2020 report, Niblack states that it "is working with regulatory agencies to transition out of Suspension of Operations" status, and that "the Niblack site will become more active in 2021."[7] Therefore, referring to the mine as "inactive," "temporarily closed," or other such adjectives is inaccurate and patently contradicts the mine's own identification of its status. This increased activity, too, refutes one of the DEC's rationales for not requiring the operation to begin using chemical

[6] DFS. (2022). § 6 (4), p. 27.

[7] NMC. (2020). *Niblack Exploration Project Waste Management Permit 2013DB0001: 2020 Annual Report.* 55 North Environmental. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/Niblack-Project-WMP-2020-Annual-Report.pdf. § 2.4-5.

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treatment to mitigate the high levels of metals in the effluent from the PAG pile; that the mine wouldn't be able to staff the site to provide necessary testing and oversight.

> *In accordance with 18 AAC 70.240(a)(3), the most effective technologically and economically feasible methods are used to disperse, treat, remove, and reduce pollutants.*

This statement does not currently apply to the Niblack operation, as it has the ability to chemically treat wastewater onsite before discharge into the marine environment. The existing "treatment," time in settling ponds, is ineffective because settling only works if there are suspended solids; the metals in Niblack's discharge are dissolved, and are not removed by settling.[8] The discharge monitoring data confirms this—almost all of the metals measured are dissolved.

During Niblack's original 2007 study of chemical treatment options, it was discovered that a simple chemical treatment would likely resolve any exceedances quite effectively:

> *Chemical treatment and lime addition showed the following treatability results at the test project for key metals parameters:*
>
> - *cadmium — 33-50% removal*
> - *copper — 40-55% removal*
> - *nickel — 40-55% removal*
> - *silver — 33-50% removal*
> - *zinc — 70-90 % removal*
>
> *These parameters were selected for comparison because baseline water quality monitoring has shown that naturally-occurring conditions in Camp Creek and Waterfall Creek at Niblack may seasonally exceed Alaska water quality standards.*[9]

In its 2012 Wastewater Treatment and Disposal Application post-construction update, Niblack requested approval for a chemical treatment system designed, in part, "to provide for treatment of runoff and leachate from the PAG temporary storage facility."[10]

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[8] D. Chambers, personal communication. [Ph.D., P. Geop., Founder and President, Center for Science in Public Participation].

[9] Niblack Mining Corporation. (2007). *Niblack Wastewater Treatment and Disposal Application under the Waste Management Permit.* RTR Resource Management, Inc. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/apwastewater.pdf

[10] Niblack Mining Corporation (NMC). (2012). *Wastewater Treatment and Disposal Application: 2012 Post-Construction Update.* Integral Consulting, Inc. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/nib2012apwmp.pdf

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In the 2015 Final Fact Sheet, the DEC stated that:

> *Active treatment processes were evaluated but ultimately rejected. Those included chemical precipitation and secondary filtration. Copper removal efficiencies observed during treatability studies using chemical treatment and lime addition are insufficient to meet water quality standards for copper at the maximum expected effluent concentration. While some infrastructure for active treatment exists on-site (i.e., mixing tanks for chemical dosing of influent), these mixing tanks have never been used as the wastewater quality is consistently high.*[11]

This is contradictory. The DEC acknowledges that copper concentrations are now so high that even the prior chemical treatment system won't resolve the issue at maximum effluent concentrations yet sees no problem with Niblack mine discharging this effluent (as part of the wastewater) into Niblack Anchorage. To date, the existing chemical treatment system remains unused, for reasons which do not make sense. The DEC is ignoring this fact and arbitrarily allowing this permit to be re-issued, although the terms, conditions, and existing conditions have changed significantly, and the data used to establish the mixing zone is flawed.

Please explain how anti-degradation laws are being met.

Anti-backsliding:

2022 DFS § 4.1, p. 17:

> The receiving water for the discharge, Niblack Anchorage, has not been reclassified, ***nor have site-specific water quality criteria been established*** [emphasis added]. Therefore, Niblack Anchorage, must be protected for all marine water designated use classes listed in 18 AAC 70.020(a)(2).

2012 NMC Post-construction Update, § 6:

> As stated in the Niblack Waste Management Permit (2006-DB0037), Section 1.13, ADEC has determined that natural water quality in surface water and groundwater at the Niblack site exceeds water quality for multiple parameters. ***For this reason, site-specific natural condition- based water quality criteria have been established*** [emphasis added] for the Niblack Project for surface water and shallow wetland groundwater. Specific procedures for establishing site-specific water quality parameters are specified in the QAPP (Integral 2007) and are based on ADEC's Guidance for the Implementation of Natural-Condition Based Water Quality (ADEC 2006) … As stated in the Permit, if site-specific water quality measures are exceeded, the cause of the exceedance will be

[11]State of Alaska, DEC. (2015). APDES Permit Fact Sheet—Final. P. 12.

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> determined. If natural occurrences cause the exceedance, as determined by ADEC, monitoring per the guidelines set forth in the monitoring plan will be implemented. If the exceedance is due to waste rock leachate, a plan for additional monitoring and remediation will be submitted to ADEC*.*

These two statements appear contradictory. If the surface and ground waters flowing into Niblack Anchorage require site-specific water quality criteria, then site-specific criteria are being used. Please clarify.

The 2015 APDES Fact Sheet also references a "state of the art" diffuser system.

> *In the case of the new effluent discharge data submitted with the permittee's application, elevated concentrations of copper,* [sic] *has necessitated the redesign of the diffuser and a resizing of the mixing zones to accommodate those higher levels of copper.*[12]

Please clarify the new diffuser requirements, port spacing, and any other relevant technical data re. the type of diffuser being used.

New Source Performance Standards:
Section 301(b) of the Clean Water Act requires industrial dischargers to meet promulgated Technology Based Evaluation Limits (TBELs) established by the EPA. EPA requires that new source performance standards (NSPS) apply to direct dischargers who are commencing discharge operations after 1982. Under 40 CFR §122.9(1)(D)(b)(ii), the current Niblack operation is described:

> ***(ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source*** [emphasis added]

The current wastewater discharge system (Land Application/Dispersion System, or LAD) will be completely replaced; therefore, Niblack qualifies as a new discharger under the Clean Water Act. However, the Alaska DEC has chosen to interpret the Niblack Operation, again, as an inactive exploration project, rather than a new point source of discharge, which is not the case. In the 2022 Draft Fact Sheet, the DEC claims it has remedied this issue by establishing applying already-existing Technology-based Effluent Limitations (TBELs) derived from Effluent Limitation Guidelines (ELGs) associated with active mine operations:

> *New source ELGs are applicable for active mines where construction commenced after these ELGs were established on December 3, 1982. Niblack was an inactive exploration project during the current 2015 permit term, and ELGs were not directly applicable.*

[12] DFS. (2022). § 5.

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> *However, the Department exercised its best professional judgment (BPJ) in establishing TBELs based on the previous active mine ELGs referenced in the preceding paragraph in the event the mine became active. The project resumed activity in late 2020 when a limited surface drilling program was started. TBELs are carried over from the current 2015 permit.*[13]

The applicable mining components are copper, lead, zinc, gold, silver, and molybdenum (40 CFR Part 440, Subpart J). It is unclear how the DEC established that ELGs "were not directly applicable" to Niblack operations prior to 2022. The operation always had associated effluent and has always had a discharge method. Therefore, some type of ELGs would always have been applicable to the operation, and must have been available, or the DEC would not have been able to use them to establish TBELs, which were "carried over" from the 2015 permit.

The PAG pile, cover, and chemistry:
From the beginning of construction, DEC has failed to require Niblack to meet its permit terms, for construction, monitoring, and maintenance of PAG waste rock on site.

The Potentially Acid-Generating (PAG) waste rock storage facility construction is described:

> *"… was constructed on a foundation of crushed rock overlain by a 6-in. layer of compacted sand, and lined with 80-mil high-density polyethylene (HDPE) (geo-membrane) between two layers of geotextile fabric. The liner system was overlain by another 6-in. layer of compacted sand as a service layer…Quality assurance tests were conducted during the liner installation, generally following the installation QA/QC plan outlined in NMC (2007a, Appendix C)."*

It was also stated that:

> *Prior to deployment of geomembrane, the Geosynthetics Supplier/Installer shall inspect, certify and accept, with the Engineer, all surfaces on which the geomembrane is to be placed to ensure conformance with the specifications. Surfaces not in compliance with the specifications shall be rectified by the Contractor / ECM.*[14]

However, in Niblack's 2009 Annual Report and in the 2017 Post-Construction update, it was stated that:

> *The PAG liner construction deviated slightly from the original specifications within the original Niblack Solid Waste Landfill Application under the WMP (NMC 2007a), which*

[13] DFS. (2022). § 3.1.1.
[14] NMC. (2007). *Niblack Industrial Solid Waste Landfill Application under the Waste Management Permit*. Appendix C: QA/AC Plan for PAG/ML Temporary Storage Facility liner installation, p.3.

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> *specified that liner bedding would be placed in two horizontal layers of 12 in. maximum uncompacted depth. During construction, 6-in. layers of sand were used instead of the maximum of 12-in. layers originally specified [emphasis added].”*[15]

This means that, instead of the 24” total layering of compacted sand that was originally designated in Niblack’s Quality Assurance Project Plan (QAPP) and designed for the PAG waste rock, only two separate 6” layers of sand (half the design amount) were used. Apparently Niblack’s original QAPP installation plan and inspection requirements were not followed, or were not reported accurately, even though an engineer was supposed to be present for the installation and ensure conformance with specifications, and require that surfaces not in conformance with the specifications be fixed by the contractor. So, not only has the acid-generating waste rock been left uncovered for years, contrary to the supporting documentation for the original APDES permit, the waste rock storage facility itself was not constructed as required by the Waste Management Permit. The DEC has chosen to ignore these issues, as well as water quality issues stemming from the large uncovered pile of acid-generating rock.

Since 2009, the DEC has allowed the large pile of PAG material to remain uncovered, even though the original design pursuant to permitting called for an impermeable cover to prevent interaction with precipitation.[16] A waiver of the cover requirement was granted by ADEC in 2009, although it was stated that “a cover will be placed on the PAG pile if required due to a change in the chemistry of the PAG effluent or at the request of ADEC or ADNR.”[17] Niblack was supposedly also employing a spray-on polymer sealant during construction and exploration, to prevent acidification. The lack of a cover was supposedly to allow for large-scale monitoring and evaluation of the weathering behavior of the PAG material.[18] In the years since the cover has been absent on the PAG storage pile, multiple tests have revealed a steady trend of increased acidification and levels of metals. The following are analytical statements from the Niblack Exploration Project, 2020 Annual Report, Section 6 (all emphasis added):

> *pH values at PAG/ML pond have followed seasonal patterns with lower values in the summer months, with an apparent overall decreasing trend since 2017.*

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[15] NMC. (2017). *Niblack Reclamation and Closure Plan: 2017 Post-Construction Update.* dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/niblackrcp20170925.pdf. § 2.1.1.

[16] NMC. (2007). *Niblack Industrial Solid Waste Landfill Application under the Waste Management Permit.* RTR Resource Management, Inc. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/aplandfill.pdf. P. 19.

[17] Niblack Mining Corporation (NMC). (2012). *Wastewater Treatment and Disposal Application: 2012 Post-Construction Update.* Integral Consulting, Inc. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/nib2012apwmp.pdf. § 4.2.

[18] NMC. (2012). *Wastewater Treatment and Disposal Application, 2012 Post-Construction Update.* § 3-3.

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[Sulfate] Values at PAG/ML pond are generally > 200mg/L and annual samples collected for laboratory analysis result in higher levels, 910mg/L in 2020. TDS [Total Dissolved Solids] shows an increasing trend over time to 1510mg/L.

Total aluminum concentrations have been significantly lower at EFF1 than PAG/ML pond, and both stations indicate increasing trends over time. Total aluminum in 2020 at PAG/ML pond was the highest value over time at ***15,700µg/L.***

Total arsenic concentrations have been increasing from ***non-detect in 2016 to 1.05µg/L in 2020*** *at PAG/ML pond.*

At both PAG/ML pond and EFF1, total and dissolved cadmium concentrations show an overall trending increase, with a decrease since 2018. Total and dissolved cadmium concentrations at PAG/ML pond increased in 2020 to ***137µg/L and 136µg/L*** *respectively…*

Total chromium concentrations have increased at PAG/ML pond over time, with a 2020 concentration of ***7.15µg/L.***

Total lead concentrations have increased at PAG/ML pond over time, with a 2020 concentration of ***108µg/L.***

Similar to cadmium, total and dissolved ***copper*** *concentrations at PAG/ML pond and EFF1 (Figure 6-15 and 6-16) show an overall trending increase, with a decrease since 2018. Time-series analyses compare copper to cadmium patterns, with total* ***(5520µg/L) and dissolved (5260µg/L)*** *copper at PAG/ML pond up from 2019 and total (124µg/L) and dissolved (79.6µg/L) copper at EFF1 comparative to 2019 results.*

Total and dissolved ***zinc*** *concentrations at PAG/ML pond and EFF1 have followed similar time-series patterns as cadmium and copper. In 2020, total and dissolved zinc concentrations at PAG/ML pond were* ***37,100µg/L and 37,300µg/L,*** *both higher than 2019.*

Niblack's 2020 annual report acknowledges that the PAG pile's chemistry has changed:

"…there is an overall trend of rising concentrations and, though not as steep as 2016-2018 results indicated, could be a result of PAG weathering."

Table 4-1a. Water Quality Monitoring Results – Field Parameters, 2020 of the Niblack Waste Management Permit 2020 Annual Report shows consistent low pH in the PAG/ML samples. The PAG pile should no longer be considered "potentially" acid generating, but should be described as "acid-generating." This clear trend of increasing toxicity, metals concentration, and

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acidification, resulting in water quality exceedances over the past several years, would suggest at the very least that the DEC should require that the original terms of the permit be met, and a cover be placed over the PAG pile to mitigate these effects. Yet the DEC remains mute on this point in the 2022 DFS.

There are, apparently, multiple "piles" of PAG material, the largest of which was supposed to be covered to prevent water and oxygen from reacting with PAG material and forming highly acidic runoff. Now that precipitation has been allowed to contact potentially acid-generating material, ostensibly for "testing," that material has indeed become acid-generating. Unlike a normal humidity cell test, the material cannot simply be dismantled and disposed of.[19] It appears the DEC is considering only the mine's best financial interests, and not the surrounding environment's, by allowing the fix for this situation to result in a greatly increased mixing zone and associated impacts to the receiving waters. To date, there is ample evidence the chemistry of the PAG effluent has changed, yet no direction from the DEC regarding the cover is evident.

DEC should immediately require the PAG pile to be covered with a durable impermeable membrane and capped. We note that the smaller "well-mineralized" PAG pile was covered with an impermeable membrane according to the Niblack Reclamation and Closure Plan 2017 Post-Construction Update:

> *"During drift construction, 574 yd3 of well-mineralized PAG material was stockpiled for future geochemical test work and processing. This material is stored in a temporary, lined and covered stockpile adjacent to the PAG temporary storage facility. The pile is covered with 80-mil HDPE geomembrane so as to prevent any introduction of surface water onto the pile."*

Further, according to the Niblack 2009 Annual Report:

> *"This material was placed on a lined laydown area between the temporary PAG storage site and the old camp and was covered with 80-mil geo-membrane (sealed) so as to prevent any introduction of surface water onto the pile."*[20]

A similar approach to capping with 80-mil HDPE should use at the permitted PAG pile. Notably, SEACC is unable to identify how this smaller PAG pile is permitted, and DEC should clarify. According to the Niblack 2009 Annual report:

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[19] D. Chambers, personal communication. [Ph.D., P. Geop., Founder and President, Center for Science in Public Participation].

[20] NMC. (2009). Niblack Exploration Project 2009 Annual Report, June 1, 2010 Integral Consulting Inc. 2-3

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> *"If the mineralized ore stockpile is not removed from the site for processing, it will be hauled back underground with the PAG materials and the stockpile site will be reclaimed."*

This smaller well-mineralized and sulfide "stockpile" has not been removed from the site and should be addressed in the Waste Management Permit as a separate solid waste landfill.

Also, according to the Niblack Reclamation and Closure Plan 2017 Post-Construction Update:

> *"A cover will be placed on the PAG pile if required due to a change in the chemistry of the PAG effluent or at the request of ADEC or ADNR."*

We find it disturbing that the DEC and DNR have failed to properly monitor the PAG pile situation at Niblack and that DEC has proposed a larger mixing zone in Moira Sound instead of dealing with the problem at the source by preventing water from infiltrating the PAG pile. SEACC is deeply concerned about what this says about Best Professional Judgement at DEC. To suggest that it would be a financial hardship to prevent precipitation from entering a waste rock pile that has begun the acid generation and metals leaching cycle indicates that DEC permit writers have abandoned a source control approach. SEACC suggests that the permit writers take a hard look at how source control and treatment can be implemented at Niblack, including covering the PAG pile with an impermeable membrane and cap, and operation of the available technology at the existing chemical water treatment facility instead of relying solely on passive settling ponds.

Water Quality Monitoring, Exceedances, and Corrective Action:
According to project documents, the Niblack operation was in a period of formal Suspension of Operations from 2016-2020. During that time, as approved by the DEC, water quality monitoring and reporting only occurred once annually, although Niblack's 2007 Water Quality Baseline and Site Monitoring plan states that "Groundwater quality monitoring during temporary closure will be quarterly."[21] This is merely one clear example of the DEC backsliding on the terms of the original permit regarding water quality monitoring. Therefore, water quality data for several years is limited and was not accomplished in accordance with the original permit terms. It is clear that weekly testing of PAG pond water has not been occurring during most of the 2015 APDES permit's term. It would be helpful to have 2021 water quality monitoring results for the purposes of this comment.

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[21] Niblack Mining Corporation (NMC). (2007). *Niblack Project: Underground Exploration Plan of Operations*. Appendix 5: Water Quality Baseline and Site Monitoring Plan. Knight Piesold Consulting. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/poo5.pdf. P. 17.

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Other water quality exceedances on-site appear to concentrate at sampling station WQ-10. *"WQ10 is situated just upstream of the old camp site (outside the influence of any historic mining) and downstream of the exploration road and potentially acid generating (PAG) waste disposal area)."*[22] From NMC's 2020 Annual Monitoring Report (all emphasis added):

> *Surface water metals concentrations are screened against WQS found in 18 AAC 70 (ADEC 2020) and specified in the Alaska Water Quality Manual for Toxic and Deleterious Organic and Inorganic Substances. Surface station **WQ-10** had WQS exceedances of chronic aquatic life criteria for dissolved cadmium, as well as WQS exceedances of acute and chronic aquatic life criteria for dissolved copper and dissolved zinc.*
>
> *There is a decreasing trend over time at all surface water stations, particularly **WQ-10** which had hardness-based WQS exceedances in 2020.*
>
> *No consistent changes in patterns or trends in water quality are evident for any metals in surface water or groundwater, **other than cadmium, copper and zinc at surface water station WQ-10.***
>
> *Concentrations for total cadmium at surface water and groundwater stations have been > 0.1µg/L over time, **apart from surface water station WQ-10.** This station has shown previous fluctuations, with results near 0.25µg/L, including 2020 with a result of 0.21µg/L.*
>
> *Surface station **WQ-10** had a WQS exceedance of chronic aquatic life criteria for dissolved cadmium in 2020; the hardness-based criteria was 0.08µg/L and dissolved cadmium measured at 0.21µg/L.*
>
> *The concentration of total copper at surface water station **WQ-10** was 4.39µg/L in 2020, the highest result at this station over the time series.*
>
> *Surface station **WQ-10** had WQS exceedances of chronic and acute aquatic life criteria for dissolved copper in 2020. The hardness-based result for chronic criteria was 2.19µg/L, for acute criteria was 2.84µg/L, and dissolved copper was measured at 3.70µg/L. Concentrations of dissolved copper at WQ-10 have been generally comparable, with results < 2.0µg/L over time.*

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[22] Niblack Mining Corporation (NMC). (2007). *Niblack Project: Underground Exploration Plan of Operations*. Appendix 5: Water Quality Baseline and Site Monitoring Plan. Knight Piesold Consulting. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/poo5.pdf. P. 12.

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> *Surface station **WQ-10** had WQS exceedances of chronic and acute aquatic life criteria for dissolved zinc in 2020.*
>
> *NPLLC will continue to closely monitor cadmium, copper, lead and zinc concentrations at surface water station **WQ-10.** As results decreased from 2017 to 2018 and increased moderately in 2019, more data is required to establish if this is a statistically valid trend. Corrective action was identified in 2019 to monitor and regulate use of LAD system zones 4 and 5, which are upgradient of WQ-10, to validate if increasing metals concentrations are a natural condition or correlated to LAD discharge.*

The DEC should provide the results of this "corrective action" and validation regarding the LAD discharge, which will become marine discharge under the terms of the new permit. It is notable that other pollutant thresholds were very close, in terms of exceedance, and that monitoring results clearly suggest increases in these other components:

> *Total aluminum concentrations measured at surface water stations ranged from 52.4 to 63.6µg/L, which were below 2019 concentrations. Total aluminum concentrations measured at groundwater stations ranged from 109 to 613µg/L. The concentration of dissolved copper at **groundwater station MW-01** of 2.46µg/L was below the groundwater threshold of 2.61µg/L in the Permit. Following a threshold exceedance in 2017, results for dissolved copper at this station have been higher than normal but under the threshold limit.*

The CORMIX model:

When designing the mixing zone associated with marine discharge operations, the DEC uses the Cornell Mixing Zone Model, or CORMIX. The CORMIX model establishes a mixing zone for copper, lead, mercury, nickel, zinc and pH. In both the DEC 2015 Final Fact Sheet and the 2022 Draft Fact Sheet, the dilution criteria are set by copper, which has appeared in the highest concentration in water quality sampling to date. The dilution factor for the 2015 permit was 47.9:1 for the chronic mixing zone, and 29.6:1 for the acute mixing zone.[23] For the 2022 permit, the chronic dilution factor is set at 587, and the acute dilution factor of 378. The chronic zone dilution factor has increased by more than twelve times. The acute dilution factor has increased by over thirteen times. Quite clearly, these new, much larger dilution ratios are a factor of the mine's activities--the acidification of the PAG pile due to exposure to precipitation, and associated discharge, which is not "treated" through anything other than time in settling ponds. This treatment is ineffective because settling only works if there are suspended solids; the

[23] State of Alaska, DEC. (2015). *APDES Permit Fact Sheet—Final.* dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/niblackapdes-ak0053708remand.pdf

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metals in Niblack's discharge are dissolved, and are not removed by settling.[24] The discharge monitoring data confirms this—almost all of the metals measured are dissolved.

The CORMIX model is developed using low and high (10th and 90th percentile) velocities in order to determine how long an organism takes, on average, to drift through the mixing zone at slow and faster velocity ranges. In the 2015 permit, an organism was supposed to drift through the acute mixing zone in less than four minutes. In the 2022 Draft Fact Sheet and permit, using the slowest velocity (and here, the DEC substituted the 35th percentile velocity of 0.075 meters/second for the 10th percentile velocity of 0.021 m/s), an organism supposedly drifts through the new, much larger mixing zone in under an hour. From our reading, there has been no physical test yet to determine the lethality of this drift time for an organism.

The DEC states that:

> *To determine the width and length of the mixing zone under critical receiving water conditions, calculations using the 10th and the 90th percentile current velocity were completed. Due to limitations of the Cormix program, the slightly higher percentile 35th percentile was substituted for the 10th percentile, resulting in a lower tidal velocity of 0.075 m/s (35th percentile) input to the model along with a higher tidal velocity of 0.195 m/s (90th percentile).*

Please explain the "limitations" of the CORMIX model pursuant to these inputs. The "low end" of the drift time has been artificially sped up by the DEC by using the 35th percentile velocity number rather than the 10th. In reality, an organism might take much longer than an hour, which is already four times the amount of time the EPA recommends, in the acute mixing zone.[25]

The Draft Fact Sheet should also describe how re-entrainment was modeled for in the CORMIX model. Tidal re-entrainment at Niblack Anchorage is of significant concern and DEC should take a hard look at potentially longer organism exposures that could result.

In order to establish the mixing zone, important data about the receiving water body, where the mixing zone is located, is vital to the production of an accurate model. The DEC used substitute data from a completely unconnected water body, approximately 30 miles north of Moira Sound — Kasaan Bay.[26] The inputs derived from this unrepresentative sample included salinity profiles and temperature used to establish density. The salinity profiles from Kasaan Bay and Niblack Anchorage will likely be very different, in part because of the numerous freshwater influences

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[24] D. Chambers, personal communication. [Ph.D., P. Geop., Founder and President, Center for Science in Public Participation].
[25] United States Environmental Protection Agency (EPA). (1991). Technical Support Document for Water Quality-based Toxics Control. www3.epa.gov/npdes/pubs/owm0264.pdf. p.33.
[26] DFS. (2022). § 4.4.

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emptying into NA (see project record; there are several streams documented around the project area, emptying into NA).[27]

Background water testing in Niblack Anchorage in May, 2007 revealed a copper concentration of 0.39 ug/L. The sample from October was non-detect for copper. It is important to cross-check those values with current water sample data directly from NA. However, no such comparison is available in the 2022 DFS. The DEC should require regular, frequent receiving water monitoring outside the mixing zone in the receiving water, as well as at the boundary of the mixing zone. The current requirement of once per year monitoring for the receiving waters is inadequate.

Financial:
Niblack has declined to provide the Division of Mining, Land and Water (DMLW) with an approved Oil and Hazardous Substance Prevention and Contingency Plan for the fuel and hazardous materials stored within the leasehold, although there is at least one 20,000-gallon fuel storage tank located near the camp dock.[28] The required bond amount has increased by $45,000, bringing the total bound amount to a paltry $75,000.00. Apparently, the Commissioner of the Department of Natural Resources in Alaska, home of the Exxon Valdez oil spill, sees no issue with a lack of any hazardous substance spill prevention plan associated with a mine, since a Final Decision in favor of allowing Niblack to proceed, with no spill prevention plan in place, was issued on February 1, 2021.[29]

Environmental values in the project area:
The environmental values and ecosystem services subject to impacts in the project area are important to define. Niblack Anchorage, located within Moira Sound, is surrounded by key watersheds for pink and coho salmon. In fact, two T77 watersheds (identified by Audubon Alaska and others) are located in the immediate area.[30] The Forest Service has recommended the nearby Kegan Lake and streams systems for Wild and Scenic river designations, due in part to the fact that "the area is extremely popular for sport fishing and gets significant use by visitors from across the nation. The system is also an important subsistence fishery."[31] Written comments on the Forest Plan revision that included the recommendation for Wild and Scenic designations requested specifically that the Kegan Lake area be protected due to its outstanding recreational values.

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[27] NMC. (2007). Niblack Wastewater Treatment and Disposal Application under the Waste Management Permit. § 1.7, p. 4.
[28] NMC. (2020). Annual Report. Figure 2-1.
[29] State of Alaska, Department of Natural Resources, Division of Mining, Land and Water. (2021). *Final Decision ADL 109130*. dnr.alaska.gov/mlw/mining/large-mines/niblack/pdf/20210430-ADL-109130-FFD-Signed.pdf
[30] Audubon Alaska. (2016). Ecological Atlas of Southeast Alaska. pp. 214-216.
[31] USDA Forest Service. (2016). TLRMP, Appendix E, Wild, Scenic and Recreational Rivers Analysis. PP. 413-415.

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SEACC requests that the State act in the best interests of subsistence, sportfish and recreation users and implement the highest degrees of environmental protection in the area.

Conclusion

The Alaska Department of Environmental Conservation presents unconvincing arguments that, with the issuance of Alaska Pollution Discharge Elimination System Permit AK0053708 to Niblack Mining Corporation, it is being protective of Alaskan waters. Once again, the DEC is allowing the mining industry to change the terms under which they were originally permitted, by arbitrarily allowing a pile of acid-generating waste rock to remain uncovered, resulting in acidification and the release of toxic metals into the environment. The DEC has failed to require Niblack mine to place a cover on the PAG pile, although it has the discretion to do so. The DEC also failed to properly ensure that the base and liner for the PAG waste rock storage facility were properly constructed and installed in the first place.

The DEC has erroneously justified allowing another mine to degrade Alaskan waters because of the supposed social and economic benefits, citing some 200 potential jobs for people on Prince of Wales Island, despite the fact that in more than 30 years, it appears that the mine has provided a handful of temporary, short-term jobs for POW residents.[32] The DEC has not explained how the justification to allow pollution of Alaska waters based on this premise meets antidegradation requirements for the Niblack project.

The DEC has not explained how the treatment system proposed for use, which is the use of settling ponds, is the most effective and meets the highest statutory and regulatory requirements, when there are other treatment systems on-site, and when it is clear that the discharge will now contain high levels of dissolved metals.

The DEC has enlarged the size of the mixing zone in the marine discharge area by many times from the previous permit terms (2015) to accommodate new, extremely high levels of copper, and rising levels of other metals, including zinc, aluminum, and cadmium, almost certainly due to the PAG pile runoff concentrations in the effluent and discharge. The DEC has not explained how this is not “backsliding.”

The DEC has substituted water from a region 50 miles away, Kasaan Bay, to input into the CORMIX model, which is used to determine the size of the mixing zone and other factors. This improperly characterizes the receiving waters of Niblack Bay with water profile data from an entirely separate water body. The DEC has not explained how this is not “backsliding.”

The DEC has improperly altered the CORMIX model to accommodate the new, much larger mixing zone size by substituting the 35th tidal velocity number for the 10th percentile number and has thus artificially manipulated the supposed drift time for an organism in the acute

[32] W. Hamilton, personal communication. [Prince of Wales Chamber of Commerce Office Manager].

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mixing zone. The drift time is now estimated at under an hour but would almost certainly take longer at the 10th percentile marker. The EPA recommends that an organism drift through an acute mixing zone in 15 minutes or less.[33] The DEC has not explained how this is not "backsliding," and certainly has not demonstrated that the new mixing zone is protective of the receiving water.

The people of Alaska need industry. SEACC does not protest this fact. What we protest is the lack of accountability by government agencies to enforce compliance with the laws and policies which will allow industry to do business, but will also protect our lands and waters. The Alaska DEC continues to abdicate from its responsibility to ensure compliance on the part of industry, in this case.

Thank you for the opportunity to comment.

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[33] EPA. (1991). Technical Support Document for Water Quality-based Toxics Control. www3.epa.gov/npdes/pubs/owm0264.pdf. p.33.