



United States Department of Agriculture
Forest Service
R10-MB-744d September 2013



Greens Creek Mine Tailings Disposal Facility Expansion Final Environmental Impact Statement Appendices

Volume II

**Tongass National Forest
Admiralty Island National Monument, Juneau, Alaska**

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Comment

Response

Angoon Community Association
 P.O. Box 328
 Alaska 99829
 (907) 788-3412 Fax

Angoon,
 (907) 788-3411 Office

June 4, 2012

Admiralty Island National Monument
 Tongass National Forest
 Admiralty Island Monument Ranger
 8510 Mendenhall Loop Road
 Juneau, AK 99801
 Re: Tailing Expansion

Dear Chad VanOrmer:

ACA.0.001

The Angoon Community Association, a federally recognized tribe, opposes the proposed Greens Creek Tailings Expansion. Angoon Community Association chooses Alternative (A). Under the No Action Alternative, The toxic tailings would continue to be placed in the approved tailings disposal facility until 2014 then would cease with no expansion.

ACA.0.002

Angoon, a Tlingit Indian Community, is the only permanent village on the island since time immemorial. We have respectfully utilized the resources from our island as our ancestors have throughout the history.

Angoon Community Association has grave concerns of the impact to our sacred land and waters on the four significant issues at hand, 1.) Water Quality. 2.) Wetlands. 3.) Aquatic Resources. 4.) Monument Values.

ACA.0.003

The 2012 Environmental Impact Statement does not accurately address the potential destructive impacts of the environment of Admiralty Island National Monument. There has also been an alarming rate of cancer showing up among our people, which have not been adequately addressed to determine the root causes leading to cancer. The area that is affected by mining activities will need treatment indefinitely, which goes far beyond the length of the mine affecting our future generations to come.

ACA.0.004

Hecla Greens Creek proudly states they provide an annual 1.2 million in property taxes to Juneau. In addition, the majority of the hiring comes directly out of Juneau, with 25% of Greens Creek workforce hired out of state. The Community of Angoon has a chronic 85% unemployment rate year around.

The 330 million in revenues minimally impacts Angoon with only nine Angoon members employed to date of three hundred Greens Creek employees. Angoon's Greens Creek

Comment ID: ACA.0.001

Comment noted. Please be aware that HGCMC has indicated that with careful placement, tailings disposal at the approved facility could continue into 2016. The description of Alternative A has been revised accordingly throughout the document.

Comment ID: ACA.0.002

These have been acknowledged as significant concerns raised during scoping. The EIS fully describes how the proposed action and alternatives could impact water quality, wetlands, aquatic resources and Monument values. Sacred places are discussed in Section 3.17, Cultural Resources. The EIS also describes mitigation to reduce impacts.

Comment ID: ACA.0.003

The comment expresses concern about the accuracy of the impacts analysis. However, it is not clear what specific part of the analysis is of concern. Therefore, it is difficult to respond to this comment.

With regard to cancer rates, addressing cancer rates in the local population is beyond the scope of the analysis. A person's likelihood of developing cancer is affected by many risk factors, including age; family history and genetics; diet, level of exercise, and body weight; alcohol and tobacco use; certain bacterial and viral infections (e.g., hepatitis C); ionizing radiation (e.g., x-rays); and exposure to carcinogens (cancer-causing chemicals) in the workplace or the environment. These risk factors (and possibly others) and the types and incidences of cancers in a population would need to be evaluated in depth to begin to understand which risk factors may be contributing to the rates of cancer in a population. Cancer can be a result of a complex interaction of risk factors and thus is difficult to attribute to a single cause.

While it is possible that some of the metals at the mine site could cause adverse health effects if humans were exposed to sufficient levels in the environment, it is not expected that the mine operation will result in significantly elevated levels of metals beyond the mine site boundary. There is no evidence to indicate that the concentration of metals or contaminants in fish or wildlife as a result of exposure to mine operations would cause cancer or illness through subsistence foods gathered outside the mine site.

Comment

employment increased recently to nine Angoon employees, yet many of the Angoon employees' live in Juneau.

ACA.0.005

Greens Creek continues to be a threat to our environment with the permanent destruction of our sacred lands and water due to the past and continued exploration and extraction of our precious minerals and resources.

Angoon Community Association

Response

Metals released to the surface waters of Hawk Inlet will be kept within levels that are protective of the environment and will comply with the discharge permit enforced by the State, and metals contained in fugitive dust will be suppressed and controlled by dust control mitigation measures discussed in Section 3.2.3.1. Elevated levels of metals from the mine would not occur in Angoon, which is approximately 40 miles from the mine.

The area affected by the mine would not need to be treated indefinitely; the design of the cover at closure is intended to support the development of self-sustaining vegetation communities that would not result in the direct exposure of the tailings. Seepage through the tailings would need to be collected and treated prior to discharge until the discharge met water quality standards. The collection/treatment could last well beyond closure of the mine but its function would be guaranteed through the financial assurance required by the U.S. Department of Agriculture Forest Service (Forest Service) and the State of Alaska.

Comment ID: ACA.0.004

Comment noted. The socioeconomics discussion (Section 3.18) discusses these aspects of the existing operation and the alternatives.

Comment ID: ACA.0.005

Comment noted. Section 3.17 of the EIS discusses cultural resources, including sacred sites, and sections 3.6 and 3.7 discuss water and aquatic resources, respectively.

As discussed in sections 2.4.9 (Reclamation and Closure), 3.9 (Vegetation), and 3.13 (Land Use), disturbances at the site would be reclaimed at the end of mining operations. Reclamation would include covering the tailings facility and establishing a cover that supports spruce/hemlock forest. The pre-mining land use would be reestablished after closure.

Comment

Response

Comment ID: AK.0.001
Comment noted.

From: [Art Kolter](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens Creek Tailings Expansion
Date: Thursday, April 26, 2012 8:04:06 AM

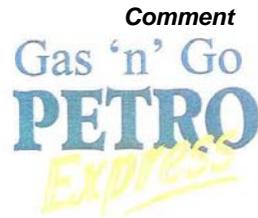
Monument staff,

AK.0.001

Greens Creek Mine proposed massive expansion of tailings into Admiralty Island National Monument over the next 50 years is a bad idea. The mine's cheapest and easiest tailings disposal should not trump Admiralty Island National Monument values and protection. Ask the Forest Service to select Alternative C and locate the tailings deposit outside off of the Monument.

Thank you,

Art Kolter
alkolter@gmail.com
P.O. Box 20414
Juneau, Alaska 99802-0414



Comment

Response

May 31, 2012

Re: "Greens Creek Tailings Expansion"

Dear Sir or Madam

AL.0.001

I believe that Alternative B is the most environmentally sound, technically feasible, and economically viable alternative presented in the draft EIS, here are a few reasons why:

Alternative B provides for a logical expansion of the existing facility and consolidates our operations to the maximum extent practicable.

Alternative B allows for an upward extension of the existing facility as well as an expansion to the south which lessens disturbance and reclamation costs.

Alternative B maintains tailings disposal in an engineered, contained facility in a portion of a single watershed, as opposed to other alternatives that would place tailings in multiple watersheds.

Under its proposal, Hecla will maintain tailings disposal in an engineered, contained facility within a portion of a single watershed (Tributary Creek) versus the other action alternatives that would place tailings in a second facility but in multiple watersheds and create more disturbance. Proposal utilizes existing site support facilities, including the continued use of B Road that has served for tailings delivery since the mine opened versus the need, under the other action alternatives, for a major construction upgrade to approximately 2.5 miles of the A road.

AL.0.002

Proposal B will have minimal disruption to wildlife. Under proposal B, Hecla maintains the existing haul distances to the tailings versus the other action alternatives where an additional 7 miles of haulage will occur amounting to burning an extra 1,000,000 gallons of diesel fuel over the life of the project. This higher fuel use means more fuel transport to Admiralty Island and more greenhouse gas emissions.

If you should have need for any other information please contact me.

Sincerely,

Handwritten signature of Austin Lanz.

Austin Lanz (Manager)

Comment ID: AL.0.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment ID: AL.0.002

Comment noted. Calculations for greenhouse gas emissions for each action alternative have been included in Section 3.2.3. In addition, alternatives C and D would require an additional 5.6 miles round-trip of hauling, not 7 miles.

Comment

Response

From: [Bruce Abel](#)
To: [FS-comments-alaska-tonagass-admiralty-national-monument](#)
Subject: Greens Creek/Alternative B
Date: Friday, June 01, 2012 9:53:52 AM

BA.0.001

I strongly encourage the approval of alternative B as the future tailings disposal option for the best long term solution for continued mining operations at Greens Creek Mine.

BA.0.002

The jobs that Greens Creek have provided for our region this past 25 plus years has been such a stabilizing and terrific factor that Juneau has largely avoided much of the ups and downs that the rest of the USA has endured due to the slumping economy and declining property values. The wages and benefits to the workforce are great and the trickle down effect of those dollars circulating here is evident in Juneau. The mining careers and training programs that have developed in Juneau over the years have provided many of our born and raised children here an excellent opportunity for high paying jobs and home ownership.

BA.0.003

The Greens Creek employees and management have proven to be great neighbors and contributors for SE Alaska. I have been to the mine site and came away totally impressed with all the environmental safeguards in place.

When you add up the total square miles of the mine's proposed expansion plans and compare that with the entire mine operation to the total square miles of Admiralty Island, it has to be a very minimal amount of space temporarily impacted by Greens Creek....the benefits of this type of responsible resource development is a model of how industry can co-exist in our region, without detriment to the environment.

Thank you,

Bruce Abel
 9999 Glacier Highway
 Juneau, AK.
 99801

907-789-2155

Comment ID: BA.0.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment ID: BA.0.002

Thank you for your comment. The socioeconomic effects of the project, including implications of mine wages are discussed in Section 3.18 of the Final EIS.

Comment ID: BA.0.003

Comment noted. Admiralty Island encompasses 1,053,440 acres, 995,000 acres of which is National Monument land. The Greens Creek Mine's current footprint is 65.3 acres; the proposed expansion could add up to 178 acres of new disturbance. Under Alternative D, the largest disturbance footprint of any of the alternatives (245 acres), approximately 0.023% of the total acres on Admiralty Island, would be affected. Most of the disturbance would be reclaimed following closure.

Comment

Response

From: [Bruce Baker](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens Creek Tailings Expansion
Date: Saturday, June 02, 2012 7:03:56 AM

This message is directed to the Forest Service official responsible for deciding on the Greens Creek mine proposal to expand above-ground mine tailings disposal on Admiralty Island. Please include these comments in the administrative record.

BB.1.001

The DEIS is not in compliance with the National Environmental Policy Act (NEPA). Therefore, a supplemental DEIS needs to be made available for public and agency review and comment before an FEIS and Record of Decision are issued.

The DEIS is woefully deficient in the following respects:

BB.1.002

- There is no comprehensive cost-benefit analysis comparing the various decision alternatives.

BB.1.003

- There is no comprehensive analysis of how each decision alternative compares with the standards for protecting Admiralty Island National Monument values which are called for in the Alaska National Interest Lands Conservation Act (ANILCA).

BB.1.004

- The DEIS fails to display a decision alternative which would provide a sufficiently high degree of protection for water quality and fish habitat.

BB.1.005

- There appears to be no meaningful description of cultural values that could be impacted by any of the displayed decision alternatives.

BB.1.006

In short, the DEIS fails to provide reviewers or public agency decision makers enough information to adequately judge the relative advantages and disadvantages of decision alternatives.

BB.1.007

While Alternative C may be superior to Alternative B in terms of the protecting water quality and fish habitat, neither of these alternatives is shown in the DEIS to provide an adequate level of protection. On the basis of information in the DEIS, the only informed decision at this point would be a no-action alternative.

/s/ Bruce Baker, P.O. Box 211384, Auke Bay, AK 99821

Comment ID: BB.1.001

Comment noted. The Forest Service respectfully disagrees that the DEIS is not in compliance with NEPA and that a supplemental DEIS is necessary. Responses to the commenter's specific concerns about the DEIS are provided.

Comment ID: BB.1.002

The regulations in 36 CFR 228.80(c)(2)(ii) require the authorized officer to consider the long- and short-term costs of mitigation measures in the context of the economic viability of the operations. The regulation does not indicate that this consideration is required to be included as part of the NEPA analysis. Based on comments received from HGCMC, the authorized officer has no indication that any of the mitigation measures or alternatives would jeopardize the economic viability of the Greens Creek operation. The NEPA regulations do not require a cost-benefit analysis.

It is important to note that alternatives were developed using information typical for a scoping-level study for mining operations. The result is that each of the alternatives carried forward was economically feasible and therefore "practicable." The Forest Service, the USACE and the public are therefore free to base the comparison of alternatives on environmental effects without concern about the costs.

Comment ID: BB.1.003

Monument values are identified in Chapter 1 as a significant issue (Issue 4) that led to the formulation of alternatives and mitigation measures. The alternative TDF (alternatives C and D) was specifically developed to minimize the overall disturbed area in the Monument. Section 3.19 is dedicated to assessing impacts to the Monument and comparing alternatives. Additional impacts to the Monument are addressed in Section 3.22, Cumulative Effects. The information presented in the EIS is sufficient to compare alternatives and make an informed decision. The rationale for the decision and findings required by ANILCA are further documented in the Record of Decision.

Comment

Response

Comment ID: BB.1.004

The commenter does not define what a “sufficiently high degree of protection” might be. Alternatives C and D were developed, in part, to provide alternatives that would reduce effects to fish habitat. All alternatives include water management and treatment as long as necessary to ensure compliance with water quality standards and discharge permits issued by the State. Ongoing water quality monitoring and biological assessment would continue under all alternatives.

Comment ID: BB.1.005

Cultural resources are discussed in Section 3.17. We cannot provide a more detailed response since the commenter has not identified any specific cultural values he believes were not adequately described.

Comment ID: BB.1.006

Comment noted. The Forest Service respectfully disagrees that the DEIS is not in compliance with NEPA and that a supplemental DEIS is necessary.

Comment ID: BB.1.007

Comment noted. The Record of Decision presents the Forest Service’s final selection and the rationale behind that choice.

Comment

-----Original Message-----
From: Brad Fluetsch [mailto:bjf@gci.net]
Sent: Monday, June 04, 2012 4:56 PM
To: Firstencel, Heidi POA
Subject: Greens Creek Mining

BF.0.001 I support the expansion of Greens Creek mining, but would like to see the tailings removed from the Island. If "Fee in lieu of Mitigation" is used I absolutely oppose the funds going to Southeast Alaska Land Trust. SEAL Trust has completely mis-managed the Juneau Airports funds buying land outside the specifically designated areas and not purchasing land on the refuge. I would give the fee in lieu of mitigation funds to Federally Recognized Tribal entities Headquartered on Admiralty Island.

BF.0.002

BF.0.003

BF.0.004 I would like to see Greens Creek, (in fact require) to do more about hiring Indigenous people and have promotion policy for them based on effort, skills and time of service. It has come to my attention that Greens Creek could do significantly more about the working environment for indigenous people and eliminate the racism in the work environment.

Bradley J. Fluetsch, CFA
Managing Director and Chief Investment Officer
Fluetsch Financial Services, LLC

Response

Comment ID: BF.0.001

Shipping wastes off site was identified during scoping as a potential alternative but was eliminated from full consideration because it would not have been economical and would simply move the same concerns to a different location. See Section 2.5 of the FEIS and Appendix C.

Comment ID: BF.0.002

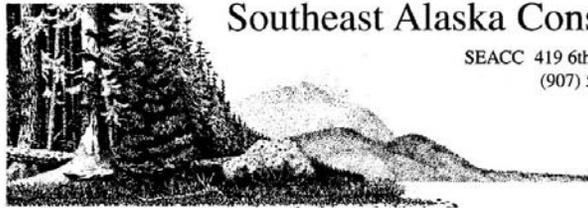
Comment noted. At this time, we are unaware of any federally recognized tribal entities that manage an in-lieu fee program.

Comment ID: BF.0.003

All mitigation banks and in-lieu fee programs must have an approved instrument signed by the sponsor and the district engineer prior to being used to provide compensatory mitigation for CWA Section 404 permits.

Comment ID: BF.0.004

Comment noted. Neither the Forest Service nor the USACE has the authority to regulate hiring or employment practices, but both encourage HGCMC to work with the local Native communities to employ more indigenous people.

Comment**Southeast Alaska Conservation Council**

SEACC 419 6th Street, Suite 200, Juneau, AK 99801
 (907) 586-6942 phone • (907) 463-3312 fax
 www.seacc.org • info@seacc.org

June 4, 2012

Sent via email: comments-alaska-tongass-admiralty-national-monument@fs.fed.us

Admiralty Island National Monument
 Tongass National Forest
 ATTN: Greens Creek Tailings Expansion
 8510 Mendenhall Loop Road
 Juneau, AK 99801

Re: Comments on Greens Creek Mine Tailings Dump Expansion Draft Environmental Impact Statement (DEIS)

Dear Forest Supervisor Cole and Monument Ranger VanOrmer:

In February of 2010, the Hecla Greens Creek Mining Company (Hecla) requested the Forest Service modify the mine's General Operating Plan to essentially double the size of its existing tailings dump, increase the size of its lease area to accommodate dumping additional tailings and waste rock, and "based on continued discovery of new ore and improved metal prices, . . . extend the life of the mine for another 30 to 50 years." See *DEIS at 1-6 – 1-8*. The Notice of Intent to prepare this DEIS was published on October 5, 2010. Please accept these timely comments on behalf of the Southeast Alaska Conservation Council (SEACC).

GENERAL COMMENTS**BL.0.001**

The scope of the project and action alternatives considered in the DEIS were arbitrarily narrowed and the analysis of effects insufficient to fully inform the public and decision maker. In particular, the DEIS lacks a reasonably complete discussion of possible mitigation alternatives and measures to compensate for past, current, and reasonably foreseeable future impacts from mining activities. By concluding that reasonably foreseeable mining operations will only last another 30 to 50 years, the Forest Service unreasonably limits the required cumulative impact analysis for the proposed action and falls short of the "hard look" required by law. These temporal limitations prevent the Forest Service from meeting either the purposes of NEPA or the agency's obligation to make certain that all lands used for mining and milling purposes on Admiralty Island National Monument are compatible, to the maximum extent feasible, with protecting Monument values. Characterizing the "permanent loss" of over a thousand feet of fish habitat under all action alternatives, and about 4,000 feet, or 50 percent of the fish habitat in the Tributary Creek, as "negligible" is specious and inconsistent with the high level of fish habitat protection mandated by ANILCA.

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Response**Comment ID: BL.0.001**

The action alternatives were determined based on narrowing down a wider range of possible alternatives; however, this was not done in an arbitrary manner. The range of alternatives was developed based on the issues raised during scoping. Section 2.5 clearly describes the alternatives that were considered but not carried forward for detailed analysis.

We also disagree with the assertion that the DEIS lacks a complete discussion of mitigation alternatives. Mitigation measures are discussed in Section 2.6 and in individual resource sections (e.g., 3.2.3.1 and 3.7.3.1). The decision to analyze impacts over a 30- to 50-year time frame reflects the action as proposed by HGCMC; the potential effects of mining for the full duration of the lease (beyond 30 to 50 years) are considered as part of cumulative effects (Section 3.22). For example, the DEIS is quite clear that water treatment will be needed beyond the 30- to 50-year time frame. We disagree with the assertion that these approaches fall short of the "hard look" required by NEPA.

Regarding the loss of fish habitat in Tributary Creek, Section 3.7 of the EIS discloses the amount of stream and habitat that would be lost for each alternative and the potential effects on aquatic resources. The stream/habitat loss is not negligible for Tributary Creek itself. However, when compared to the entire Monument (Section 3.19), the loss of part of Tributary Creek is not significant in the context of the fish and wildlife habitat distributed throughout the Monument. Section 3.19 acknowledges that effects on fish and wildlife in the Monument will be greater for Alternative B than for other alternatives. Requirements under ANILCA are discussed specifically in Section 3.19 (Monument Values) and addressed directly as part of the Record of Decision.

Comment ID: BL.0.002

The regulations in 36 CFR 228.80(c)(2)(ii) require the authorized officer to consider the long- and short-term costs of mitigation measures in the context of the economic viability of the operations. The regulation does not indicate that this consideration must be included as part of the NEPA analysis. Based on comments received from HGCMC, the authorized officer has no indication that any of the mitigation measures or alternatives would jeopardize the economic viability of the Greens Creek operation. NEPA regulations do not require a cost-benefit analysis.

Comment	Response
BL.0.002	<p>It is important to note that alternatives were developed using information typical for a scoping-level study for mining operations. The result is that each of the alternatives carried forward was economically feasible and therefore “practicable.” The Forest Service, the USACE, and the public are therefore free to base the comparison of alternatives on environmental effects without concern about the costs.</p>
	<p>Comment ID: BL.0.003</p>
BL.0.003	<p>The socioeconomic effects discussion focuses on where the effects of the operation occur, which is primarily Juneau. The socioeconomic section discloses that the majority of the workers employed at the mine reside in Juneau and presents current unemployment rates and poverty levels both in the City and Borough of Juneau and in the Hoonah–Angoon Census Area (see Section 3.18.2). Additional socioeconomic data and recognition of community concerns over unemployment, poverty levels, and population decline in Angoon, as well as the fact that Angoon realizes little benefit from the mine, have been added to Section 3.18.2. The submitted document, <i>The Role of Metal Mining in the Alaskan Economy</i> (Power 2002), has been reviewed and incorporated into the record.</p>
BL.0.004	<p>Comment ID: BL.0.004</p>
BL.0.005	<p>A supplemental EIS is necessary if a substantial change is made to the proposed action that is relevant to environmental concerns or there are significant new circumstances or information that is relevant to environmental concerns. An agency may also prepare a supplemental EIS if it determines that NEPA will be advanced by doing so. The comments on the DEIS have resulted in some changes to the Final EIS, but these changes do not rise to a level that would require supplementation. The Forest Service respectfully disagrees that supplementation is necessary to advance NEPA’s purposes. The Forest Service has carefully followed NEPA regulations in preparing the EIS and we believe that the EIS fully informs our decision in the ROD.</p>
BL.0.006	<p>Comment ID: BL.0.005</p>
<p>The DEIS lacks any discussion, as required by agency regulations, of the short- and long-term costs to Hecla from implementing any of the action alternatives and proposed mitigation measures. It also lacks an evaluation of the effect of these costs on the economic viability of the mining operations as required by agency regulations. <i>See</i> 36 CFR 228.80(b)(2)(ii)(2011). In effect, two of the action alternatives (C and D) were developed to minimize the amount of surface disturbance within the Monument and assure that Hecla’s mining operations are compatible to the maximum extent feasible, with the protection of Monument resources. The lack of detailed cost information or an evaluation of the practicability of these alternatives in the DEIS prevents the Forest Service, Corps of Engineers and public from determining which action alternative is the least environmentally damaging practicable alternative.</p>	<p>The EIS discusses mitigation measures in compliance with the regulations. A summary of the mitigation measures is provided in Table 2.6.2, which also identifies the sections of the EIS where more detailed discussions of the mitigation measures can be found. This comment does not provide specific information regarding why</p>
<p>Compounding the problems noted above is the Juneau-centric focus of the so-called socioeconomic analysis in the DEIS.¹ This constricted analysis prevents the Forest Service from fulfilling its obligation to identify and address the social, health, and environmental effects of this proposal borne disproportionately by both the Angoon and Hoonah communities.</p>	
<p>We recommend that the Forest Service correct these deficiencies and disclose the significant new information requested for additional public comment and review. Such a supplement will advance NEPA’s purposes to promote efforts which will prevent or eliminate damage to the environment and to ensure informed and transparent environmental decision making.</p>	
<p>Scope of the Proposal and Action Alternatives is Inadequate.</p>	
<p>NEPA requires the Forest Service to discuss mitigation when defining the scope of the proposed action, discussing alternatives to the proposed action, as well as consequences of those alternatives. <i>See</i> 40 C.F.R. §§ 1508.25(b), 1502.14(f), and 1502.16(h). The lack of a reasonably complete discussion of possible mitigation measures or mitigation alternatives to prevent or minimize adverse impacts on Monument values, particularly the irreparable loss of customary and traditional uses by Angoon and Hoonah residents and the Auk Kwaan of Juneau of Hawk Inlet/Greens Creek in this DEIS undermines the “action-forcing” function of NEPA.</p>	
<p>Key to the discussion regarding possible mitigation measures is how much money Hecla has made since purchasing 100% interest in Greens Creek in 2008. In short -- a bunch, consistently:</p>	
<p style="text-align: center;">HECLA’S FINANCIAL NET PROFITS PER YEAR</p> <ul style="list-style-type: none"> • 2008 Hecla buys remaining 70.3% of mine from Rio Tinto for \$750 million • 2008 Hecla lost \$66.6 million due to acquisition of Greens Creek and other expenses • 2009 Hecla posted a net income applicable to shareholder distribution of \$67.8 million • 2010 Hecla posted a net income applicable to shareholder distribution of \$82.6 million • 2011 Hecla posted a net income applicable to shareholder distribution of \$151 million • First quarter 2012, Hecla posted a net income applicable to shareholder distribution of \$12.4 million.² 	
<p>¹ SEACC’s submits for the record Power, <i>The Role of Metal Mining in the Alaskan Economy</i> (2002).</p>	
<p>² Available at: http://investors.hecla-mining.com/phoenix.zhtml?c=63202&sp=irol-newsArticle&ID=1656457&highlight=</p>	
<p>SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	
<p>2</p>	

Comment

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BL.0.007

While NEPA's action-forcing function does not mandate particular results, the substantive standards contained in Sections 503, 504, and 505, as supplemented by the 1996 Greens Creek Land Exchange Agreement, do. Several introductory statements in Exchange Agreement between HGCMC's predecessor, Kennecott, and the Forest Service, indicate that the parties intended the future contemplated mine development to "occur without significant impact to Monument resources and its purposes" and "in an environmentally sound manner." The parties' intent provides a strong basis for taking a more extensive look at treatment alternatives such as pyrite removal or flow augmentation technology, shipping wastes off-site, or alternatives that maintain the present and continued productivity of all salmon habitats in the project area, including on National Forest lands within and outside the Monument.

BL.0.008

In December of last year, SEACC notified the Forest Service that direct discharge of toxic pollutants into a mixing zone in Hawk Inlet was no longer necessary and supplemented our earlier scoping comments with information regarding the potential mitigation measure. See Letter from SEACC to Monument Ranger VanOrmer (Dec. 9, 2011). With this letter we attached a PDF Portfolio that included SEACC's Informal Request for Review of APDES AK0043206; Director Bonnet's response, which stayed the permit's effective date and extended the EPA-issued permit AK00432006 (2005); our follow up letter to Morgan, head of ADEC's Waste Water Discharge Program; and, a letter from Dr. David M. Chambers of the Center for Science in Public Participation that identified demonstrated treatment technology, approved by ADEC and EPA, that eliminate the necessity for mixing zones containing toxic levels of pollutants in Hawk Inlet.

BL.0.009

The DEIS did not identify or evaluate this "flow augmentation" alternative to direct discharges from the tailings dump, with associated mixing zone, into Hawk Inlet, or the potential for this alternative treatment approach to mitigate adverse environmental consequences from the continuous discharge and loading of pollutants into Hawk Inlet. In addition, because the discussion in the DEIS at 3.5.2 with regard to current regulation of wastewater discharged into Hawk Inlet is inaccurate, see *supra* at 13, we again submit all of the above-referenced documents and request they be incorporated into the project planning record.

BL.0.010

The Council of Environmental Quality (CEQ) regulations implementing NEPA define "mitigation" as including "[c]ompensating for the impact by replacing or providing substitute resources or environments." 40 C.F.R. § 1508.20(e). Consequently, the Forest Service should consult with the federally recognized Tribal governments in Angoon and Hoonah about appropriate compensation packages for the irreversible impacts to their customary and traditional uses of Hawk Inlet and the surrounding lands from past, present, and reasonably foreseeable future development of the Greens Creek Mine. Because two of the action alternatives (C and D) could also adversely affect the land surrounding Young Bay, the Forest Service should also consult with the Auk Kwaan, the original occupants in Juneau.³ These packages should be

³ While the DEIS references Goldschmidt and Haas (1998), a reprint of the authors' 1946 Report by the Sealaska Heritage Institute and University of Washington Press as *Haa Aani, Our Land: Tlingit and Haida Land Rights and Use. Possessory Rights of the Natives of Southeastern Alaska*. Tetra Tech apparently didn't read the report. According to this study, "The natives of Juneau . . . include in their territory Hawk Inlet and the whole of Mansfield SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012

the commenter believes that the mitigation discussions are not reasonably complete.

The EIS clearly discloses the area that would be lost to subsistence activities for each alternative. Because the area lost is a small percentage of similar available land and mitigation will protect against further loss, the EIS concluded that impacts on subsistence would be minimal. The Forest Service does not consider mining activities to be an irreparable loss of traditional uses in Hawk Inlet. The EIS acknowledges the loss of traditional use in the mine area during operations and has included mitigation in the form of requiring the proponent to conduct additional research into traditional uses in the area.

Comment ID: BL.0.006

We do not believe that the EIS needs to disclose Hecla's corporate profits in relation to mitigation measures. But the EIS does need to identify mitigation that can be implemented and is effective. Cost is one factor in ensuring implementation, as is jurisdiction to require the specific mitigation, for example. The Forest Service worked with the cooperating agencies to come up with the mitigation measures included in the EIS. We believe that the EIS adequately discloses how mitigation will reduce environmental impacts and identifies who is responsible for ensuring implementation. We were careful to ensure that the discussion of mitigation is in compliance with recent guidance from CEQ on mitigation and monitoring (January 14, 2011, Memorandum from Nancy H. Sutley, CEQ, to Heads of Federal Departments and Agencies, "Appropriate Use of Mitigation and Monitoring...").

Comment ID: BL.0.007

The parties' intent does not dictate that unreasonable or impracticable alternatives be carried forward in detail. Shipping wastes off site is not a reasonable alternative because it is not practiced in lead/zinc mining (due to its expense—in this case, it could add more than \$60/ton to disposal costs), it would transfer environmental concerns to a new location, and the transfer and transport would increase the risk of spills to the marine environment. The Forest Service considered pyrite removal in previous NEPA actions and for this tailings expansion EIS and determined that it was not a reasonable alternative to carry forward for detailed analysis. Section 2.5.3 of the DEIS explains that pyrite removal was eliminated from further consideration due to the logistical and operational constraints of placing the required facilities at the current

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disclosed and evaluated in the supplemental DEIS. Appropriate compensation could include Hecla funding completion of the Thayer Creek hydro project for Angoon, funding the connection of Hoonah to the intertie that was extended to the Greens Creek Mine several years ago, and additional cleanup of the 1989 concentrate spill at the ore loading facility. As noted in the DEIS (at p. iv), the Forest Service has the authority to add stipulations or require additional mitigation measures in deciding whether and how to make a decision on Hecla's proposal to modify its General Operating Plan. We urge the Forest Service to use its authority to address the significant and irreversible losses suffered by tribal residents of Angoon and Hoonah from the development and operation of the Greens Creek Mine.

Cumulative Impact Analysis does not Constitute the "Hard Look" Required by Law.

NEPA requires the Forest Service to "consider" cumulative impacts in an EIS. 40 C.F.R. § 1508.25(c)(3). This DEIS attempts to evaluate action alternatives that would expand the Greens Creek Mine's tailings dump to provide capacity for an additional 9.7 million cubic yards of tailings and waste rock or "accommodate an additional 30 to 50 years' worth of tailings and waste rock." DEIS at iii. Alternative B expands the tailings dump approximately 64 acres into the Monument, while Alternatives C and D partly expand the existing tailings dump in the Monument, but mostly add space with a new tailings dump constructed outside the Monument. *Id.* at v. Hecla hopes the expanded dump will accommodate the estimated 15 million cubic yards of additional tailings and waste rock from "ongoing operations and project reserves, and provide volume for waste rock co-disposal and an expanded resource base being defined by ongoing on-site exploration activities." *Id.* at 1-7. Past exploration activities have led Hecla to conclude that continued exploration will provide a "likelihood that new reserves will continue to be identified well into the future." *Id.* (emphasis added).

According to the DEIS, "the mine has operated as a 'ten-year' mine for the last 20 years." *Id.* at 1-6. The only basis offered in the DEIS for evaluating impacts across a 30 to 50 year timeframe is Hecla's belief that "they can extend the life of the mine for another 30 to 50 years . . . to process the *known* ore reserves." *Id.* The DEIS offers no explanation for why the 30-50 year timeframe is reasonable. Why is it reasonable to assume that "ongoing on-site exploration activities" will not identify new reserves sufficient to support continued mine development past 50 years? How are undiscovered reserves factored into the "current production and disposal rates"? A straightforward accounting of how Hecla and the agency arrived at all these figures and how they interact is lacking. Hecla apparently extrapolated this new timeframe from "current production and disposal rates" although it acknowledges that the predicted range "reflects variable nature of production and backfill rate." *Id.* at 2-6.

The shortened timeframe given for the life of the mine analysis also ignores Congressional ratification of the agreement negotiated between Hecla's predecessor in interest, Kennecott Greens Creek Mining Company, and the Forest Service. The Greens Creek Land Exchange Agreement gave Kennecott (now Hecla) "the right to explore and mine the subsurface lands adjacent to the Mine within the existing non-wilderness area of the monument (sic), *in an*

Peninsula." *Id.* at 37. The section describing the territory of the Auk (Juneau) and Taku (Douglas) also cites a map by Krause that identifies "the only villages in Auk territory besides the city of Juneau are on Young Bay on Admiralty Island and on the mainland at Swanson Harbor." *Id.*

SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012

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mill site and the risk to water quality and aquatic life that comes with handling chemically reactive pyrite material. Further, pyrite removal would not address the pyrite already present in the TDF.

Reissuance of the wastewater discharge permit is a process independent from the proposed action under consideration. As noted in comments and in the EIS in Section 1.8.3.1, the Forest Service is responsible for ensuring that the Clean Water Act (CWA) requirements are met on National Forest System lands. Regulations in 36 CFR 228.8(h) state that "certification of 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 these regulations." For this reason, the Forest Service defers to USEPA's and ADEC's expertise in managing the reissuance of the authorized wastewater discharge permit and assumes for the purposes of this analysis that the permitted discharge complies with the CWA.

The Forest Service recognizes that the discharge is being conducted as a legally permitted activity and with the awareness that the discharge into Hawk Inlet is protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, and other aquatic life and wildlife. Since the discharge is and will continue to be permitted by agencies with authority for CWA compliance, the Forest Service considers the discharge to be protective of water quality for the purposes of this analysis. As such, the EIS does not consider alternative water treatment scenarios.

Comment ID: BL.0.008

The Forest Service has reviewed all the letters cited in this comment. They are included as a part of the public record. The EIS has been modified throughout to reflect the current status of the APDES permit (AK0043206). Sections 1.2, 1.8.3.3, 2.4.4, and 3.5.2.1, among others that refer to the discharge permit, have been modified to reflect that the 2005 NPDES permit conditions have been administratively extended.

Please see the response to Comment BL.0.007. The Forest Service has no authority over the permit reissuance process and cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, or monitoring requirements associated with the permit. Since the discharge is and will continue

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BL.0.011
cont

environmentally sound manner.”⁴ In addition, the terms of the Exchange Agreement assert that “further exploration and potential development of the Mine can be accomplished without significant impact to the Monument and its purposes.” *Id.* at 4920.

BL.0.012

Congress ratified this exchange agreement because it found that under those terms, Hecla’s predecessor in interest had the right to explore and develop these lands “under terms and conditions consistent with the protection of the values of the Admiralty Island National Monument” for a term of 99 years, when the Exchange Agreement authorized the United States to take all title and possession of the subject lands. See Section 2(3), Greens Creek Land Exchange Act of 1995, Pub. L. No. 104-123, 110 STAT. 879 (Apr. 1, 1996); 141 Cong. Rec. H 4919, 4921-22 (daily ed. May 15, 1995).⁵ Consequently, under these circumstances, we don’t understand why the Forest Service is not preparing an EIS for the entire project contemplated by the Exchange Agreement. See *Cady v. Morton*, 527 F.2d 786, 795 (9th Cir. 1975).

BL.0.013

The vagueness and ambiguity of the DEIS is particularly striking in light of Hecla’s predecessor in interest’s inability to accurately estimate figures related to the size and longevity of the previous expansion of the tailings dump. Specifically, the thirty acre expansion permitted in 2003, which was to extend the life of the mine an additional 22 years, see Greens Creek 2003 EIS 4-54, is now expected to run out of disposal capacity in 2014. The expansion lasted only about *half as long* as expected. This 50% error rate is significant and not one that can be chalked up to “variability.”

BL.0.014

The current DEIS explains the prior discrepancy as due to two factors. First, “geotechnical conditions (i.e., steep slopes and unstable material) prevented the use of some of the areas that had been approved for tailings disposal in 2003.” DEIS at 1-6. Second, “average annual production” of tailings and waste rock increased compared to expectations in 2003. *Id.* The DEIS concludes that, this time around, “[s]lope stability is not expected to pose a credible risk,” even while conceding that “these results are preliminary and based on several simplifying assumptions.” *Id.* at 3-23.

BL.0.015

Here, again, the agency’s reasoning conflicts with the evidence before it. The agency appears to presume that everything will go as predicted this time, although the record suggests that otherwise is more likely. Both the agency and Hecla apparently assume that there will be no geotechnical problems or other issues that reduce the predicted capacity available for disposal and consequently shrink the estimated timeline for the expanded dump’s capacity. Just as the Kennecott and the Forest Service never took into account unforeseen issues like slope stability in 2003, Hecla and the Forest Service now leave no margin for error or consider the possibility of new or changed circumstances in the future. Given the complexity associated with proposed action, as well as past history, it would appear dangerous to assume that the amount of disposal space made available by the proposed expansion will meet predicted capacity. That the agency took a single precaution that it did not previously take – excluding some sloping hillsides from consideration – does not justify it making such an optimistic assumption. Did the Hecla and the

⁴ See The Greens Creek Land Exchange Agreement (Dec. 14, 1994)(141 Cong. Rec. H4919, 4920 (daily ed. May 15, 1995)(emphasis added).

⁵ See also http://www.hecla-mining.com/operations/operations_greenscreek.php (accessed June 3, 2012).

to be permitted by agencies with authority for CWA compliance, the Forest Service considers the discharge to be protective of water quality for the purposes of this analysis (36 FCR 228.8(h)). As such, the EIS does not consider alternative discharge or treatment scenarios.

If ADEC decides to authorize an off-river treatment system, then HGCMC would need to modify its GPO to construct it, and approving the modification would be subject to its own NEPA analysis. We do not see this as a reasonable alternative to evaluate in this EIS since it is outside of the Forest Service’s jurisdiction to require, HGCMC is in compliance with its current discharge permit, and no changes to the treatment system have been proposed by HGCMC or the State.

Comment ID: BL.0.009

Please see responses to comments BL.0.007 and BL.0.008.

Comment ID: BL.0.010

The Forest Service acknowledges that compensation by replacing or providing substitute resources can be considered a form of mitigation. The Forest Service has not found that replacement or substitute resources are necessary or warranted based on our consultation with the local tribal and non-tribal entities. HGCMC funding the completion of the Thayer Creek hydro project for Angoon or funding the connection of Hoonah to the intertie would not replace or substitute “resources or environments” impacted and is unrelated to HGCMC’s GPO.

Additional cleanup of the 1989 concentrate spill at the ore loading facility is under the jurisdiction of the State of Alaska and, if warranted, would need to be addressed through their contaminated sites program. While the Forest Service has the authority to add mitigation measures or additional stipulations to the GPO, that authority does not extend to requiring measures that are completely unrelated to the operation.

We encourage the tribes to work directly with HGCMC and the State on the issues raised in these comments. The Forest Service has had several consultation meetings and we are willing to have additional meetings to further explain actions that are and are not within our authority.

Comment	Response
<p>BL.0.015</p> <p>Forest Service consider estimating the longevity of the proposed TDF by reference to the 2003 experience, i.e., estimate the current expansion to provide only 15-25 years' of disposal space (a number that takes into account prior variability)? If not, please explain why.</p> <p>Further, the DEIS does not indicate whether Hecla or the Forest Service considered the possibility that the annual dumping rate may increase above the predicted annual average (again) sometime during the next 30-50 years. See DEIS at 1-6. As with any industry, it is highly unrealistic to assume that production capacity remains static over such a long period of time. Nonetheless, the DEIS reflects the assumption that the mine will continue to operate at its current rate for the next 3 to 5 decades. Missing from the DEIS is any specific explanation for the discrepancy between actual and expected production rates over the last 10 years. For example, if production increased due to more efficient technology, did the agency take into account the likelihood that even better technology may come on line within the next 30-50 years? If the markets for lead, zinc, and silver rise in the future, why wouldn't HGCMC expand production to take advantage of improved market prices? We request the Forest Service consider adding additional stipulations or mitigation measures, such as a cap on the amount of tailings and waste rock that maybe disposed in the dump annually in the supplemental DEIS.</p>	<p>Comment ID: BL.0.011</p> <p>The EIS reflects the duration of the proposal put forth by the proponent. A 30- to 50-year horizon is substantial future planning for a mining operation regardless of lease duration. The potential for impacts resulting from mining beyond 30 to 50 years and over the entirety of the lease term is addressed in the EIS in the cumulative effects analysis. See Section 3.22.</p>
<p>BL.0.016</p> <p>NEPA requires a DEIS to discuss "the relationship between short-term uses of man's environment and enhancement of long-term productivity." We could not find this required analysis in the DEIS. Its absence is surprising given the frank acknowledgement in the DEIS that post-closure water quality treatment will "be required at least 100 years after closure of the [tailings dump], perhaps in perpetuity. See e.g., DEIS at 3-58 (emphasis added). Significantly, although the mine has been in operation since 1989, this is the first time the Forest Service has acknowledged the possibility of perpetual active water treatment. Perpetual water treatment includes the need for perpetual discharge of contaminants into the environment and perpetual disposal of the sludge waste product from treatment. Currently this sludge is disposed into the tailings dump. The DEIS contains no information of where or how the sludge from the treatment plant and other waste generated by the operators will be handled after closure and final reclamation or what infrastructure will be necessary to remove it from the site.</p>	<p>The disposal capacity addressed in the current EIS represents a reasonable maximum design, taking into account tailings and waste rock production rates over a series of years and based on the capacity of the existing mill, the need for disposal capacity for ancillary sites (e.g., Site E), and wastes approved for disposal in the ADEC Solid Waste Permit (e.g., wastewater treatment plant sludge and tires). The Forest Service is confident that the volumes used to design the facilities described in the proposed action and alternatives represent realistic values for production rates that are likely to occur over the next 50 years without substantial modification to processing facilities at the mill (i.e., changes that would drive the need for additional NEPA action).</p>
<p>BL.0.017</p> <p>The DEIS assumes that an adequate growth cover on the tailings will be engineered and proven to prevent pyrite oxidation even though Hecla is currently updating its reclamation plan. See DEIS at 2-24. As we note below in our comments concerning Tailings Contact Water Management, there is evidence that the current tailings dumping methods are contaminating ground water. Furthermore the DEIS contains no information as to the probability of successfully substituting fish habitat irreparably lost under all the action alternatives with additional fish passage in Greens Creek. We ask that the Forest Service fully explain how the proposed action will enhance the long term productivity of the natural environment in the supplemental DEIS.</p>	<p>Comment ID: BL.0.012</p> <p>See the response to Comment BL.0.011.</p>
<p>BL.0.018</p> <p>Absence of a Complete Cost Benefit Analysis in the DEIS Hamstrings Public Evaluation of Project Alternatives</p> <p>The lack of a cost benefit evaluation in the DEIS hampers the public's ability to assess the comparative merits of the alternatives. The alternative screening process in Appendix C to the</p>	<p>Comment ID: BL.0.013</p> <p>The EIS is not intentionally vague or ambiguous in describing the change in tailings storage capacity/demand from the 2003 EIS.</p>
<p>SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	<p>6</p>

Comment

Response

BL.0.018
cont

DEIS “acknowledged that there are substantial benefits to maintaining a single facility such as limiting new disturbance to watersheds already affected and limiting the focus on water management and water treatment requirements to the expansion of existing facilities rather than the construction of new, additional facilities.” Yet, the DEIS does not offer a cost-benefit comparison of the alternatives with respect to this issue, a significant difference between the proposed action and Alternatives C and D. Although Appendix C uses “technical feasibility” as a criterion for alternative screening alternative, it makes no mention of the scope of what is technically feasible or the cost of implementing any particular alternative. The failure to disclose these costs, and degree of feasibility associated with the cost renders the alternatives indistinguishable. Without such information, neither the Corps of Engineers nor the public can determine if the benefits of modifying Hecla’s General Operating Plan outweigh the permanent loss of special aquatic sites under any of the proposed alternatives. *See* 33 CFR § 320.4(a)(1). Even more importantly, without this information, the Corps of Engineers cannot determine whether there is a least damaging practicable alternative available. 40 C.F.R. § 230.10(a).

SECTION-SPECIFIC COMMENTS

Section 1.1 Background

BL.0.019

The description of the existing Greens Creek Mine offered in section 1.1 of Chapter 1 is incomplete. Absent from this description is any mention of the expansion of the mine-site storm water collection, treatment, and discharge system that occurred sometime after extreme storm events in 2007. *See* Alaska Dept. of Environmental Conservation, Final Fact Sheet for APDES AK0043206 at 16, 23, 26.⁶ The Forest Service should update its description to reflect actual, current conditions at the Greens Creek Mine. The supplemental DEIS should disclose the costs of these improvements, evaluate their effects on the environment, as well as the effects of increased throughput capacity at the tailings dump’s waste water treatment plant and the resulting proportional increase in daily maximum and monthly average discharge rates from outfall 002 into Hawk Inlet. What are the effects of the resulting increase in the loading of cadmium, copper, lead, mercury, and zinc into Hawk Inlet?

The importance of this evaluation is highlighted by the reference of the need to construct a new water treatment plant for Alternatives B, C, and D after 30 years. *See* DEIS at 2-6, 2-8, and 2-16. While the DEIS describes this replacement as necessary “due to the normal operational lifetime of the water treatment plant,” please explain if the predicted “normal operational lifetime” reflects original plant conditions or those of the plant as expanded after 2007. Missing from the DEIS is any information relating to the cost of the constructing a new water treatment plant in the DEIS. Please include all this key information in the supplemental DEIS.

BL.0.020

Likewise the cursory discussion relating to the 2009 decision to allow for co-disposal of waste rock in the tailings dump is incomplete. According to the DEIS, Hecla’s concern with Acid

⁶ This document can be found at http://www.dec.alaska.gov/Water/WPSdocs/AK0043206_docs.pdf (last reviewed May 29, 2012). Inexplicably, both DNR and the DEC webpage identify this permit as in effect despite the fact that Director Bonnet stayed its effectiveness on October 28, 2011 and extended EPA’s issued permit AK00432006 until DEC reissues the APDES. As of this date, DEC has not reissued this permit.

Comment ID: BL.0.014

The reviewer cites three facts that are out of context and not directly related to one another. The change in production rates is not tied to geotechnical stability and is accounted for in this analysis (see the response to comments BL.0.011 and BL.0.013). The loss of storage volume resulted from some areas that are permitted for disposal being unsuitable for tailings placement because of geotechnical conditions in the native ground that precluded the use of those areas for tailings disposal. Avoiding these areas would avoid potential problems with the dry stack after the tailings had been placed. The quote from the geotechnical impacts section regarding slope stability refers to the stability of the TDF itself after it had been constructed. The stability analysis was conducted using the information available for the EIS and is appropriate based on the amount of information available and the "preliminary" level of analysis (as compared to a design- or construction-level engineering review).

Comment ID: BL.0.015

Please see the responses to comments BL.0.011, BL.0.013, and BL.0.014. HGCMC has optimized mill production levels since taking over mine operations from KGCMC (its predecessor), which contributed to the capacity shortage. The mill itself has limited space, meaning that further substantial increases in production levels would require additional new equipment for which there is no space, or another unforeseeable level of improvement in throughput efficiency. The future cannot be predicted absolutely; however, the Forest Service is confident that the EIS covers production rates that are reasonably foreseeable from any process-related activities in the existing mill. Any increase in production levels based on an increase in the physical size or processing capacity in the mill would likely call for another modification to the GPO, which in turn could result in another NEPA action. Likewise, expansion of the tailings disposal area beyond that contemplated in this EIS could be subject to future NEPA documentation.

Comment ID: BL.0.016

The EIS includes all the components required of a NEPA analysis in order to address the balance between short-term uses of the environment (the proposed project) and enhancement of long-term productivity (the development of alternatives with fewer environmental impacts, the discussion of environmental consequences, and identification of mitigation). Therefore, the EIS

Comment

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BL.0.020

Rock Drainage (ARD) from waste rock stored at Site E prompted its request for co-disposal of waste rock in the tailings dump. This discussion raises several issues.

On the one hand, you note that “[Hecla]’s submittal included documentation supporting the geotechnical stability of co-disposal” DEIS at 1-6. On the other hand, the “loss” in disposal capacity is attributed in part to geotechnical conditions. *Id.* Please explain whether the loss in disposal capacity is due to unpredicted geotechnical stability issues related to the co-disposal of waste rock in the tailings dump. To what capacity does co-disposal affect Hecla’s ability to compact the tailings? Does mixing tailings with large rock increase air penetration or create water conduits in the tailings pile? This looks like another example of Kennecott or Hecla’s predictions proving wrong, like earlier predictions regarding the chemical stability of the tailings, the impermeability of the dump’s clay base layer, or how much tailings the dump will hold.

Finally, no mention is made of the recently identified concern regarding leaching of potential ARD from Site C into Greens Creek. According to an on-site inspection report from the Alaska Department of Fish and Game (ADF&G), “a pool of discolored water that is leaching from Site C, through a berm, and into Greens Creek, [was observed.]”⁷

Production rock was disposed at Site C [adjacent to production rock site 23] in 1987 and 1988 and contains approximately 50,000 cubic yards of material, 20% of which is estimated by Hecla to be within 10-20 years of the end of its lag period. An environmental audit reveals that Site C’s water quality is expected to worsen as more rock becomes acidic. See FINAL REPORT, Environmental Audit of the Greens Creek Mine at 49 (Section 4.2.3.4)(March 2009).⁸ Though the water at Site C is collected and pumped to the water treatment plant Hecla is currently experiencing problems with the pump back system.⁹

BL.0.021

Please explain why Site C production rock lag time has been underestimated? What are the results of the leach water testing? Why is there no mention of the pump back issues in the DEIS? This critical information needs to be disclosed and analyzed in the supplemental DEIS.

1.6 Government-to-Government Consultations

BL.0.022

Although the Forest Service appropriately conducted government-to-government consultation with the Angoon Community Association, no mention is made of any attempts by the Forest Service to reach out to other federally recognized tribes with spiritual and cultural ties to Hawk Inlet, including the Hoonah Indian Association, or with recognized leaders of the Auk Kwaan.¹⁰ The supplemental NEPA process we’ve requested will give the Forest Service the opportunity to fix this error.

⁷ See Memo from Timothy, ADF&G Southeast Regional Supervisor (Sept. 26, 2011)(detailing observed leaching from legacy production rock at Site C into Greens Creek). Attached to SEACC comments for incorporation into the planning record for expansion of the tailings dump.

⁸ Available at <http://dnr.alaska.gov/mlw/mining/largemine/greencreek/index.htm>.

⁹ Personal communication between SEACC’s Archibald and J. Saran, Hecla Environmental in Juneau (Sept. 21, 2011).

¹⁰ See Gilliam, Revised Greens Creek Tailings Expansion Heritage Review at 16-17 (Feb. 20, 2012). We have attached this report to our comments and request its inclusion in the project record.

is compliant with this aspect of NEPA as well as all other aspects of NEPA.

The need for long-term water treatment is identified in the EIS based on more recent sampling and modeling of the quality of the tailings leachate than was available during previous NEPA analyses. Sludge from the water treatment plant is currently being disposed of in the tailings stack, and that practice will continue through closure. The methods of control and treatment, including options for sludge disposal, would be evaluated and designed as a part of the mine’s reclamation and closure plan and regulated through ADEC’s Solid Waste Permit.

Comment ID: BL.0.017

Although the EIS does not specifically use the words “enhance the long-term productivity of the natural environment,” it does explain the mitigation, closure, and reclamation that will occur to reduce or mitigate impacts (in other words, enhance the long-term productivity).

The establishment of vegetation on the engineered cover is intended to return the land use to its pre-mining status. The engineered cover of the dry stack will minimize the movement of oxygen and water into the dry stack.

The potential sources of groundwater contamination, previous mitigation activities, and current monitoring for mitigation success are described in Section 3.6.2.3. This section also identifies potential impacts to groundwater that could be associated with fugitive tailings dust. As a result, the Forest Service is requiring additional fugitive dust monitoring and study, and a mitigation plan, if deemed necessary, to address identified sources (Section 3.2.3.1)

As stated in Section 3.7.3.1, the existing fish passage project was constructed as mitigation for a version of the project that was never developed. Therefore, it is appropriate to apply the habitat improvement as mitigation for the lost habitat associated with the proposed action or either alternatives. This section also provides estimated coho smolt production for the habitat gained by the fish passage project. To ensure the future operability of the fish passage project, quarterly monitoring is required (see Table 2.6-2).

Comment

Response

1.8.4 State and Local Government

BL.0.023

The statement in the DEIS (at 1-23) that the permit issued by the Alaska Department of Environmental Conservation (ADEC) under the Alaska Pollutant Discharge Elimination System (APDES) program to establish water quality effluent limitations for the discharge of toxic pollutants from outfall 002 into Hawk Inlet “is in the process of being reissued” is accurate. As we point out *supra* at 13, the discussion and information disclosed in section 3.5.3.1 regarding the APDES discharge permit is incorrect.

BL.0.024

The DEIS further describes the authority of ADF&G to regulate in-stream activities on catalogued salmon-bearing waters, such as Tributary and Fowler Creeks. The statement that Alaska Statutes “requires protection of anadromous fish and fish-bearing waters for in-stream activities occurring in waters listed in ADF&G’s *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes*” is unfortunately not correct.

BL.0.025

The Anadromous Fish Act, AS 16.05.871 requires permits to assure “proper protection” for activities that use or pollute waters “specified” by the commissioner as “important” for anadromous fish such as salmon. The “proper protection” standard and the discretion to determine which streams are “important” are vague, subjective, open to discretion, and lack statutory definition. This statute fails to articulate clear standards for protecting fish and game, habitats, and public uses of them and should not be relied on by the Forest Service to satisfy the precise and heightened standards articulated by Congress in sections 503, 504, and 505 of ANILCA.

2.3 Alternatives

BL.0.026

In describing the alternatives, the DEIS notes that all the alternatives “address the need for the same volume of waste disposal (tailings and rock),” but that both Alternatives C and D “would require construction of a new [tailings dump]” outside the Monument. DEIS at 2-3. No information is disclosed in the DEIS explaining the differences in cost associated with the alternatives. The DEIS notes that reconfiguring and realigning the design of Alternative B away from Tributary Creek “could render the project uneconomical (not practicable) over the long-term” because of the substantial costs associated with importing the volume of clean fill necessary to construct the redesigned tailings dump.” *See* DEIS, Appendix C at C-6. This analysis also mentions “substantial cost resulting from this configuration would be the necessity to construct a new water treatment plant within the early phases of facility construction and well before the end of the existing plant’s effective service life. . . .” *Id.* Please provide the economic data supporting these assertions in a supplemental DEIS.

2.4.8 Reclamation and Closure

BL.0.027

The DEIS explains that the final plan for successful reclamation depends on the lessons learned from the ongoing, concurrent reclamation of finished tailings storage areas. “[Hecla] assumes that a substantial amount of site-specific reclamation experience and performance data would be

SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012

Comment ID: BL.0.018

The Forest Service respectfully disagrees about the need for a cost comparison among alternatives in order to conduct a rigorous environmental review of the project. NEPA regulations require that alternatives be reasonable, but does not require a cost-benefit analysis.

Feasibility, which takes into consideration cost (although not with the rigor of a cost-benefit analysis), was the initial criterion that drove the alternatives discussion once significant issues were identified. For example, tailings placement on a 30 percent slope is not technically feasible, nor would a wet tailings facility (dam) be, given the existing infrastructure. While shipping tailings is as technically feasible as shipping concentrate, it is not economically feasible and it is simply not done by lead-zinc mining operations. Submarine tailings disposal in Stephens Passage is technically feasible but is not feasible in terms of the time involved and the unpredictability associated with CWA permitting. The Forest Service considers each of the alternatives carried forward as technically and economically feasible, a situation confirmed by the absence of comments from HGCMC indicating otherwise.

This approach allows the Forest Service, cooperating agencies, and the public to evaluate the alternatives strictly based on environmental effects. We wholly disagree with the assertion that the alternatives are rendered undistinguishable; rather, the entire document is focused on presenting a hard look at the differences among a number of viable alternatives that address the significant issues.

Comment ID: BL.0.019

The description of wastewater management in Section 3.5.2.1 reflects upgraded designs as described by EDE (2010) and actual current conditions. However, a brief description of improvements that were made as a result of storm events in 2007 was added to the discussion. The existing plant’s operational lifetime is anticipated to be 30 years as discussed in the EIS.

Please see the responses to comments BL.0.007 and BL.0.008. The control and discharge of contaminants to Hawk Inlet and the management of stormwater is currently regulated through the APDES permit using the 2005 permit conditions, which have been administratively extended until the APDES permit is reissued.

Comment	Response
<p>BL.0.027cont</p> <p>available at final closure. At that time and based on information related to closure gleaned from experience at the site.” DEIS at 2-25. “In addition to the benefits note (sic) above, contemporaneous reclamation could serve as a test facility in which to monitor vegetation establishment and succession, soil building processes and the performance and overall effectiveness of the cover itself.” DEIS at 2-31.</p> <p>The touted benefits from contemporaneous reclamation, however, do not apply to alternative B because “no concurrent reclamation and long-term stockpiling of soil is proposed under this scenario.” DEIS at 3-110. Therefore, if the proposed action is adopted, the Forest Service and public will lack any assurance that this theoretical engineered tailings cap will actually work. Please explain how the Forest Service intends to account for this critical uncertainty? Will extra bonding be necessary? Please explain how this uncertainty changes the long- and short-term costs to Hecla associated with utilizing mitigation alternatives, such as the reduction of pyrite concentrations. How does the risk associated with the pyrite reduction alternative compare to the risk of banking on a theoretical final reclamation plan?</p>	<p>In issuing the 2005 permit, the USEPA established effluent limits at levels that are protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, aquatic life, and wildlife.</p> <p>It is beyond the scope of the EIS to evaluate the cost of mine stormwater management facilities or construction of a new wastewater treatment plant.</p>
<p>BL.0.028</p> <p>The DEIS downplays these risks by advising that “[c]hanges in monitoring results outside an expected range can guide adjustments to, or changes in, specific mitigation measures.” DEIS at 2-31. The Forest Service, however, does not disclose or identify the precise parameters of the “expected range.” The supplemental DEIS needs to disclose what specific monitoring thresholds will trigger review and improvements to mitigation measures. Specific thresholds are necessary in order to establish clear performance expectations and ensure mitigation commitments are actually implemented.¹¹</p>	<p>Comment ID: BL.0.020</p> <p>As discussed in the response to Comment BL.0.014, the geotechnical concern that led to a loss of tailings disposal space resulted from conditions in the native ground (foundation material) rather than conditions in the TDF. The decision to allow co-disposal of tailings and waste rock was a separate action from this EIS and is not subject to comment at this time.</p>
<p>2.5 Alternatives Considered but Not Carried Forward</p> <p>BL.0.029</p> <p>Here, the public is informed that “[h]illside[s] with a slope greater than 30 percent were eliminated from consideration for a tailings [dump] because of geotechnical stability concerns.” DEIS at 2-27. Appendix C, however, explains that given the objective of assuring that each alternative dump location “meet[s] an adequate safety factor (a measure of stability) . . . only areas with less than a 20 percent slope were considered.” DEIS, Appendix C at C-4. Please explain which screening criteria was actually applied and all the risks associated with including slopes greater than 20 percent in an alternative dump location.</p>	<p>However, from an engineering standpoint, the geotechnical stability of the TDF does not substantially change with the addition of waste rock to the tailings. The geotechnical stability of the proposed expansion and alternative TDFs was evaluated in Section 3.3.3. As stated in Section 3.3.3.1, the Forest Service and ADEC will require monitoring for geotechnical stability under all alternatives so that any changes in anticipated conditions can be addressed by design modifications if necessary. The model used to predict leachate quality anticipated through the TDF(s) considered the co-disposal of waste rock and tailings and is described in Section 3.5.3.1.</p> <p>Leaching of ARD from Site C into Greens Creek would be an unpermitted discharge. To remain in compliance with its permits, the operator would need to capture the seepage as part of the water management plan. The treatment system has the capacity to handle additional seepage from Site C.</p>
<p>BL.0.030</p> <p>This section also explains that shipping wastes off site was identified during scoping as a potential alternative but was eliminated because it would have been uneconomical. <i>See</i> DEIS at 2-27. No economic data is presented in the DEIS to support this assertion. Likewise, no cost information is disclosed to inform the public about the relative merits of alternative tailings dump designs eliminated from further study. <i>Id.</i> at 2-28. “Ultimately, the costs and logistical complexity of [an alternative dump design], combined with the wetlands impacts within the Tributary Creek drainage and its presence within the Monument resulted in this alternative being eliminated from further consideration.” <i>Id.</i> at 2-29. Without disclosing the economic and technical data that supports these conclusions, the Forest Service cannot take the hard look required by NEPA and its own regulations at the “long- and short-term costs to the operator of</p>	<p>Comment ID: BL.0.021</p> <p>The NEPA process is not an enforcement assessment tool tied to the environmental auditing required by ADEC’s Solid Waste Permit. The issues surrounding Site C are related to the management of ongoing operations and are being addressed by the Forest Service in conjunction with ADEC. The situation related to HGCMC having issues with the pumpback system is a one-time or limited-duration occurrence and is not part of the normal operating conditions at the mine. Similarly, the leaching of discolored water from Site C into Greens Creek is not a permitted activity.</p>

¹¹ See CEQ Memo on Guidance for Establishing, Implementing, and Monitoring Mitigation Commitments (Jan. 14, 2011).

Comment

Response

BL.0.030cont

utilizing such measures and the effect of these costs on the long-and-short-term economic viability of the operations.” See 36 CFR 228.80(b)(2)(ii)(2011). Please provide this significant information for public review in the supplemental DEIS.

2.5.3 Reduction of the Pyrite Concentration in the Tailings

BL.0.031

Pyrite removal from the tailings was considered but eliminated as an alternative in the 2003 EIS. DEIS at 2-29. Although reevaluated for this NEPA process, the DEIS basically duplicates the earlier analysis and regurgitates the same conclusions. The Forest Service eliminates this alternative from consideration because of space limitations near the mill as well as the added hazards of storing pyrite and the reagent, sulfuric acid.

The DEIS offers no reasons why the pyrite recovery floatation cell cannot be housed anywhere within the mine’s footprint. Currently, tailings containing pyrite are pumped over some distances as paste backfill back into the mine or trucked several miles to the tailings dump.

There is no explanation as to why pyrite concentrate is considered a greater risk to water quality, aquatic life, or monument values than the lead concentrate currently produced, let alone the acid rock drainage produced by oxidation of pyrite in the tailings and waste rock.

BL.0.032

Many of the chemicals used in the existing floatation process in the mill are hazardous and require special storage and handling such as MIBC-methyl isobutyl carbinol (used as a frother) and sodium cyanide (used as a depressant). The Forest Service does not describe any additional safety or containment issues for the sulfuric acid over and above what is necessary for currently used chemicals that demonstrates any additional hazard.

BL.0.033

Removing, or reducing the pyrite from the tailings would diminish the propensity for the tailings to oxidize, generate acid and mobilize metals. This could save money for the company, extend the life of the tailings facility and reduce the need for perpetual water treatment.¹² Both the Resource Conservation and Recovery Act (RCRA) and the Pollution Prevention Act of 1990 (PPA), encourage the reduction in volume, quantity and toxicity of waste. While RCRA focuses primarily on the reduction in volume and/or toxicity of hazardous waste, the PPA encourages maximum possible elimination of all waste through source reduction.

Pyrite is a marketable commodity. The Rio Tinto Mine in Spain produces pyrite/sulfur secondary to copper production. The mine produces more pyrite than zinc, gold, silver or lead. The Neal Mine in New Hampshire primarily produces copper and pyrite. The Bion Fraction, Lehigh Claim in South Dakota produces gold, silver and pyrite.

Current prices for pyrite range from \$225-\$400 per 100 metric tons depending on grade. See <http://www.alibaba.com/showroom/pyrite-ore.html>. Clearly more analysis is required to

¹² See U.S. Environmental Protection Agency, *Pyrite Flotation: Magma Copper Company’s Superior Facility Draft*. Office of Solid Waste. March 1993 a (available at: <http://infohouse.p2ric.org/ref/18/17051.pdf>) (a study on the costs/benefits of pyrite removal).

A NEPA analysis is not intended to anticipate or address the range of potential upset conditions that could occur over the operational lifetime of any mining operation. The pumpback issue at Site C is outside the scope of the EIS. As noted in the audit, the lag time is an estimate. All water emanating from Site C is controlled and pumped to the water treatment plant.

Comment ID: BL.0.022

Additional consultation information has been added to Section 1.6, which notes that the Forest Service communicated with a local federally recognized tribes, Alaska Native Corporations, and members of the Aak’w Kwaan.

Comment ID: BL.0.023

The EIS has been modified throughout to reflect the current status of the APDES permit (AK0043206). Sections 1.2, 1.8.3.3, 2.4.4, and 3.5.2.1, among others that refer to the discharge permit, have been modified to reflect that the 2005 NPDES permit conditions have been administratively extended until the APDES permit is reissued.

Comment ID: BL.0.024

ADF&G has the statutory responsibility for “protecting” freshwater anadromous fish habitat and providing free passage for anadromous and resident fish in freshwater bodies (AS 16.05.841–871). Any activity or project that is conducted below the ordinary high water mark of an anadromous stream requires a Fish Habitat Permit. A Fish Habitat Permit is required before any action is taken to construct a hydraulic project; use, divert, obstruct, pollute, or change the natural flow or bed of a specified river, lake, or stream; or use wheeled, tracked, or excavating equipment or log-dragging equipment in the bed of a specified river, lake, or stream.

Comment ID: BL.0.025

The Anadromous Fish Act is one of several laws and directions considered in the document. Other laws and direction include ANILCA, the Magnuson-Stevens Fishery Conservation Act, Endangered Species Act, and direction from the Forest Plan Standards and Guidelines. See Section 1.8 of the EIS.

Comment ID: BL.0.026

Since cost is not a driving factor in making a NEPA decision, the Forest Service determined that a supplemental EIS is not necessary

Comment	Response
<p>evaluate the feasibility of this mitigation measure. See 36 C.F.R. § 228.80(c)(2). We look forward to seeing this in the supplemental DEIS.</p>	<p>to disclose cost details for this project. A supplemental memo regarding relative costs by alternative is included in the planning record.</p>
<p>2.6.1 Alternative B Reclamation</p>	<p>Comment ID: BL.0.027</p>
<p>BL.0.034</p>	<p>HGCMC has established and continues to monitor a test cover placed over a portion of the waste rock dump. This test facility serves to evaluate the design and performance of the cover. While this test cover is not over tailings, the movement of water through the cover and the establishment and effectiveness of vegetation on it will provide insight into its long-term performance. The Forest Service and permitting agencies will continue to monitor data collected from this site in the ongoing assessment of closure planning. This approach will eliminate some of the uncertainty associated with long-term performance. The Forest Service is confident of the financial assurance approach we implement in conjunction with the state and do not see a need to modify the bonding process to address more or less uncertainty. The Forest Service does not consider “pyrite reduction” a viable mitigation measure.</p>
<p>The DEIS explains that in the unlikely case that active water treatment is not necessary for hundreds of years after closure, the final reclamation and closure plan for the tailings dump in Alternative B call for the outfall to naturally drain into Hawk Inlet rather than into Tributary Creek. See DEIS at 2-30. Such an outcome appears physically impossible because of the raised topography between the Tributary Creek watershed and Hawk Inlet (see map at 3-25) and the natural slope of the valley south toward Zinc Creek. “Prior to mining, the Tributary Creek drainage basin was about 482 acres <i>sloping south towards Zinc Creek . . .</i>” DEIS at 3-39).</p>	
<p>If the goals of the reclamation plan (Appendix F, section 4) are to return the surface to near natural condition, including restoring original surface drainage, how will this actually be accomplished without creating a different drainage route into Hawk Inlet?</p>	
<p>2.6.3.1 Mitigation and Monitoring</p>	
<p>BL.0.035</p>	<p>Comment ID: BL.0.028</p>
<p>Why does Table 2.6.2 not include mitigation for impacts to minority or low income communities?</p>	<p>It is not within the scope of this EIS to identify individual triggers and response pathways for parameters that are monitored under the various agencies’ permitting and monitoring programs. Establishing such triggers in the EIS is not binding for other regulatory agencies and undermines their authority and effectiveness over the long term. Each of the various authorizations and permits identified in Chapter 2 have their own monitoring and reporting requirements.</p>
<p>2.7 Comparison of Alternatives, Table 2.7-1.</p>	
<p>BL.0.036</p>	<p>Comment ID: BL.0.029</p>
<p>When summarizing the impacts of the alternatives, the DEIS notes that Angoon identified Hawk Inlet as a “sacred place.” DEIS at 2-46. Other than identifying “Traditional cultural properties and sacred sites” as a value considered when analyzing potential changes to roadless areas, DEIS at 3-256 (Table 3.20-1), we could find no other description or analysis in the DEIS regarding this “sacred site.”</p>	<p>Edit made per comment. All slopes considered must be less than 30 percent. Edit made in Appendix C.</p>
<p>BL.0.037</p>	<p>Comment ID: BL.0.030</p>
<p>The 2008 Tongass Forest Plan Amendment requires the Forest Service to “[d]evelop site-specific management strategies that detail protection issues and enforcement mechanisms for identified sacred sites within the areas of potential effects in consultation with tribal government officials and authoritative representatives.” TLMP at 4-20, HSS2.II.B. and III.B. (“Develop a protection plan that, as much as practicable, incorporates specific standards and methods as recommended by tribal government officials . . .”). We recommend that the Forest Service prepare and adopt such a site-specific protection strategy in consultation with Angoon and Hoonah tribal government officials and with the leader of the Auk Kwaan, Rosa Miller.</p>	<p>The current cost to dispose of tailings is approximately \$4.50/metric ton. If tailings were to be shipped off site, the costs of site preparation, trucking, stacking, and grading the tailings would remain.</p>
<p>3.4.2 Geochemistry – Existing Conditions</p>	
<p>BL.0.038</p>	<p>HGCMC uses a cost of \$68/ton to project costs for shipping and handling concentrate. Since tailings are of a similar consistency to concentrates, it is reasonable to assume that shipping and handling</p>
<p>The DEIS acknowledges that the Greens Creek mine tailings have “a net capacity to produce acidic drainage known as acid rock drainage (ARD)” through the oxidation of pyrite. DEIS at 3-28. The discussion relating to pyrite oxidation notes that this process generates heat but that “[c]urrently the temperature [of the tailings] is not monitored.” DEIS at 3-27. Oxidation rates and zones in tailings plies are notoriously hard to predict with available information and</p>	
<p>SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	
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<p>BL.0.038 cont acid/base accounting. Temperature is also a factor, along with available oxygen and grain size, to the rate of oxidation. Recording the internal temperature of the tailings could be a simple, cheap addition to the data gathered to help predict oxidation rates and foresee upcoming problems. SEACC recommends that monitoring of the tailings for temperature should be required in order to help improve the prediction of oxidation rates.</p>	<p>costs would be of a similar magnitude. If the costs to ship tailings to an off-site facility were 25 percent of the cost of shipping concentrate overseas, the costs of shipping and dry-stacking tailings would be approximately \$17/metric ton. Because shipping the tailings would increase costs for tailings disposal roughly fourfold, an off-site alternative was not considered practicable and was not carried forward for detailed analysis.</p>
<p>3.5.2 Water Resources – Surface Water – Baseline Conditions</p>	<p>As noted in response to Comment BL.0.002, the regulations at 36 CFR 228.80(c)(2)(ii) do not require the long- and short-term costs of mitigation measures to be incorporated into the NEPA process.</p>
<p>BL.0.039 The DEIS states “[t]here are no streams listed as impaired under Section 303(d) of the CWA at the Greens Creek project site.” DEIS at 3-41. While technically correct, SEACC recently nominated Althea Creek, Tributary Creek, and Hawk Inlet for listing as impaired waterbodies based on monitoring data reported in 2009 and 2010.¹³ The 2011 monitoring report further supports a listing of these waters.</p>	<p>Comment ID: BL.0.031 Pyrite would need to be removed through flotation, similar to the process employed to recover lead or zinc concentrates. A pyrite recovery “cell” would need to be incorporated into (or replace a portion of) the current milling process. Installing flotation tanks to recover pyrite would require the displacement or repurposing of equipment currently used to generate marketable products (i.e., lead and zinc concentrates) to create a further-refined waste (i.e., pyrite). There would be no economic justification for designing and building a second mill facility elsewhere on the mine site strictly to reprocess a single waste (tailings) into two wastes (pyrite concentrate and tailings).</p>
<p>3.5.2.1 Wastewater Management</p>	<p>The approved configuration of the TDF will contain 5.5 million cubic yards of pyrite-containing tailings. Removing pyrite from subsequent placement will not eliminate the need to treat for metals in water emanating from the TDF. Even if all pyrite were removed from the tailings starting at the beginning of the process, there is insufficient evidence to indicate that TDF drainage would meet water quality standards without treatment.</p>
<p>BL.0.040 The DEIS incorrectly claims that: The current APDES permit restricts the maximum allowable daily discharge to 4.6 million gallons per day (mgd) [3,190 gpm] and a monthly average discharge of 3.0 mgd (2,080 gpm). The permit limits assure compliance with all Alaska marine WQS. The permit also allows ten non-contact storm water discharge outfalls in Greens Creek, Zinc Creek, and Hawk Inlet. DEIS at 3-47. These discharge rates were included in an APDES permit issued by ADEC on September 30, 2011, but later stayed by the ADEC Director of the Division of Water on October 28, 2011. The decision to arrest the implementation of Hecla’s APDES Permit AK 0043206 also provided that “[t]he administratively extended the 2005 EPA-issued permit AK00432006 that became effective on July 1, 2005 will remain fully effective and enforceable until the permit is reissued and becomes effective.”¹⁴ Thus, the limits on daily maximum and monthly average flows, 3.6 mgd and 2.4 mgd, remain the authorized discharge rates for outfall 002.</p>	<p>Removal of the pyrite would reduce the potential for acid generation from the TDF. However, the data do not indicate that pyrite removal would be the solution to alleviate long-term risks to water quality, aquatic life, and Monument values, as suggested by the commenter. In terms of producing pyrite as a marketable product, the Forest Service is unable to substantiate that a viable market exists for pyrite produced at the Greens Creek Mine and ultimately cannot dictate how the mine conducts its milling operations or direct what products a proponent offers to the market.</p>
<p>3.5.2.2 Tailings Contact Water Management</p>	
<p>BL.0.041 The DEIS does not reveal that storms in 2007 almost overwhelmed the mine’s wastewater capture, storage, and treatment facilities. <i>See supra</i> p. 7 and note 5. In response to that threat, Greens Creek Mine expanded and upgraded wastewater management facilities. The failure to disclose this basic new information raises questions as to the level of oversight exercised by the Forest Service regarding both ongoing operations of Hecla’s Greens Creek Mine and the NEPA contractor’s preparation of this DEIS. What specific changes were made during this expansion and upgrade?</p>	
<p>BL.0.042 The DEIS claims that the current tailings pile and the alternatives will have “[m]inimal effect on local hydrogeology; no impacts to ground water quality.” DEIS at 2-43, Table 2.7.1. This</p>	
<p>¹³ See, Letter from Archibald, SEACC to Grant, ADEC (Sept. 14, 2011)(SEACC’s Nominations for 303d Listing). ¹⁴ EPA’s 2005 NPDES is available at http://dnr.alaska.gov/mlw/mining/largemine/greencreek/pdf/npdes.pdf. SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	<p>13</p>

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<p>BL.0.042 cont</p> <p>statement is inconsistent with the results of area monitoring wells as reported in the Fresh Water Monitoring Program reports.¹⁵</p> <p>The Fresh Water Monitoring Program compared the data from monitoring wells for water year 2011 to the strictest fresh water quality criterion for each applicable metal monitored. It reports that:</p> <p>“Exceedances in the tailings area were noted for low pH, low alkalinity, and elevated levels of arsenic and lead. The shallow wells (sites 58, 27, 29, and 32) continued to display a long history of exceedances due to the low pH and low alkalinity that characterize these sites located in organic rich peat sediments. Six exceedances for dissolved lead occurred at two of the three down gradient shallow wells (sites 29 and 32). These exceedances continue the recent history of low to moderate levels of lead that may in part be due to minor amounts of tailings escaping the facility due to fugitive dust or tracking. The single deep, downgradient well, Site 28, had four exceedances for arsenic.”</p> <p>2011 Fresh Water Monitoring Report at 1, 2.</p>	<p>Comment ID: BL.0.032</p> <p>Containment and control of hazardous materials is required by several permitting activities. As discussed in Section 1.8.3.3, control and containment of oil or other hazardous substances is required under Section 311 of the CWA. The USEPA requires that HGCMC prepare and maintain a Spill Prevention, Control, and Countermeasures plan that specifies storage, containment, spill responses, and reporting requirements.</p>
<p>BL.0.043</p> <p>It is important to note that monitoring well Site 58 is the up gradient (background) well for Sites 27, 29 and 32. Site 58 is subject to prevailing winds at least 6% of the time, yet shows no indication of contamination from fugitive dust. See DEIS at 3-5, figure 3.2.2.1. Site 58 does not show any exceedances for metals, but three of the four down gradient wells from the tailings dump show exceedances for both lead and arsenic. This seems to be clear evidence that ground water quality is being affected by leaching from the current tailings pile.</p> <p>Please explain why this data was not disclosed in the DEIS or any analysis conducted of the possibility of ground water contamination. If the monitoring parameters need to be improved, we request the Forest Service to do so. Otherwise, we question how the Forest Service will protect groundwater from any of the alternatives using the same design, control structures, and construction techniques applied on the existing tailings dump.</p>	<p>Comment ID: BL.0.033</p> <p>As the commenter notes, removing or reducing pyrite would diminish the propensity of the tailings to oxidize and generate acid; however, the overall benefit and effect on metals mobility is not necessarily as obvious. Likewise, there is no indication that costs or water treatment needs would necessarily be reduced over the long term.</p>
<p>BL.0.044</p> <p>This discussion references a dispersion dye study over 30 years old used to determine the volume of water flushed through the Hawk Inlet each tidal cycle and calculate the number of tidal cycles required to completely flush the toxic pollutants continuously discharged from outfall 002 into Hawk Inlet from Hecla’s Greens Creek Mine. See DEIS at 3-49. Absent from the DEIS, however, is any acknowledgement of the possible effects geophysical changes resulting to Hawk Inlet from ongoing glacial rebound since 1981 and the resulting effects.¹⁶ Likewise, the Greens and Zinc Creek have presumably continued add material to their alluvial deposits across Hawk Inlet. How has this continued alluvial deposition and isostatic rebound affected the current</p> <p>¹⁵ These reports are available at: http://dnr.alaska.gov/mlw/mining/largemine/greencreek/</p> <p>¹⁶ See Post Little Ice Age Glacial Rebound in Glacier Bay and Surrounding Areas, Roman J. Motyka, 2004 at http://fairweather.alaska.edu/chris/motyka.pdf.</p> <p>SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	<p>While pyrite is a “marketable” commodity, the value of the product may not outweigh shipping costs. The same website provided by the commenter shows the price of zinc and lead concentrates at \$100 to \$300 per metric ton (zinc) and lead concentrate at \$400 per metric ton (lead). Based on these gross, web-based estimates, the value of zinc and lead and zinc products range from 44 to 100 times the value of pyrite. The Forest Service does not have the authority to regulate the products that a particular mining operation takes to market. In this case, HGCMC would need to determine that pyrite is indeed a marketable product within the realm of its operational constraints. We would note that it is unclear from the information provided whether either the Neal Mine or Bion Fraction, Lehigh Claim are even operational mines; they do not appear to serve as model operations for pyrite production on National Forest lands.</p> <p>Also see the response to Comment BL.0.032.</p> <p>Comment ID: BL.0.034</p> <p>Comment noted. Statements indicating that effluent from the TDF would be allowed to gravity drain to Hawk Inlet in the absence of management were removed from the EIS based on this and other comments received by the Forest Service. The NEPA analysis assumes that leachate from the TDF would need to be controlled and treated at all times, both during operations and after closure. These activities would be managed through a discharge permit.</p>

Comment

Response

geophysical character of Hawk Inlet? Please update the description of the existing condition of Hawk Inlet to account for these changes.

BL.0.045

The DEIS also references baseline studies prepared prior to mine development that “document marine life and to characterize existing levels of heavy metals in sediments and marine biota in Hawk Inlet.” DEIS at 3-49. ADEC has noted, however, that:

(c) Pre-mining, marine biological data collection began during the summer of 1984, and mining production began during the summer of 1989. Those data include tissue assays of mussels and marine worms for metals content. Unfortunately, the pre-mining data from 1984 to 1989 does not contain sufficient data to allow comparisons of diversity or abundance of organisms.¹⁷

BL.0.046

The discussion in the DEIS relating to the APDES discharge of pollutants into Hawk Inlet ends with the comment “[t]his EIS analysis can predict that the TDF discharge will exceed Alaska WQS and require a permit, but it cannot predict the conditions of a permit so far in the future.” For the record, this is precisely the reason why we believe it is appropriate to evaluate the Pogo-like alternative recommended by Dr. Dave Chambers.¹⁸

3.5.3 Surface Water – Environmental Consequences

BL.0.047

The DEIS description of the existing regulation of wastewater pollutants (APDES discharge), discharged into Hawk Inlet out of outfall 002 is wrong. See DEIS at 3-52. Consequently, the effluent limits discussed in Table 3.5-6 are incorrect. Given the increase in flow permitted by the arrested APDES permit, the loading of the pollutants discharged in a given period into Hawk Inlet will increase. What is the actual amount by mass of the metals being dumped into Hawk Inlet?

BL.0.048

The DEIS notes that “. . . some values [metals concentration] recorded since mining began are higher than pre-mining years, especially near the Outfall 002 discharge site.” DEIS at 3-92. The Forest Service needs to evaluate the effects of the continuous dumping of heavy metal contaminants into Hawk Inlet through outfall 002. Please explain to what extent permitted discharges from outfall 002 and unpermitted discharges, such as the 1989 concentrate spill at the loading dock, have resulted in the deposition of persistent bio-accumulative toxins in the sediments of Hawk Inlet. We request that the supplemental DEIS include this analysis.

3.7.1.1 Pre-Mining Aquatic Resource – Freshwater

BL.0.049

Juvenile fish are sampled for abundance and distribution, DEIS 2-41, Table 2.6-3. The DEIS does not disclose the on-going monitoring for whole body metal loading in fish. Instead of reporting current data on the levels of loading of metals in fish, the DEIS hides behind the statement that “[b]ecause of limited data and lack of comparability to current studies, results are

¹⁷ Available at: <http://dnr.alaska.gov/mlw/mining/largemine/greenscreek/pdf/ak0043206commentresponse.pdf> (ADEC’s Response to Comments on Draft APDES No. AK0043206 at 8 (Sept. 30, 2011)).

¹⁸ See *supra* text at 2-3 and Letter from Dr. Chambers to SEACC (Nov. 18, 2011) attached to these comments.

Comment ID: BL.0.035

Neither expansion of the existing TDF nor development of the alternative TDF site (alternatives C and D) would have measurable adverse impacts to minority or low-income communities. Section 3.18 has been revised to acknowledge that residents and representatives from Angoon have expressed concern over the population loss and the need for jobs in the community. This project, however, is not likely to have significant adverse or positive effects related to economic conditions in Angoon.

Comment ID: BL.0.036

Additional discussion has been included in Section 3.17.1 acknowledging that Angoon residents have identified Hawk Inlet as a sacred place because of its use as a traditional trade route, important food source, and area where traditions were taught.

Comment ID: BL.0.037

The reason that Hawk Inlet has been considered sacred is discussed in the EIS (Section 3.21, Environmental Justice). A management strategy is in place for the traditional migration corridor / trade route at the north end of Hawk Inlet (no alternative in this EIS would affect the corridor). Documentation of the oral history of the area through interviews with elders is required mitigation for Cultural and Subsistence resources (see Table 2.6-1) to addresses the historical use of the area by the current generation of elders. Subsistence Hearings were held in Hoonah on September 14, 2012, and in Angoon on November 8, 2012 (see Section 1.5.3). Current subsistence uses are described in Section 3.16.

Comment ID: BL.0.038

Comment noted. The current Waste Management Permit requires temperature monitoring in the TDF immediately before and following the closure process. Although it is not a current requirement, HGCMC has indicated that it does monitor temperature in the TDF.

Comment ID: BL.0.039

ADEC is the regulatory authority in listing impaired water bodies in the State of Alaska. ADEC’s August 2012 Draft Water Quality Monitoring and Assessment Report did not propose listing any streams in the area of the Greens Creek Mine as impaired. ADEC did propose listing the water in Hawk Inlet in the immediate vicinity of the 1989 ore spill as impaired, but not the entire water body. The EIS has been modified to reflect this recent proposed listing in Section 3.7.2.1.

Comment

Response

not reported here” DEIS 3-80. This ignores over 10 years worth whole body metals loading analysis in fish impacted by the Greens Creek Mine.

BL.0.050

Greens Creek has been monitored for metals in fish tissue at three sample stations for over 10 years. Site 48 is above mine activities (except exploration) and serves as a background monitoring site. Sites 6 and 54 are downstream of mine activities. Site 6 near the mill operations is only sampled once every 5 years, so the data set is very limited. Results of the fish tissue monitoring are reported in the Aquatic Biomonitoring at the Greens Creek Mine, 2011 Report.¹⁹

The report shows that metals loading in fish tissue at the downstream sites are higher than the background site. Site 54 fish display a higher average loading than the Site 48 fish (Background) except for the year 2005. Results in 2007 were also higher but within analytical limits. Data for 2011 is incomplete because of an error in the chain of custody resulted in the lab homogenizing the six samples resulting in only one data point for each metal sampled at each station. *Id.* at p. 25.

Site 6 shows higher lead levels than background in both years (2001 and 2006) where data is available. 2011 data also shows an increased level of lead over background but the data set for 2011 was compromised due to the same sampling error noted above. 2011 Aquatic Biomonitoring Report at 20, *supra* note 8.

The vast majority of downstream fish tissue samples displayed metals levels higher than the upstream, background tissue samples.

Tributary Creek below the TDF is also monitored for metals loading in juvenile fish, however Site 29 above the TDF is not monitored for metals in fish so there is no background information which to compare.

We feel that this readily available information is critical to any description of the current condition of freshwater aquatic resources and this information needs to be disclosed and analyzed in the supplemental DEIS. The Forest Service also needs to review the monitoring requirements and procedures used to be certain that the data collected is useful for showing changes to the surface waters due to mining activities.

BL.0.051

Finally, the DEIS analysis inaccurately describes the physical characteristics and stream habitat conditions for Tributary Creek. The DEIS does not disclose the significant influence of this stream’s riffle and pool complexes on its habitat values. *See* DEIS at 3-81, 3-82.²⁰ This is critical information because, under the Section 404(b)(1) guidelines, the Corps of Engineers should attempt to avoid damaging special aquatic sites, including riffle and pool complexes. *See* 40 CFR §§ 230.3(q-1), 230.10(a)(3), 230.45. The failure to disclose and evaluate the effects of the alternatives on Tributary Creek’s riffle and pool complexes violates NEPA and the Clean

¹⁹ Available at <http://dnr.alaska.gov/mlw/mining/largemine/greencreek/pdf/gc2011bio.pdf>, pages 78-81.
²⁰ *See* 2008 Aquatic Biomonitoring Report (http://www.adfg.alaska.gov/static/home/library/pdfs/habitat/09_02.pdf). The most recent version of this report also mentions that samples were collected from riffle areas (<http://dnr.alaska.gov/mlw/mining/largemine/greencreek/pdf/gc2011bio.pdf>).

The commenter’s letter to ADEC (September 14, 2011) has been reviewed and incorporated into the project record.

Comment ID: BL.0.040

Please see the response to Comment BL.0.023. All related text in the EIS has been changed accordingly, including maximum allowable discharges stated in Section 3.5.2.1.

Comment ID: BL.0.041

The description of wastewater management in Section 3.5.2.1 reflects improved designs as described by EDE (2010) and reflects actual current conditions. However, a brief description of improvements that were made as a result of storm events in 2007 was added to the discussion.

Comment ID: BL.0.042

The potential sources of groundwater contamination, previous mitigation activities, and current monitoring for mitigation success are disclosed in Section 3.6.2.3. This section also identifies potential impacts to groundwater that could be associated with fugitive tailings dust. As a result, the Forest Service is requiring additional fugitive dust monitoring and study, and a mitigation plan, if required, to address identified sources (Section 3.2.3.1).

Comment ID: BL.0.043

The potential sources of groundwater contamination, previous mitigation activities, and current monitoring for mitigation success are disclosed in Section 3.6.2.3. This section also identifies potential impacts to groundwater that could be associated with fugitive tailings dust. As a result, the Forest Service is requiring additional fugitive dust monitoring and study, and a mitigation plan, if required, to address identified sources (Section 3.2.3.1)

Comment ID: BL.0.044

Motyka et al. (2007) (Post Little Ice Age Rebound in the Glacier Bay Region) indicates that sea levels in Hawk Inlet are affected by approximately 1.0 centimeter (0.4 inch) per year. At this rate, it is not anticipated that tidal flushing behavior would have changed substantially since the 1981 dye dilution study. Likewise, it is not anticipated that natural sediment transport from Greens Creek or Zinc Creek would have substantially changed the Greens Creek delta or the bathymetry of Hawk Inlet.

Please see the response to Comment BL.0.008.

Comment	Response
BL.0.051 cont	<p>Comment ID: BL.0.045 Comment noted. Marine fish and shellfish resources are summarized in Section 3.7, which cites the 2003 EIS (USFS 2003) for details. Additional details are not needed for analysis because alterations in marine discharge of treated water are not part of this decision. Issues related to the marine discharge of treated water were addressed in the earlier EIS (USFS 2003).</p>
BL.0.052	<p>Comment ID: BL.0.046 Please see the responses to comments BL.0.007 and BL.0.008. The letter submitted (Chambers, September 18, 2011) has been reviewed and incorporated into the record.</p>
BL.0.053	<p>Comment ID: BL.0.047 Please see the response to Comment BL.0.023.</p> <p>Comment ID: BL.0.048 The discussion in the EIS was modified in Section 3.7.2.2 to reflect that the only noted increase at Site S-1 near Outfall 002 was for lead, where lead concentrations in sediments were 8.17 mg/kg prior to mining and averaged 8.80 mg/kg during mining. This increase is less than the natural variation as reflected by the standard deviation of 4.58.</p> <p>To put loading into context, 2010 average flow and monitoring data were used to compare the natural loading of metals from Greens Creek to Hawk Inlet versus the loading of metals through the 002 outfall. Based on this comparison, the average natural loading of dissolved zinc from Greens Creek to Hawk Inlet in 2010 was 1.26 pounds per day. The average 2010 loading of total zinc through the 002 outfall to Hawk Inlet was 0.37 pound per day, approximately 60% less than the natural rate of loading.</p> <p>Comment ID: BL.0.049 Section 3.7.1.1 presents pre-mining freshwater aquatic resources details. Recent and ongoing monitoring that occurs concurrently with mining and milling operations does not reflect pre-mining conditions. The statement cited in the comment (referring to the data as "limited") refers to the data collected prior to mining, not the data collected since mining began. Recent metals concentration monitoring in Dolly Varden, collected since 2001, is fully summarized in Section 3.7.2.1 of this EIS. Table 2.6-3 notes required juvenile fish sampling, including subsamples analyzed for chemistry.</p>
<p>Water Act's Section 404(b)(1) guidelines. Again, preparation of a supplemental DEIS for public comment is required that contains this vital information and analysis.</p>	
<p>The failure to disclose and evaluate the effects of the alternatives on Tributary Creek's riffle and pool complexes violates NEPA and the Clean Water Act's Section 404(b)(1) guidelines. Again, preparation of a supplemental DEIS for public comment is required that contains this vital information and analysis.</p>	
<p>3.7.2.1 Pages out of Order</p>	
<p>Page 3-92 appears to be out of place. Please correct the page order in the supplement.</p>	
<p>3.7.2.2 Baseline Conditions – Aquatic Resources – Marine</p>	
<p>The summary in the DEIS relating to the overall marine conditions ends with the comment "[o]verall, however, monitoring results indicate that the marine system in the vicinity is healthy." As noted above, <i>supra</i> at 13), this assertion is not supported by existing monitoring information collected on affected marine waters.</p>	
<p>Three ocean sites in Hawk Inlet are sampled to monitor potential water quality effects from the mine. These data are used to evaluate potential changes in the Hawk Inlet marine environment. Seawater samples are collected quarterly from the sites on an outgoing tide, with the Chatham Strait sample (Location 106) collected just after low slack water (incoming tide). The two other sites are Location 107, located about mid-way east-west in Hawk Inlet and west of the ship loader facility, and Location108, located above the 002 diffuser in the mixing zone.²¹ Samples at all three locations are taken at a depth of five feet. <i>See</i> 2011 Hawk Inlet Monitoring Report, Sec 2.0 (hereinafter "2011 HIMR").</p>	
<p>Referring to the map of monitoring sampling locations, it is clear that 108 and 107 are inland from the mouth of Hawk Inlet; therefore, sampling on an outgoing tide assures that the water from the mixing zone is moving away from the sample site during sampling. <i>See</i> 2011 HIMR, Figure 1.1. The same is true for location 106. This site is seaward of the mixing zone so sampling at an incoming tide assures that the water is moving toward the mixing zone and away from 106 during sampling.</p>	
<p>Location108 is the only sampling station near the mixing zone. The CORMIX runs performed by ADEC show that the plume of contaminants "traps close to the sea floor at 1-3m (3-9 ft) off the bottom and is approximately 1 m (3 ft) thick."²² Given the depth of Hawk Inlet at 45 feet, sampling at 5 feet would miss the plume by a minimum of 28 feet.</p>	
<p>²¹ Mixing Zones must be monitored to assure that ambient water conditions are met at the edge of the mixing zone. <i>See</i> USEPA, <i>Technical Support Document for Water Quality-based Toxics Control</i> (1991). Applicable ADEC regulations also require a mixing zone to be "as small as practicable" and that "water quality criteria must be met at the boundary of the mixing zone." <i>See</i> 18 AAC 70.240(a)(2); 70.255 (b)(Register 166, July 2003). For the record, although DEC later amended these mixing zone regulations, those changes have not been approved by EPA.</p> <p>²² <i>See</i> ADEC's 11-11-11 Response to CORMIX Modeling PRR at 19; <i>see also</i> ADEC's 12-23-11 Response to 2nd CORMIX Modeling PRR. SEACC has attached both of these documents and request they be incorporated into this project's planning record.</p>	
<p>SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	
<p>17</p>	

Comment	Response
<p>BL.0.053</p> <p>For more than ten years, mixing zone monitoring has been performed at ADEC-approved sampling location 106 to assure that water quality outside the mixing zone is protected, and the permit maintains monitoring station 106 as the site for mixing zone monitoring. <i>See</i> Final Fact Sheet for APDES AK0043206, <i>supra</i> note. 6, at 6.4. Later in the same document sampling location 106 is described as “represent[ing] background conditions.” <i>Id.</i> at 6.5. Sampling location 106 cannot serve both functions. Regardless, location 106 is located west of Hawk Point and over half a mile from the edge of the mixing zone. <i>Id.</i> Figure 2 at p.33.</p> <p>Locations 107 and 108 are described in the FFS (6.5) as the sites influenced by the diffuser. Location 107 is described as being “mid Hawk Inlet off cannery” and appears to be almost 1 mile from the edge of the mixing zone. <i>See</i> Final Fact Sheet for APDES AK0043206, <i>supra</i> note 6, Figure 2 at p. 33). It appears location 108 is the only sample station anywhere near the edge of the mixing zone, where water quality criteria must be met yet it is described as being located above the diffuser. <i>See</i> 2011 HIMR (at 2.2). Therefore, location 108 is not sited in an appropriate location for determining whether water quality criteria are met at the edge of the mixing zone.</p>	<p>Comment ID: BL.0.050</p> <p>Available information on the monitoring, including statistically significant conditions, is summarized in Table 3.7-4 and discussed in Section 3.7.2.1. The EIS description accurately describes the current metals concentrations in these fish. The monitoring program was designed by state and federal resource agencies, including ADF&G, and is conducted by ADF&G with support from the Forest Service and the operator.</p>
<p>BL.0.054</p> <p>3.7.3.3 Effects of Alternative B, Proposed Action</p> <p>“Several metrics were used to assess likely effects of the existing discharge and loading operations on the marine biotic environment” DEIS at 3-101. The extent of the contamination that resulted from an accidental spill that occurred during the loading of concentrate onto a barge in 1989 into Hawk Inlet has never been determined. Oceanus (2003) notes that metals concentrations at S-4, S-5N, and S-5S, in the area of the 1989 spill often exceed the lower ERL (effects range low) guideline levels and occasionally exceeded the higher effects ERM (effects range medium) guidelines. <i>See</i> DEIS at 3-93. The fact that all sample sites and events associated with the 1989 concentrate spill show exceedances demonstrate that the boundaries of the contaminated area remain undefined; therefore, the resulting impacts to Hawk Inlet are unknown. We would request that the Forest Service collect and analyze samples from intervals outward from the center of the spill in two directions to determine the extent of the spill. Furthermore, it is noted in the Hawk Inlet Monitoring Report (section 3.2) that “Prop wash from ore ships and associated tug boats continues to both re-suspend these pockets [of contamination] and also mix them with natural sediments.”²³</p> <p>Without determining the boundaries of continued contamination resulting from this spill, the Forest Service cannot accurately describe the extent of either the contamination or the impacts to the aquatic community. None of the sites sampled show levels of contamination at or near background levels that would delineate the outward extent of the contamination. Is the response plan for future spills, should they occur, to be a partial clean up and minimal monitoring, like has occurred since 1989?</p>	<p>Effects to aquatic resources from expansion of the existing TDF would be greatest in Tributary Creek. The report <i>Aquatic Biomonitoring at the Greens Creek Mine, 2011 Report</i> (ADF&G 2012) concludes that whole-body metals concentrations in juvenile Dolly Varden char collected in 2011 were not significantly different compared to data from previous years and, overall, the data suggest a productive aquatic community at Site 9.</p>
<p>²³ Available at: http://dnr.alaska.gov/mlw/mining/largemine/greenscreek/pdf/achawk2011.pdf SEACC Comments on Greens Creek Mine Tailings Dump Expansion DEIS, June 4, 2012</p>	<p>In Greens Creek, outside the TDF expansion area, the report (ADFG 2012) further concludes that fish tissue metals concentrations were similar in 2011 to those observed in previous years. Further, it states that, overall, samples collected in 2011 suggest a healthy aquatic community at Site 54. Recent recommendations from ADF&G for modification of the aquatic biomonitoring program included in the 2011 report (ADF&G 2012) are being considered.</p>
<p>18</p>	<p>Comment ID: BL.0.051</p> <p>Pool and riffle features have been added to the description of Tributary Creek in section 3.7.1.1. The quality of the habitat that could be lost is considered in the estimate of coho salmon smolt production, which is quantitative in its assessment.</p>
<p>Comment ID: BL.0.052</p> <p>The top of page 3-92 in the DEIS actually began a new subsection, the title of which was cut off during the document production process. That subsection is titled “Metals in Sediment in Hawk Inlet.” This error has been corrected in the FEIS.</p>	<p>Comment ID: BL.0.053</p> <p>Comment noted. The statement is valid based on the information reviewed in developing the EIS. The existing Hawk Inlet monitoring requirements were established by the USEPA and ADEC in the 2005 NPDES permit (AK0043206), following a public process. It was administratively extended in 2011. The ADEC is in the process</p>

Comment**3.17 Cultural Resources**

BL.0.055

This discussion does not explain the methodology used to evaluate the effects of the project alternatives on cultural resources. Although the DEIS notes oral histories “recounts of villages being crushed under the ice of advancing glaciers,” no mention is made of the affect of subsequent isostatic rebound on the physical location of cultural resources from the so-called Transitional stage. See DEIS at 2-230. Consequently, surveys of lower elevations are unlikely to find evidence of habitation sites from this period or adequately evaluate the impacts of this proposal’s alternatives on cultural resources.²⁴

3.19 Monument Values

BL.0.056

Contrary to the requirements of Sections 503 and 504 of ANILCA, all of the action alternatives will irreparably harm Monument values by resulting in the “permanent loss” of catalogued salmon habitat. The proposed action – Alternative B – causes the greatest permanent loss: 1646 feet of Class I stream habitat and 2400 feet of Class II stream habitat, both in Tributary Creek. These habitats contain a variety of anadromous and resident fish species that constitute a significant part of the “exceptional distribution of animal species” for which Admiralty Island is justly famed. Presidential Proclamation 4611 (Dec. 1, 1978). As President Carter stated in his proclamation “[p]rotection of the entire island . . . is necessary to *preserve intact* the unique scientific and historic objects and sites located there.” *Id.* (emphasis added).

Tributary Creek is rearing habitat for coho salmon and spawning habitat for coho, chum, and pink salmon. DEIS at 3-169. These salmon constitute an essential part of the local food chain and help support the “highest documented density of breeding bald eagles in North America.” *Id.* at 3-151. These eagles depend on fish and are therefore “susceptible to water quality impacts that adversely affect their prey populations.” *Id.* at 3-152. The Island also supports “one of the highest densities of brown bears in North America.” DEIS at 3-149. The bears also depend on salmon and would be adversely impacted by permanent stream habitat loss because they “avoid areas used by other bears *and by humans*” and do not make “optimal use of available salmon resources in *heavily altered landscapes*.” *Id.* at 3-150 (emphases added). The DEIS suggests that loss of salmon streams, “even less productive streams,” has a far greater impact on the brown bears than the equivalent loss of land habitat. *Id.*

Based on a map of Alternative B, more than half of the total length of Tributary Creek would be permanently destroyed by filling one part with tailings and converting another part to a “water management pond.” Moreover, Alternative B would result in the loss of 22 percent of the Tributary Creek watershed, which in turn affects Zinc Creek, into which Tributary Creek flows. Compared with the “no action” alternative, the proposed expansion would result in decreased water flow, although the exact amount of the expected decrease is vaguely and inadequately described in the DEIS. Alternatives C and D also result in decreased water flow compared with the “no action” alternative.

²⁴ See Baichtal, J.F., and R.J. Carlson 2010. “Development of a Model to Predict the Location of Early-Holocene Habitation Along the West Coast of Prince of Wales Island and the Outer Islands. Current Research in the Pleistocene Volume 27: 64-67.

Response

of reissuing the permit for the Greens Creek Mine under the APDES permit program; this process will include a public notice and comment period. This process could also result in changes to Hawk Inlet monitoring. Please see the response to Comment BL.0.008.

The records submitted (email and letter from ADEC) have been reviewed and incorporated into the record.

Comment ID: BL.0.054

The EIS describes the Hawk Inlet Monitoring Program, which requires regular monitoring of water quality, sediments, mussels, and worms at various locations in the inlet. The monitoring is required by ADEC.

ADEC’s August 2012 Draft Water Quality Monitoring and Assessment Report did propose to list just the portion of Hawk Inlet in the immediate vicinity of the 1989 ore spill as impaired but not the entire water body. The EIS has been modified in Section 3.7. 2.2 to reflect this recent proposed listing.

Since the spill did not occur on Forest Service lands we do not have jurisdiction over how contamination would be remedied. A determination of whether a cleanup is warranted and the extent to which it would need to be conducted is under the jurisdiction of ADEC. The fact that elevated levels of metals are present in the area of the spill that occurred in 1989 does not provide the Forest Service any additional data that would be useful in selecting among the alternatives under consideration in this NEPA action.

Comment ID: BL.0.055

Additional detail has been provided in Section 3.17.2 to describe the survey work done to establish baseline conditions. The quoted statement refers broadly to conditions in Southeast Alaska. The potential impact areas in the project area have already been surveyed for cultural resources directly; consequently, the relevance of isostatic rebound in affecting the detection or occurrence of potential sites is minimal.

Comment ID: BL.0.056

Section 3.19.3 addresses effects to fish and wildlife resources in the Monument. As noted in the EIS, the expansion of the existing tailings under any alternative would represent about 1/100th of 1 percent of the total Monument area. Local effects to fish and wildlife

Comment

Response

BL.0.056cont.

Overall, these consequences to surface waters within the Monument proposed in Alternative B would cause permanent loss of salmon, affecting important bald eagle and brown bear populations and undermining “the largest unspoiled coastal island ecosystem in North America.” Presidential Proclamation 4611. Even under the “no action” alternative, water treatment in the area will be necessary for at least 100 years and potentially in perpetuity. The additional, irrevocable loss, and adverse impact upon, stream habitats would produce irreparable harm to the Monument’s values of protecting objects of ecological and geological interest, and fish and wildlife values. This harm would be actual, imminent, substantial, and of long or permanent duration and therefore in contravention of section 503(i) and 504(f) of ANILCA.

3.23 Irretrievable and Irreversible Commitment of Resources

BL.0.057

Lastly, we must express our surprise and dismay on the failure of the Forest Service to identify the proposed permanent loss of salmon habitat in Tributary Creek and Fowler Creek from selection of one of the action alternatives as an irretrievable and irreversible commitment of resources. Even if one assumes that improvement of fish passage in Greens Creek will create new salmon habitat, such an outcome does not change the fact that expansion of Hecla’s tailings dump will result in the permanent loss of salmon habitat in contravention of sections 503, 504, and 505(a) of ANILCA.

Conclusion

BL.0.058

Thank you for your careful attention to these comments and the information submitted for the planning record. As noted above, we believe the best way for the Forest Service to address the substantive deficiencies we have identified in the DEIS is to prepare a supplemental DEIS for additional public comment and review. Such a supplement will advance NEPA’s purposes to promote efforts which will prevent or eliminate damage to the environment and to ensure informed and transparent environmental decision making.

Best Regards,



Buck Lindekugel
Grassroots Attorney



Guy Archibald
Mining & Water Quality Organizer

(including bears and eagles) are presented in sections 3.7 and 3.11, respectively.

Based on the ADF&G’s catalogued fish streams, there are 1,665,917 feet of anadromous streams on Admiralty Island. The proposed action, Alternative B, would impact approximately 1,646 feet of Tributary Creek, an anadromous fish stream. The 1,646 feet of impacted anadromous fish stream accounts for 0.098% of the total cataloged anadromous fish streams on Admiralty Island and does not include all the uncataloged streams.

Comment ID: BL.0.057

Table 3.23-1, page 3-288 of the DEIS included the direct habitat loss of about 4,000 linear feet of streams (Class I and II combined) by burial for Alternative B. Table 3.23-1 in the FEIS has been revised to include the Class II habitat lost for alternatives C and D in the Fowler Creek drainage.

Please note that a fish passage facility on Greens Creek will be repaired as mitigation for the loss of salmon habitat in the Tributary or Fowler Creek drainage.

Comment ID: BL.0.058

Comment noted. The Forest Service believes that the DEIS provides the hard look at a range of alternatives as required by NEPA and that a supplemental draft is unwarranted.

Comment

Response

**ATTACHMENTS TO SEACC'S COMMENTS
ON GREENS CREEK MINE TAILINGS DUMP EXPANSION DEIS
JUNE 4, 2012**

The documents listed below were combined into a PDF Portfolio and submitted with our comments on the Greens Creek Mine Tailings Dump Expansion DEIS.

1. Power, The Role of Metal Mining in the Alaskan Economy (2002)
2. Letter from SEACC to Monument Ranger VanOrmer (Dec. 9, 2011).
3. SEACC's Informal Request for Review of APDES AK0043206 (Oct. 13, 2011)
4. SEACC's Statement in Support of Request for Informal Review (Oct. 13, 2011)
5. Director Bonnet's response to SEACC (Oct. 28, 2011)
6. Letter from Dr. David M. Chambers of the Center for Science in Public Participation to SEACC (Nov. 18, 2011)
7. Letter from SEACC to ADEC APDES WWP Manager Morgan (Dec. 8, 2011)
8. Memo from Timothy, ADF&G Southeast Regional Supervisor (Sept. 26, 2011)(detailing observed leaching from legacy production rock at Site C into Greens Creek)
9. Gilliam, REVISED Greens Creek Mine Proposed Tailings Disposal Facility Expansion (Feb. 29, 2012)
10. Letter from Archibald, SEACC to Grant, ADEC (Sept. 14, 2011)(SEACC's Nominations for 303d Listing)
11. ADEC's 11-11-11 Response to CORMIX Modeling PRR at 19; *see also* ADEC's 12-23-11 Response to 2nd CORMIX Modeling PRR
12. ADEC's 12-23-11 Response to 2nd CORMIX Modeling PRR

Comment

Response

Comment Form

**Greens Creek Mine
Tailings Disposal Facility Expansion
Environmental Impact Statement**

Name: Bride Seifert
 Date: 5/31/2012
 Organization (if applicable): _____
 Mailing Address: 4770 N. Douglas Hwy
 Email Address: hibride@gmail.com

Comments:
 ① The life of the mine could be 30-50 years longer than the current plan for impacts from development. That is untenable. The plan including risk mitigation and insurance against default need to cover the entire potential life of the mine and beyond. It is not acceptable to promote short term gain over long term risk.
 ② The Forest Service should require adequate financial assurances to cover potential water treatment. Better yet, pyrite should be removed from the tailings to avoid acidification.
 ③ The draft EIS needs estimates of short + long term costs to the HGCMC of the proposed mitigation measures.

Return written comments at the meeting or send to the Forest Service no later than **June 4, 2012.**

Address: Admiralty Island National Monument
 Tongass National Forest
 ATTN: Greens Creek Tailings Expansion
 8510 Mendenhall Loop Road
 Juneau, AK 99801

e-mail: comments-alaska-tongass-admiralty-national-monument@fs.fed.us
 Subject: Greens Creek Tailings Expansion

Fax: (907)586-8808

Date Received
JUN 04 2012

Comment ID: BS.0.001

This EIS evaluates the 30- to 50-year mine life proposed by the mine operator. Operations beyond this time frame are not reasonably foreseeable; however, sections 3.22.1 and 3.22.2, Cumulative Effects, have been revised to state that mining could potentially continue until 2095, as authorized by the Greens Creek Land Exchange Act. The process for establishing financial assurance for the long-term closure of the site is discussed in Section 1.8.3.1 and Appendix B.

Comment ID: BS.0.002

The process for establishing financial assurance for the long-term closure of the site is discussed in Section 1.8.3.1 and Appendix B.

The Forest Service considered pyrite removal in previous NEPA actions and for this tailings expansion EIS and determined that it was not a reasonable alternative to carry forward for detailed analysis. Section 2.5.3 of the DEIS explains that pyrite removal was eliminated from further consideration due to the logistical and operational constraints of placing the required facilities at the current mill site and the risk to water quality and aquatic life that comes with handling chemically reactive pyrite material.

Comment ID: BS.0.003

The regulations in 36 CFR 228.80(c)(ii) require the authorized officer to consider the long- and short-term costs of mitigation measures in terms of the economic viability of the operations. The regulation does not indicate that this consideration must be included as part of the NEPA analysis. Based on comments received from HGCMC, the authorized officer has no indication that any of the mitigation measures would jeopardize the economic viability of the Greens Creek operation.

Comment**Response****Comment ID: CB.0.001**

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Monday, June 04, 2012 10:43 AM
To: Cox, David; Weglinski, Gene
Cc: Samuelson, Sarah J -FS
Subject: FW: Comments

 Karen Iwamoto
 Land Management Planner
 Tongass National Forest
 907-747-4230
kiwamoto@fs.fed.us

From: Corey Baxter [<mailto:cbaxter@iuoe302.org>]
Sent: Monday, June 04, 2012 9:33 AM
To: FS-comments-alaska-tongass-admiralty-national-monument
Subject: Comments

CB.0.001

The Greens Creek Mine has operated in an environmentally responsible manner on Admiralty Island for the past 25 years. In order for the company to continue to be successful, and to contribute meaningfully to our regional economy, it needs to expand its dry stack tailings disposal site. I believe that Alternative B, the alternative recommended by HGCMC, is the most environmentally sound and economically feasible plan for this expansion. This alternative reduces the size of the potential impact, and keeps all the tailings together in the same location. HGCMC intends to use the same disposal methods and management procedures as they have used in the past, methods and procedures approved by all regulatory agencies with jurisdiction over this mine. The operating Engineers Local 302 are in full support of Alternative B. Thank you

Corey Baxter
 District 8 Representative
 Operating Engineers Local 302
 9309 Glacier Hwy. Bldg A-105
 Juneau, AK 99801
cbaxter@iuoe302.org
 Office (907)586-3850
 Cell (907)321-4271
 Fax (907)463-5464

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Comment

Response

Comment ID: CM.0.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.



REPRESENTATIVE CATHY MUÑOZ

May 17, 2012

Mr. Chad VanOrmer, District Ranger
Ms. Sara Samuelson, Interdisciplinary Team Leader
Admiralty Island National Monument, Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

Dear Mr. VanOrmer and Ms. Samuelson,

CM.0.001

I am writing in support of Hecla Corporation's request to expand the tailings disposal facility at Greens Creek Mine. Hecla Mine Corporation has demonstrated its commitment to responsible development in Southeast Alaska and has an excellent history of being good stewards of the land by ensuring that the environment is protected while our valuable resources are extracted.

Greens Creek Mine provides important employment opportunities to Southeast Alaska residents and has partnered with the University of Alaska Southeast and the Department of Labor to ensure residents have an opportunity for training and employment in the mining industry.

Currently, Greens Creek Mine is the largest private sector employer in Southeast Alaska, employing 370 residents (530 direct and indirect jobs) with payroll and benefits that exceeds \$32 million. Greens Creek also pays over \$1 million in property taxes and over \$5 million for a license tax; all of which has an enormous positive economic impact for Southeast communities and the State of Alaska.

The planned expansion of the tailings storage capacity in a Southward direction from the existing site will ensure a small footprint by using existing infrastructure and minimizing environmental effects by not constructing a new remote tailings disposal site. It also maximizes the benefit of the project by extending the life of the mine.

Thank you for the opportunity to provide my perspective as you frame the issues for analysis in the Environmental Impact Statement.

Sincerely,


Cathy Muñoz
Representative for District 4

STATE CAPITOL • JUNEAU, ALASKA 99801-1182 • (907) 465-3744 • FAX (907) 465-2213
REPRESENTATIVE_CATHY_MUNOZ@LEGIS.STATE.AK.US

Comment

Response



3100 Channel Drive, Suite 300 • Juneau AK 99801 • (907) 463-3488 • Fax (907) 463-3489
 E-mail: iuneauchamber@eci.net • ice@alaska.com • Web site: <http://www.iuneauchamber.com>

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- Sheldon Winters, *President*
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- GCI Communications
- Juneau Empire
- Juneau Radio Center
- Sealaska

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- Alaska Lobo
- Alaska Marine Lines
- Alaska Pacific Bank
- Alaska USA FCU
- Alaskan Brewing Company
- Bartlett Regional Hospital
- BP Alaska
- CBJ (Manager's Office)
- Capital Office Supply
- Coeur Alaska, Inc.
- Coogan Construction
- Copy Express
- Elgee Reifeld & Mertz
- First National Bank of Alaska
- Hecla Greens Creek Mining
- Golfshek, Inc.
- Huna Totem
- Shattuck & Grummett
- Taku Oil
- True North FCU
- UAS
- Wells Fargo Bank of Alaska
- Westmann and Associates

Admiralty Island National Monument-Tongass National Forest
 8510 Mendenhall Loop Road
 Juneau, Alaska 99801

RE: Greens Creek Tailings Expansion

CR.0.001

On behalf of the directors, nearly 400 business members and officers of the Juneau Chamber of Commerce we would like to strongly support the "Greens Creek Tailings Facility Expansion Plan", Alternative B, which we agree is the most environmentally sound, technically feasible, and economically viable alternative analyzed in the EIS.

CR.0.002

Over the last 25 years Greens Creek Mine has grown to be the largest private sector employer in Juneau with 370 employees, 90% of the 75% Alaska residents who work at the mine reside in SE Alaska and their payroll including benefits reached \$47 million last year and they were the largest property tax payer in Juneau. Additionally and most critical to the business community is that their total direct spending in SE Alaska on goods and services totaled \$27 million. When a local non-profit organization or charity calls on Greens Creek for help they are right at the front of the line with not only money but volunteers as well.

Recently Hecla Greens Creek Mining gave \$300,000 to University of Alaska (UAS) to help fund "Pathways to Mining Careers" and The UAS Center for Mine Training Career Education. Due to a projected 14% decline in SE Alaska's population over the next 20 years the Juneau Chamber has made it a top priority to help come up with solutions to retain our youth here in Juneau as they move into adulthood and begin their careers and families. Jobs at Greens Creek are some of the highest paying jobs in Juneau which make living in one of the least affordable cities in Alaska once again affordable to raise a young family in. This is not because the cost of living has gone down!

In 2003 the Forest Service approved a "Tailings Facility Expansion" for Greens Creek that was projected, by them (Greens Creek), to last 22 years, and here's the kicker every business would love to be able to report; *business is booming*, daily tonnage has increased to such a degree that they will have grown out of their current facility in less than half of the projected timeline. Another point of importance is that due to additional clean-up efforts at the site they have also been stacking waste rocks at the facility as well. Greens Creek miners have remained successful in managing their tailings facility in an environmentally sound and safe manner for many, many years. It is our hope that they will be allowed to continue for very many more. Reclamation efforts at Greens Creek have also been very successful, yes grass, vegetation and trees do grow back with proper care and effort. Wildlife continues to thrive on Admiralty Island.

We believe that the Greens Creek Mine's proposal to expand their tailings facility, (Greens Creek Tailings Facility Expansion Plan, Alternative B) is critical to the economic future of not only Juneau but to all of SE Alaska. We just can't afford to lose Greens Creek, it would be extremely damaging to our business community, economy, population, spirit and future.

Sincerely,

Cathie Roemmich, CEO
 Juneau Chamber of Commerce



Comment ID: CR.0.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment ID: CR.0.002

Comment noted. The EIS presents a discussion of socioeconomic effects of the alternatives in Section 3.18. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment

Response

From: [Cade Smith](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: "Greens Creek Tailings Expansion"
Date: Thursday, May 31, 2012 1:24:46 PM

CS.0.001

I am in favor of the expansion of the Greens Creek tailings dam. Please approve the project as soon as possible. The mine at Greens Creek provides excellent jobs and they are good citizens in the Juneau area. This country would not be the great place that it is to live without the mining industry, the jobs they provide and the products they produce.

*Cade Smith
Juneau, Alaska*

Comment ID: CS.0.001

Comment noted. Please note that there is no tailings dam at the Greens Creek Mine; the tailings are disposed of in a "dry stack," as discussed in Section 2.4.3.1. The socioeconomic effects of the project are presented in Section 3.18.3.

Comment

Response

From: [Deryl Box](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: "Greens Creek Tailings Expansion"
Date: Thursday, May 31, 2012 1:09:05 PM

DB.0.001

I am in favor of the expansion of the Greens Creek tailings dam. Please approve the project as soon as possible. The mine at Greens Creek provides excellent jobs and they are good citizens in the Juneau area. This country would not be the great place that it is to live without the mining industry, the jobs they provide and the products they produce.

Thank you,

Deryl A. Box
570 Kentshire Drive
Fairbanks, AK 99709

Cell 907-460-2537
e-mail d.box@cmiak.com

Comment ID: DB.0.001

Comment noted. Please note that there is no tailings dam at the Greens Creek Mine; the tailings are disposed of in a "dry stack," as discussed in Section 2.4.3.1. The socioeconomic effects of the project are presented in Section 3.18.3.

Comment

Response

CENTER for SCIENCE in PUBLIC PARTICIPATION

224 North Church Avenue, Bozeman, MT 59715
 Phone (406) 585-9854 / Fax (406) 585-2260 / web: www.csp2.org / e-mail: csp2@csp2.org
"Technical Support for Grassroots Public Interest Groups"



June 4, 2012

Admiralty Island National Monument
 Tongass National Forest
 ATTN: Greens Creek Tailings Expansion
 8510 Mendenhall Loop Road
 Juneau, AK 99801
comments-alaska-tongass-admiralty-national-monument@fs.fed.us

U.S. Army Corps of Engineers
 Alaska District, Regulatory Division
 ATTN: Heidi Firstencel
 Juneau Field Office
 8800 Glacier Highway, Suite 106
 Juneau, AK 99801
heidi.x.firstencel@usace.army.mil

Re: Comments on the Draft Environmental Impact Statement Greens Creek Mine Tailings Disposal Facility Expansion

The Center for Science in Public Participation provides technical advice to public interest groups, non-governmental organizations, regulatory agencies, mining companies, and indigenous communities on the environmental impacts of mining. CSP2 specializes in hard rock mining, especially with those issues related to water quality impacts and reclamation bonding.

SECTION-SPECIFIC COMMENTS

Section 2.3.3 Alternative C: New TDF Located Outside Monument

Alternative C would involve placement of the final cover and revegetation of the existing TDF with closure of the final active disposal areas as soon as possible following tailings placement (beginning in approximately 3 years).

DC.0.001 The cover design for the tailings and waste rock is innovative. However, because it is innovative, there are likely to be some surprises associated with a new design. From a long-term closure standpoint there would be a significant advantage to closing the existing TDF under Alternative C so that the effect of the cover design on inhibiting AMD could be evaluated for an additional 10 years, as compared to the preferred Alternative D, before complete mine closure. Having the mine operator onsite to monitor and make engineering changes would be advantageous.

Section 2.4.4 Water Management

DC.0.002 Collected process wastewaters are treated at the Pond 7 Wastewater Treatment Plant to meet effluent limits identified in the APDES permit prior to discharge through a diffuser outfall located in Hawk Inlet.

Comment ID: DC.0.001

Comment noted. The previous operator of the site, Kennecott Greens Creek Mining Company, installed a 2-acre test cover of the design over a portion of the waste rock dump in 2000. That cover's performance was monitored regularly and documented in Hopp, Giesen, and McDonnell (2010). Hopp, L., T. Giesen and J. McDonnell. 2010. Hydrological Performance of Cover Systems at the Greens Creek Mine: Combined Field-Modeling Analysis. Final Project Report. Oregon State University. Corvallis OR.

We agree that Alternative C would provide an additional 10 years of data on the behavior of acid generation in the dry stack while the operator continued mining and disposal activities on site. However, the test cover should help minimize the potential for surprises regardless of the alternative selected.

Comment ID: DC.0.002

Comment noted. The EIS has been modified throughout to reflect that the issuance of the APDES permit was stayed by ADEC. The EIS has been modified throughout to reflect the current status of the APDES permit (AK0043206). Sections 1.2, 1.8.3.3, 2.4.4, and 3.5.2.1, among others referring to the permit, have been modified to reflect that the 2005 NPDES permit conditions have been administratively extended until the APDES permit is reissued.

Reissuance of the wastewater discharge permit is a process independent from the proposed action under consideration. As noted in comments and in the EIS in Section 1.8.3.1, the Forest Service is responsible for ensuring that the CWA requirements are met on National Forest System lands. Regulations in 36 CFR 228.8(h) state that "certification of 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 these regulations."

For this reason, the Forest Service defers to the USEPA's and ADEC's expertise in managing the reissuance of the authorized wastewater discharge permit and assumes for the purposes of this analysis that the permitted discharge complies with the CWA. The Forest Service recognizes that the discharge is being conducted as a legally permitted activity and that the discharge into Hawk Inlet is protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, and other aquatic life and wildlife.

Comment

Response

Page #2

DC.0.002 The Greens Creek Mine was permitted in 1983, and limits for the discharge into Hawk Inlet are based on minimum treatment procedures (New Source Performance Standards) developed by EPA in 1982. Even though treatment technologies have advanced significantly in the past 30 years, the APDES permit renewed by ADEC in November, 2011, still allows a discharge of wastewater into Hawk Inlet at the same limits as originally determined/permitted in 1983.

DC.0.003 The discharge at New Source Performance Standards limits is acutely toxic to aquatic organisms, and requires a mixing zone in Hawk Inlet. The performance of the mixing is determined by a computer model. Actual water quality measurements are taken only once a quarter. None of the water quality measuring stations are at the edge of, or in, the mixing zone.

The mixing zone in Hawk Inlet is a 3-dimensional feature that is influenced by tides and the instantaneous volume of the discharge. Even if a water quality measuring station were located on the edge of the mixing zone it would be very difficult to actually verify the effectiveness of the mixing. The grab samples being collected at sampling points outside the mixing zone on a quarterly basis are not adequate to measure the effects of the mixing zone.

DC.0.004 An example of a more sophisticated and effective treatment approach can be seen at the Pogo Mine near Delta Junction, Alaska, where an “off-river treatment” brings the Pogo wastewater up to aquatic water quality standards before it is discharged. Not only does this eliminate any concern for potential effects in a “mixing zone” in the receiving waterbody (the Goodpaster River), but it also allows accurate measurements to be made at the point of discharge.

DC.0.005 **Recommendation:** *If the wastewater discharge into Hawk Inlet were updated with 21st century treatment methods, like an “off-inlet treatment” approach, regulatory certainty could be achieved, and unintended impacts in the mixing zone could be avoided.*

Section 2.4.8 Reclamation and Closure

DC.0.006 The present reclamation bond for the Greens Creek mine is \$30,455,000. (DEIS, Appendix B, p. B-8)¹ This is essentially an inflation update of the reclamation bond approved for ADEC Solid Waste Management Permit 0211-BA001, which was issued in November, 2003, and administratively extended in October, 2008.²

For the 2003 Solid Waste Permit bond calculations it appears that it was assumed water treatment would be needed for only 7 years after mine closure.³

DC.0.007 The timeline for post-closure water treatment has changed significantly since the Solid Waste Permit and post closure financial surety were last updated.⁴ In the current DEIS it is noted:

“A comparison of the predicted water quality of the tailings wastewater at the TDF boundary and in the wet wells with the Alaska fresh WQS indicates that the Alaska fresh WQS would not be met for iron, manganese, zinc, sulfate, and total dissolved solids even several years after closure. It also indicates that the wastewater at the TDF boundary would not meet the Alaska marine WQS for manganese and zinc. These data indicate that water treatment would be required at least 100 years after closure of the TDF(s), perhaps in perpetuity.” (DEIS, p. 3-58) (emphasis added)

¹ Draft Environmental Impact Statement Greens Creek Mine Tailings Disposal Facility Expansion, USDA Forest Service, by Tetra Tech, April 2012

² <http://dnr.alaska.gov/mlw/mining/largemine/greencreek/index.htm>, viewed 28May12.

³ see Response to Comments –Kennebecott Greens Creek Mine Waste Management Permit #0211-BA001, William D. McGee, ADEC, 7 Nov03, pp. 5-7

⁴ CSP2 had suggested this possibility in comments to ADEC in 2003on the financial surety required for the Greens Creek Solid Waste Permit.

Comment ID: DC.0.003

Please see the response to Comment DC.0.002.

Comment ID: DC.0.004

Please see the response to Comment DC.0.002. The Forest Service has no authority over the permit reissuance process and cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, or monitoring requirements associated with the permit. Since the discharge is and will continue to be permitted by agencies with authority for CWA compliance, the Forest Service considers the discharge to be protective of water quality for the purposes of this analysis (36 CFR 228.8(h)). As such, the EIS does not consider alternative discharge or treatment scenarios.

Comment ID: DC.0.005

Comment noted. Please see the responses to comments DC.0.002 and DC.0.004.

Comment ID: DC.0.006

The DEIS acknowledges in Appendix B that the current reclamation bond needs to be updated to take into account the TDF expansion and the newly identified need for long-term water treatment. The DEIS contains an extensive discussion of the components that will be required of the updated financial assurance and the process that the Forest Service and State of Alaska follow to do this.

Comment ID: DC.0.007

As noted in the comment, the recent environmental audit (SRK 2009) identified a concern regarding the uncertainty in the need for long-term water treatment. Based on that concern, SRK recommended that the site should continue to collect the data needed for assessing long-term water quality treatment, treatment requirements, and treatment options.

The EIS identified the need for long-term water treatment. Thus, financial assurance for long-term water treatment will be required. This is reflected in the EIS (see sections 2.4.8.2, 3.4.4, and 3.5.3.1 and Appendix B). See the response to Comment DC.0.008 regarding the difficulty of including a cost estimate in the EIS. The reclamation and closure plan and financial assurance will be updated as a separate process following, and based on direction in, the Record of Decision.

Comment	Response
<p><u>Page #3</u></p>	
<p>DC.0.007</p>	
<p>The increased time required for water treatment will significantly increase the cost of the financial surety.</p> <p>The 7-year treatment timeline also applies to the calculations done for the current Reclamation and Closure plan in Appendix F, which was developed by Kennecott in 2008.</p> <p><i>"HGCMC has submitted revisions to its approved reclamation and closure plan to the Forest Service and the State of Alaska. HGCMC assumes that a substantial amount of site-specific reclamation experience and performance data would be available at final closure. ... The current reclamation and closure plan is included in Appendix F." (DEIS, p. 2-25)</i></p> <p>Although no cost calculation details are provided in Appendix F, the estimate for the reclamation bond in Appendix F (table labeled 'Reclamation Cost Revision Summary') is approximately \$44 million. When long term water treatment is included in these calculations, this cost could easily double.</p> <p>If the reclamation and closure estimate is off by 10-20 percent, there is a significant financial risk to taxpayers should the mine go bankrupt. In its 2009 Environmental Audit, SRK Consultants noted that <i>"The need for long-term water treatment represents the greatest uncertainty in the Reclamation Plan and cost estimate."</i> (SRK, 2009, p. 112)⁵ SRK also noted several other potentially significant discrepancies with the Reclamation and Closure Plan, including the fact that indirect management costs were low (SRK, 2009, p. 112), and that inflation was not included in the bond (SRK, 2009, p. 64).</p> <p>As presented in the DEIS, the Reclamation and Closure Plan financial surety estimate is inadequate. Long term water treatment costs are not adequately addressed, the cost estimate is out of date (2008), and there is no detail presented to substantiate the cost estimate presented.</p>	<p>Comment ID: DC.0.008</p> <p>Appendix B of the EIS states that (1) the Forest Service is committed to requiring water treatment for as long as needed beyond mine closure and (2) the Forest Service will require that the updated financial assurance includes costs for long-term water treatment. Appendix B specifies that, for the purposes of cost estimation, 100 years of water treatment is assumed. Even though water treatment could occur for a longer time, the bond estimate remains approximately the same for treatment beyond 100 years.</p>
<p>DC.0.008</p>	
<p>Recommendation: A Reclamation and Closure Cost Estimate with an adequate level of detail, and that includes water treatment in perpetuity, should be presented to the public for review and comment.</p>	<p>A numerical estimate of the reclamation and closure cost is not included in the EIS, since this amount will be determined after the ROD is issued. At that time there will be certainty regarding the selected alternative, mitigation measures that will be required, and any other stipulations.</p>
<p>Section 2.7 Comparison of Alternatives</p>	
<p>DC.0.009</p>	
<p>In reviewing the information in Table 2.7-1 ('Summary of Potential Impacts of Each Alternative by Resource'), Alternative C rates the same or better than Alternative D in every category assessed.</p>	<p>We believe that the written commitment to require water treatment and to update the financial assurance is sufficient disclosure for the purposes of NEPA, without having to include an uncertain cost estimate. The Forest Service requires the submittal of a bond for reclaiming disturbances before approval of a plan of operations and implementation of the action (see FEIS Section 2.4.9.2).</p>
<p>DC.0.010</p>	
<p>In reviewing Section 2.3.3 (above) it was noted that Alternative C also provides a significant reclamation cover assessment advantage. It is not clear from the DEIS why the Forest Service has judged Alternative D to be better than Alternative C. Alternative D does provide HGCMC more time to make the move to the new north tailings storage area, but there is no rationale presented in the DEIS as to why this factor should determine the choice of the Preferred Alternative.</p>	<p>The Forest Service's administration regulations do not require public review and comment on the reclamation and closure estimate. The State process does allow for public comment. This is disclosed in Appendix B of the EIS. Also see the response to Comment DM.3.007.</p>
<p>DC.0.011</p>	
<p>Recommendation: Lacking more justification, it would appear that Alternative C is a better choice than Alternative D.</p>	<p>Comment ID: DC.0.009 Comment noted.</p>
<p>Section 3.3 Geotechnical Stability</p>	
<p>DC.0.012</p>	
<p>There are several aspects of the geotechnical stability analysis that raise concern for the long term seismic stability of the facility. The first concern is related to the way the peak ground acceleration due to a nearby earthquake was determined. In the DEIS it is stated:</p> <p><i>"Based on regional active faults and other potential sources zones, this study recommended a maximum design earthquake peak ground acceleration of 0.3 g (gravitational force) and a design</i></p>	<p>Comment ID: DC.0.010</p> <p>The DEIS did not identify an agency-preferred alternative because none existed at the time. The FEIS includes a preferred alternative, consistent with 40 CFR 1502.14(e).</p>
<p>⁵ SRK, 2009, <u>Environmental Audit of the Greens Creek Mine</u>, SRK Consulting (US) Inc., March 2009</p>	<p>Comment ID: DC.0.011</p> <p>Comment noted. The FEIS presents the Forest Service's identification of the preferred alternative (see Section 2.3.6).</p>

Comment

Response

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basis earthquake peak ground acceleration of 0.15 g for the site to ensure an adequate level of geotechnical stability.”(DEIS, p. 3-19)

The Maximum Design Earthquake used to determine the peak ground acceleration of 0.3 g was derived using an earthquake that was 75% of the Maximum Credible Earthquake. (Klohn Crippen, 2006, page 11)⁶ The Maximum Design Earthquake represents the ground motions or fault movements from the most severe earthquake considered at the site, relative to the acceptable consequences of damage in terms of life and property. (ADNR, 2005, pp. 6-6, 6-7)⁷

The estimated largest earthquake that could occur at any given location is called the Maximum Credible Earthquake. The Maximum Credible Earthquake is defined as the greatest earthquake that reasonably could be generated by a specific seismic source, based on seismological and geologic evidence and interpretations. (ADNR, 2005, p 6-6) The Maximum Credible Earthquake is often associated with a recurrence interval of 10,000 years.⁸

For most structures, including the design of buildings and other structures that are designed with finite lifetimes, the choice of a Maximum Design Earthquake is often one with a recurrence interval significantly less than that of the Maximum Credible Earthquake, since these structures will not be used indefinitely.

However, the choice of the Maximum Credible Earthquake as the Maximum Design Earthquake for a tailings facility is an appropriately conservative choice for the design seismic event. Tailings structures require a very conservative choice of design event. Once these structures are built, it is not economically or environmentally viable to move the waste that is impounded behind the dam. The dam must hold this waste safely in perpetuity. We don't know how long 'perpetuity' is, but 10,000 years (e.g. the approximate time since the last ice age) is a minimum approximation.

The use of 0.3g peak ground acceleration most probably underestimates the maximum ground acceleration the tailings facilities could experience.

Recommendation: *The peak acceleration due to the Maximum Credible Earthquake, not 75% of the Maximum Credible Earthquake, should be used as the Maximum Design Earthquake for mine facilities that must stand in perpetuity. At Greens Creek this would be the tailings and waste rock facilities.*

DC.0.013

Section 3.3.3 Geotechnical Stability – Environmental Consequences

The second concern for long term seismic stability is that pseudo-static analysis technique was used to evaluate the long term seismic stability of the tailings and waste rock facilities. (DEIS, p. 3-21)

DC.0.014

Today, few US regulatory agencies accept pseudostatic methods for seismic design of new dam projects. Seismic loading need not be considered for most new dams if the maximum credible earthquake produces a peak ground acceleration of less than 0.1 g at the site. The Federal Energy Regulatory Commission, which is responsible for many large dams in the US, has commented:

DC.0.015

“A pseudostatic analysis (sometimes called seismic coefficient analysis) should only be considered as an index of the seismic resistance available in a structure not subject to build-up of pore pressure from shaking. It is not possible to predict failure by pseudostatic analysis, and other types of analysis

⁶ Klohn Crippen, 2006, *Greens Creek Mine Stage 2 Tailings Expansion Overall Stability Update*, Klohn Crippen Ltd., 1Mar06

⁷ ADNR, 2005, *Guidelines for Cooperation with the Alaska Dam Safety Program*, Prepared by Dam Safety and Construction Unit, Water Resources Section, Division of Mining, Land and Water, Alaska Department of Natural Resources, June 30, 2005

⁸ Wieland, 2008, *Large Dams the First Structures Designed Systematically Against Earthquakes*, Martin Wieland, ICOLD, The 14th World Conference on Earthquake Engineering, Beijing, China, October 12-17, 2008

Comment ID: DC.0.012

Long-term stability, both static and dynamic, will need to be addressed in detail during final design of the new dry-stack facility. However, these analyses are not appropriate for an alternatives investigation, nor will they have a significant impact on the choice among alternatives, because the seismic considerations will be roughly equal for all alternatives (see DEIS Section 3.3.4).

In addition, because this facility will not be impounding water, regulations pertaining to dams do not apply to the proposed facility. The facility will fall under the jurisdiction of ADEC Solid Waste Regulations (18 AAC 60), which require conceptual consideration of stability during permitting and detailed stability analyses prior to closure.

Comment ID: DC.0.013

Comment noted. See the response to Comment DC.0.012.

Comment ID: DC.0.014

Comment noted. See the response to Comment DC.0.012.

Comment ID: DC.0.015

Comment noted. The TDF is a dry-stack design not intended to impound either tailings or water. Therefore, the TDF is not comparable to a “large dam,” nor would it be subject to Federal Energy Regulatory Commission regulations. Also see the response to Comment DC.0.012.

Comment

Response

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are generally required to provide a more reliable basis for evaluating field performance.” (FERC, May 2005)⁹

and;

“FERC practice previously allowed the use of the pseudostatic method of analysis in areas of low or negligible seismicity (peak ground accelerations of 0.05g or less). FERC no longer uses a pseudostatic analysis to judge the seismic stability of embankment dams.” (USSD, February 2007, p. 13)¹⁰

Despite these recommendations from organizations with long experience in analyzing and managing the construction and long term operation of dams, many consultants continue to pseudostatic analysis instead of dynamic analysis for tailings dams, even in areas of moderate and high seismicity.

This is probably because pseudostatic analysis is less expensive than dynamic analysis. The most rigorous dynamic methods would use finite element or finite difference programs in which dynamic response, pore-pressure development, and deformations can be fully coupled.

Pseudostatic analysis also relies a great deal on the use of professional judgment. Professional judgment is based on 50 years of experience with tailings dams, however tailings dams must stand in perpetuity.

Recommendation: Dynamic modeling, rather than pseudostatic modeling, should be used to analyze the stability of the tailings and waste rock facilities at Greens Creek.

DC.0.016

Appendix E. Greens Creek Liner Dry Stack Construction

There are no details – liner material type, thickness, leak detection, etc. – in the DEIS, including in Appendix E. Leak detection and groundwater monitoring locations would be important for Alternatives C and D since the tailings facility would be located in a different drainage.

DC.0.017

Recommendation: More detail on the design and construction requirements for the liner for Alternatives C & D should be provided.

DC.0.018

Thank you for the opportunity to comment on this Draft EIS.

Sincerely:



David M. Chambers, Ph.D., P. Geop.

⁹ FERC, 2005, Federal Guidelines for Dam Safety Earthquake Analyses and Design of Dams. Federal Energy Regulatory Commission, May 2005

¹⁰ USSD, 2007, Strength of Materials for Embankment Dams. United States Society on Dams, February 2007

Comment ID: DC.0.016

Comment noted. See the response to Comment DC.0.012.

Comment ID: DC.0.017

The new TDF would be developed in the same manner as the existing TDF, including the design and construction and operation of the sub-drains, liner, and tailings placement. New finger and blanket drains would be placed to form the facility underdrain system. The underdrains would be built on a pad of nonreactive material. See EIS sections 2.3.3 and 2.3.4. Seepage through the TDF flows to the TDF underdrain collection system and is collected by a series of wet wells at the base of the TDF (EIS Section 2.4.4).

The operator will be required to submit a development plan, consistent with the selected alternative based on this analysis, that specifies the use of liners or other devices to prevent adverse impacts to groundwater and surface water and specifies the use of underdrains, finger drains, and french drains in a way that allows for tailings contact-water to be effectively controlled.

Monitoring will be required consistent with the GPO and State of Alaska Waste Management Permit, updated to reflect the selected alternative prior to development.

Comment ID: DC.0.018

See the response to Comment DC.0.017.

Comment



ALASKA MINERS ASSOCIATION, INC.

3305 Arctic Blvd., #105, Anchorage, Alaska 99503 • 907) 563-9229 • FAX: (907) 563-9225 • www.alaskaminers.org

June 4, 2012

Admiralty Island National Monument – Tongass National Forest
Attn: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

Via email: comments-alaska-tongass-admiralty-national-monument@fs.fed.us

Re: Support of Greens Creek Tailings Facility Expansion - EIS Alternative B

DC.1.001

The Alaska Miners Association writes to express support for the U.S. Forest Service (USFS) Environmental Impact Statement (EIS) Alternative B, regarding the expansion of the tailing facility at the Greens Creek Mine.

The Alaska Miners Association (AMA) is a non-profit membership organization established in 1939 to represent the mining industry in Alaska. AMA is composed of more than 1400 individual prospectors, geologists and engineers, vendors, suction dredge miners, small family mines, junior mining companies, and major mining companies. Our members look for and produce gold, silver, platinum, lead, zinc, copper, coal, limestone, sand and gravel, crushed stone, armor rock, and other materials.

The Greens Creek Mine, an underground operation near Juneau, produces silver, lead, zinc, and gold. Operating since 1987, the mine employs 360 people. The operator, Hecla Greens Creek Mining Company, is a good steward of the land and has maintained a minimal environmental footprint.

Hecla utilizes a dry-stack tailings disposal process, in which tailings are dewatered in a filter press and either mixed with cement and deposited back into mined-out areas underground, or placed in the tailings disposal facility. This facility has a liner system in which tailings are fully contained, and all contact water is collected and treated. Hecla must expand this facility in order to continue operations into the future. Alternative B in the EIS is clearly the best option to abide by the original USFS agreement of maintaining a minimal disturbance area:

DC.1.002

- Expansion would occur in a portion of just one watershed, Tributary Creek, versus a separate facility with multiple watersheds, creating a larger disturbance area.
- Alternative B would utilize existing facilities and infrastructure for the expansion, and prevent major construction to the road that serves for tailings delivery.
- Hecla has determined that Alternative B has the least impact on wildlife.
- The operation will utilize similar tailings disposal techniques, reclamation measures, and environmental protections that have been previously approved and are currently in place.

DC.1.003

The Greens Creek Mine is the largest year-round private employer in Southeast Alaska. Expansion of the tailings facility will ensure that the mine can continue to provide these jobs, as well as the economic benefits to suppliers and local communities, into the future.

DC.1.004

In summary, AMA urges the USFS to approve EIS Alternative B to expand the tailings facility at Greens Creek, which will allow for up to 50 additional years of production. Thank you for the opportunity to comment on this important issue.

Sincerely,

Deantha Crockett
Executive Director

Response

Comment ID: DC.1.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment ID: DC.1.002

Comment noted. The Forest Service's decision and the rationale for making it are presented in the Record of Decision.

Comment ID: DC.1.003

Comment noted. Section 3.18 discusses the socioeconomic impacts of the project.

Comment ID: DC.1.004

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment	Response
<p>Admiralty Island Natural Monument Tongass National Forest Attn: Greens Creek Tailings Expansion 8510 Mendenhall Loop Road Juneau, AK 99801</p>	<p>Comment ID: DG.0.001 Comment noted. However, the NEPA analysis discloses in Section 3.5.3.1 that, based on current conditions, leachate (drainage) from the TDF will need to be controlled, treated, and regulated by a discharge permit both during operations and after closure. In addition, the Forest Service will require financial assurance to ensure that treatment occurs for as long as needed.</p>
<p>DG.0.001 My concern addresses the long term life of the tailings piles & the ability to clean tailings drainage water after mine closure.</p>	<p>Comment ID: DG.0.002 Stability analyses were conducted using 3H:1V slopes rather than the angle of repose. Both circular and block slip surfaces were analyzed, using conservative material properties previously used by Klohn Crippen.</p>
<p>DG.0.002 ① I would like to see a technical soil mechanics analysis of the proposed final mass tailings pile -- slip circle analysis for the low friction character of the fine tailings & an analysis to show a low angle of repose for the end of the pile.</p>	<p>Comment ID: DG.0.003 As noted in comment responses and in Section 1.8.3.1 in the EIS, the Forest Service is responsible for ensuring that the CWA requirements are met on National Forest System lands. Regulations in 36 CFR 228.8(h) state that "certification of 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 these regulations." For this reason, the Forest Service defers to the USEPA's and ADEC's expertise in managing the reissuance of the authorized wastewater discharge permit and assumes for the purposes of this analysis that the permitted discharge complies with the CWA. The Forest Service has no authority over the permit reissuance process and cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, or monitoring requirements associated with the permit. As such the EIS does not consider alternative discharge scenarios. Identifying passive treatment as a potential mechanism would be presumptive without treatability studies being conducted to evaluate the effectiveness and to determine a design for a system.</p>
<p>DG.0.003 ② The final plan to naturally treat tailings drainage needs to be passive to handle very long term acid treatment -- Piles of limestone etc.</p>	

Comment

Response

DC.0.004

The best mitigation for Native cultural concerns regarding land use, hunting, fishing etc -- would be to assist Angoon with good engineering & some financing of the Thayer Lake hydro-project. The job isn't complex, - but some engineering organization could solve the whole situation. It would increase their quality of life & hopefully education & ability to "get off the farm".

I appreciate your consideration & will diligently review & support your analysis.

Don Gotschall
 P.O. Box 20427
 Juneau, AK. 99802
 907-586-3132
 CE-7810

I'm currently a retired Civil engineer with an active professional & business License. Life member American Society of Civil Engineers. Work history in dam design, economic analysis, & research in soil mechanics for Bureau of Reclamation. I served as a consultant for the dam designs & tailings disposal in 1990's for both the Kensington & Sheep Creek dams.

Comment ID: DG.0.004

Thank you for your suggestion. Because of the scope of the EIS and its authority under the NEPA process, the Forest Service cannot require HGCMC to provide engineering or financial support to Angoon on the Thayer Lake hydro project.

Comment

Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801
By email: comments-alaska-tongass-admiralty-national-monument@fs.fed.us
June 3, 2012

Re: Letter of Appeal to DEIS "Greens Creek Tailings Expansion"

This is a letter of appeal regarding the Draft Environmental Impact Statement (DEIS) for the Greens Creek Tailings Expansion. My name is Daniel Monteith, 720 4th Street, Douglas, Alaska 99824. A summary of my credentials and expertise is as follows:

Ph.D. Anthropology, Michigan State University 1998
M.A. Anthropology, Michigan State University 1990
M.A. Social Science, University of Chicago 1986
B.A. Anthropology, University of Chicago 1985

I have over 22 years of experience in Southeast Alaska doing anthropological work and have authored numerous professional papers, reports, and publications on a wide variety of topics in anthropology and archaeology.

DM.0.001 The current DEIS is based on research that is inadequate and incomplete. The work done by the outside consulting firm Tetra Tech whose staff is insufficient. The personnel who worked on the cultural resource, social and economic, subsistence, and social justice areas were marginally qualified. I professional experience in Southeast and on the above subject matter is much greater than Tetra Tech staff combined. I have also taught anthropology on the college level for over 25 years.

DM.0.002 I will address concerns on this DEIS only in my area of expertise. The methods and conclusions in cultural resource, social and economic, subsistence, and social justice are based on inadequate research and thus the conclusions are inaccurate. The letter of appeal will be organized by subject areas and concise bullet statements discussing the problems with the document will be addressed. Some issues will be consistent throughout all four areas. These shortcomings in this planning document need to be addressed in order for the concerned Federal Agencies to continue with proposed actions. The specific federal laws that support the focus of my appeal are: Clean Water Act (CWA); Clean Air Act (CAA); General Mining Law of 1872; Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); National Historic Preservation Act (NHPA); National Environmental Policy Act (NEPA); Migratory Bird Treaty Act (MBTA); Fish and Wildlife Coordination Act; Bald and Golden Eagle Protection Act; Marine Mammal Protection Act (MMPA); Endangered Species Act (ESA); Alaska National Interest Lands Conservation Act (ANILCA); Greens Creek Land Exchange Act; Wilderness Act of 1964. Until the issues stated in this letter of appeal are addressed the Federal Agencies involved are not in compliance.

Response

Comment ID: DM.0.001

Comment noted. The Forest Service disagrees with the commenter's assertion about the qualifications of the EIS authors. Ultimately, the Forest Service is responsible for the content of the EIS, and it is confident that the quality and detail is sufficient to provide the necessary hard look at environmental consequences required by NEPA. Please also see responses to specific comments.

Comment ID: DM.0.002

Comment noted. The commenter should be aware that there is no appeal available corresponding to the release of a DEIS. An appeal period will be available following the issuance of a final EIS. While the letter is addressed to the Forest Service, it is not clear which federal agencies the commenter believes are out of compliance.

Comment ID: DM.0.003

The draft EIS relied on the best information available to provide information on traditional and customary subsistence uses. The commenter does not identify which "significant individuals and groups" were left out of the study. The Forest Service held public meetings during NEPA scoping and on the draft EIS in Angoon and Juneau, and held subsistence hearings in Angoon and Hoonah. Information related to subsistence uses received during those meetings has been incorporated into the final EIS. We received no written comments from individuals or groups that either provided or offered to provide additional information related to subsistence uses, socioeconomic conditions, or cultural resources.

Without more specific information on the significant individuals, groups, clans, or tribal entities that were left out, the Forest Service is unable to validate the commenter's concerns regarding inaccurate assumptions in the Cultural Resources and Socioeconomics sections. The document acknowledges the traditional use of the area (sections 3.16.1 and 3.16.2), presents the results of cultural resource literature review and field surveys (sections 3.17.1 and 3.17.2), and discusses the socioeconomic directly related to the proposed action and alternatives (Section 3.18.3). Since many of the impacts are common to all alternatives (e.g., activity in Hawk Inlet displacing subsistence users), it is not clear that ethnographic interviews or community surveys would provide substantial new information that would alter the decision-making process.

Comment

Response

Subsistence

- DM.0.003 The Hawk Inlet area is a customary and traditional and contemporary use area for some clans and residents of Angoon, Hoonah, and Juneau. Significant individuals and groups were left out the study and thus the conclusions in the draft EIS are inaccurate. The study relies too heavily on outdated Alaska Department of Fish and Game Reports and other studies that were not designed or conducted for the purposes of the report. Further in depth ethnographic interviews and community surveys, interviews, and studies should be conducted. Key traditional family, clan, and tribal entities were left out of the study. These methodological inadequacies have led to numerous inaccurate assumptions in the DEIS.
- DM.0.004 This area is a significant historical canoe portage and contact area between lineages and clans of the Angoon, Hoonah, and Juneau Tlingit. This was not adequately addressed in the DEIS.

Socio-Economic

- DM.0.003 The above mentioned issue applies to this section: The Hawk Inlet area is a customary and traditional and contemporary use area for some clans and residents of Angoon, Hoonah, and Juneau. Significant individuals and groups were left out the study and thus the conclusions in the draft EIS are inaccurate. The study relies too heavily on outdated Alaska Department of Fish and Game Reports and other studies that were not designed or conducted for the purposes of the report. Further in depth ethnographic interviews and community surveys, interviews, and studies should be conducted. Key traditional family, clan, and tribal entities were left out of the study. These methodological inadequacies have led to numerous inaccurate assumptions in the DEIS.
- DM.0.005 Adequate and purposeful social and economic surveys of Angoon, Hoonah, and Juneau designed to address the issues of the DEIS were not developed. Instead, a literature search of basic socio-economic and demographic data were cut and pasted into this report. Little social science analysis of the data and its impacts to the above mentioned communities is presented.
- DM.0.006 It would be very helpful to me, trying to be an informed citizen on this DEIS to have a detailed cost benefit analysis of the different alternatives; including the cost and benefits of the company/companies involved and a detailed cost benefit analysis to the ecosystem services for the project area and communities concerned.
- DM.0.007 There is little or no discussion about the impacts to the commercial fishing, subsistence fishing and gathering, and/or sports fisheries. This is a major migration corridor for anadromous fish in the region.
- DM.0.008 There is little or no discussion as to the impact of shellfish in the area due to known toxic elements produced in the mining operations.

The Forest Service acknowledges that mining activities have displaced some subsistence users in Hawk Inlet and surrounding areas and may continue to so; this displacement could also involve a cultural aspect of not using traditional harvest areas. Since the displacement would continue to occur under all alternatives, however, the Forest Service recognizes that additional detail on the customary and traditional uses of Hawk Inlet could benefit future decision-making processes and provide greater detail on the history of the area. The Forest Service is requiring that HGCMC document the history of Hawk Inlet and the cannery, including the customary, traditional, and contemporary use of the area based on research in the relevant communities and a review of available literature. This mitigation measure is discussed in sections 3.16.3.1 (Subsistence) and 3.17.3.1 (Cultural Resources).

Comment ID: DM.0.004

The canoe portage has been added to the discussion in sections 3.17.2 and 3.17.3.1. The site is outside the area of direct effects; the State Historic Preservation Officer concurred with the Forest Service's determination that there would be *no adverse effect*.

Comment ID: DM.0.005

The draft EIS relied on the best information already available to provide information on subsistence (i.e., traditional and customary) uses. The commenter does not identify which "significant individuals and groups" were left out of the study. The Forest Service held public meetings on the draft EIS in Angoon and Juneau and subsistence hearings in Angoon and Hoonah. Information related to subsistence uses received during those meetings was summarized in Appendix ANILCA and has been incorporated into the final decision-making process. We received no written comments from individuals or groups that either provided or offered to provide additional information related to subsistence uses, socioeconomic conditions, or cultural resources.

Without more specific information on the significant individuals, groups, clans, or tribal entities that were left out, the Forest Service is unable to validate the commenter's concerns regarding inaccurate assumptions. The EIS acknowledges the traditional use of the area (sections 3.16.1 and 3.16.2), presents the results of cultural resource literature review and field surveys (sections 3.17.1 and 3.17.2), and discusses the socioeconomics directly related to the proposed action and alternatives (Section 3.18.3). Since many of the impacts are common to all alternatives (e.g., activity in Hawk

Comment

Response

- DM.0.009 There is a great deal of new research and methods in “ecosystem services” that would enhance this DEIS and study and assist the citizenry, Stakeholders, and federal agencies on the selection of alternatives that is not included in this study.

Cultural Resources

- DM.0.003 The above mentioned issue applies to this section: The Hawk Inlet area is a customary and traditional and contemporary use area for some clans and residents of Angoon, Hoonah, and Juneau. Significant individuals and groups were left out the study and thus the conclusions in the draft EIS are inaccurate. The study relies too heavily on outdated Alaska Department of Fish and Game Reports and other studies that were not designed or conducted for the purposes of the report. Further in depth ethnographic interviews and community surveys, interviews, and studies should be conducted. Key traditional family, clan, and tribal entities were left out of the study. These methodological inadequacies have led to numerous inaccurate assumptions in the DEIS.
- DM.0.010 With respect to archaeological resources the DEIS includes an inadequate literature search. There is no discussion of current and specific archaeological methods or field work. I realize archaeological resources are exempt from the Freedom of Information Act but in consultation with Forest Service archaeologists these concerns were not addressed by Tetra Tech. The original archaeological survey conducted by Carlson were flawed, inadequate, and questioned by Madonna Moss. Current archaeological work conducted by Forest Service archaeologists were not included or taken into consideration in this document.
- DM.0.011 Recent geoarchaeological work in Southeast Alaska also calls into question the current archaeological model used by the Forest Service used for determining high, medium, and low probability archaeological areas and what methods can be used in consultation with the State Historic Preservation Office (SHPO). The current modeling is highly problematic for northern Southeast Alaska. This is based on research conducted by both Forest Service and academic geologists and archaeologists. The key issue is the dramatic rate of uplift, glacial rebound, isostatic rebound has significantly altered the landscape and plain and simple archaeologists need to account for these factors in their models and survey techniques (see Mtyka et al; Connor et al; Carlson and Baichtal 2010).
- DM.0.012 In the older archaeological reports, EIS, and the current DEIS these issues have never been mentioned. These concerns need to be addressed otherwise the federal agencies involved are not following proper Section 106 processes according to the National Historic Preservation Act.
- DM.0.004 This area is a significant historical canoe portage and contact area between lineages and clans of the Angoon, Hoonah, and Juneau Tlingit. This was not adequately addressed in the DEIS.
- DM.0.013 When one examines current paleo-shoreline models and understands the significance of the area careful archaeological surveys should be conducted. This area may yield

Inlet displacing subsistence users), it is not clear that ethnographic interviews or community surveys would provide substantial new information that would alter the decision-making process in this case.

The Forest Service acknowledges that mining activities have displaced some subsistence users from Hawk Inlet and surrounding areas and may continue to do so; this displacement could also involve a cultural aspect of not using traditional harvest areas. As a result, the Forest Service recognizes that additional detail on the customary and traditional uses could benefit future decision-making processes and provide greater detail on the history of the area. The Forest Service is requiring a mitigation measure that HGCMC document the history of Hawk Inlet and the cannery, including the customary, traditional, and contemporary use of the area based on a review of the literature and research in the relevant communities. This mitigation measure is discussed in more detail in sections 3.16.3.1 (Subsistence) and 3.17.3.1 (Cultural Resources).

Comment ID: DM.0.006

The Forest Service is unaware of a standardized methodology for conducting a cost–benefit analysis that compares corporate revenues with ecosystem services.

Comment ID: DM.0.007

See Section 3.7.3 for impacts to marine aquatic resources (Section 3.7.2.2 discusses commercial and sport fish and shellfish harvests). Impacts to sport fisheries are addressed in Section 3.15.3.1. Anadromous fish are discussed throughout Section 3.7.

Comment ID: DM.0.008

Testing was previously conducted to assess chronic and acute toxicity of effluent to shellfish as was required by the NPDES permit at the time. Testing was discontinued in 2005 with the reissuance of the permit, when the USEPA determined that the data show that the effluent from Outfall 002 has no reasonable potential to contribute to an exceedance of the (Alaska) water quality standards for toxicity and there was no reason to believe that the characteristics of the discharge would change over the term of the permit (USEPA 2005).

Section 3.7.2.2 acknowledges that metals present in Hawk Inlet sediments near the shiploader could be toxic to bivalves, amphipods, and burrowing organisms in the area. The decrease in metals

Comment

DM.0.013 ↑ regionally, nationally, and internationally significant research regarding the peopling and migrations of the Alaska Native peoples.

Social Justice

DM.0.003

- The above mentioned issue applies also to Social Justice issues: The Hawk Inlet area is a customary and traditional and contemporary use area for some clans and residents of Angoon, Hoonah, and Juneau. Significant individuals and groups were left out of the study and thus the conclusions in the draft EIS are inaccurate. The study relies too heavily on outdated Alaska Department of Fish and Game Reports and other studies that were not designed or conducted for the purposes of the report. Further in depth ethnographic interviews and community surveys, interviews, and studies should be conducted. Key traditional family, clan, and tribal entities were left out of the study. These methodological inadequacies have led to numerous inaccurate assumptions in the DEIS.

Recommendations

DM.0.014

As previously stated the DEIS would benefit from more ethnographic interviews and community survey, more consideration given to the significance of Paleo-shoreline modeling, and more inclusive work with Alaska Native entities in Angoon, Hoonah and Juneau. Finally, without a cost-benefit analysis of company and eco-system services I do not think one can evaluate to true costs to any of the alternatives. The DEIS falls way short in evaluate impacts to subsistence, socio-economics, cultural resources, and social justice. I look forward to how the DEIS team will address these deficiencies and issues.

Sincerely,
Daniel Monteith
PhD. Anthropology

References Cited

DM.0.011

Carlson, Risa and James Baichtal. "Development of a Model to Predict the Location of Early Holocene Habitation Sites." *Current Research in the Pleistocene*. Volume 27 (2010).

Cathy Connor, Greg Streveler, Austin Post, Daniel Monteith and Wayne Howell. "The Neoglacial landscape and human history of Glacier Bay, Glacier Bay National Park and Preserve, southeast Alaska, USA." *Holocene* 19:3 (2009) pp. 375-387.

Motyka, Roman J., Christopher F. Larsen, Jeffrey T. Freymueller, Keith A. Echelmeyer. "Post Little Ice Age Glacial Rebound in Glacier Bay National Park and Surrounding Areas." Pp. 37-41.

Response

concentrations observed from 2002 to 2009, however, is expected to continue.

Comment ID: DM.0.009

The Forest Service is not aware of a standard methodology for assessing ecosystem services that is typically employed in the NEPA process and that would enhance the analysis. Without a specific reference to a particular methodology, we are unable to provide a more detailed response.

Comment ID: DM.0.010

Section 3.17.2 has been revised to note that Forest Service personnel conducted fieldwork (pedestrian surveys with discretionary probing) for the areas that would be affected by alternatives C and D. The results of the surveys were taken into account in the decision-making process. The commenter has not provided sufficient detail for the Forest Service to validate or assess the claim that the work conducted by Carlson was flawed or inadequate.

Comment ID: DM.0.011

Comment noted. The Forest Service is familiar with the literature cited and we acknowledge that isostatic rebound has influenced sites on Prince of Wales Island and in Glacier Bay. However, the applicability of this model throughout Southeast Alaska and on the northern end of Admiralty Island has yet to be evaluated.

The Forest Service conducted cultural resource surveys of the areas potentially affected by each of the alternatives. Therefore, the degree to which isostatic rebound would affect the Forest Service model for predicting the probability of occurrence of cultural resources in this particular case is limited.

Comment ID: DM.0.012

The text in Section 3.17.3 has been revised to indicate that the State Historic Preservation Office has issued a concurrence with the Forest Service's Section 106 finding of *no adverse effect*. Also, please see the responses to the previous comments.

Comment ID: DM.0.013

As noted in the response to Comment DM.0.011, the Forest Service has conducted cultural resource surveys of the areas of potential effects. No new archaeological resources were identified.

Comment

Response

Comment ID: DM.0.014

The commenter repeatedly states that the EIS would benefit from more ethnographic interviews and community surveys but fails to describe specifically what information he believes is insufficient or lacking and could (or should) be gained through additional work. The Forest Service respectfully disagrees with the assertion that additional work is necessary for this decision. Subsistence hearings were held in Hoonah on September 14, 2012, and in Angoon on November 8, 2012 (see Section 1.5.3).

NEPA does not require a cost-benefit analysis to be included in the process. We are unaware of any standardized processes that could practically be implemented to assess company benefits versus ecosystem services. The Forest Service finds that the range of alternatives combined with the information contained in the assessment is sufficient to take a hard look at environmental effects and to serve as the basis for making an informed decision.

Comment

Response

June 4, 2012

Forrest Cole
 Admiralty Island National Monument
 Tongass National Forest
 ATTN: Greens Creek Tailings Expansion
 8510 Mendenhall Loop Road
 Juneau, AK 99801

comments-alaska-tongass-admiralty-national-monument@fs.fed.us

Dear Mr. Cole,

Thank you for the opportunity to comment on the Hecla Greens Creek Mine Tailings Expansion Plan Environmental Impact Statement.

I would like to preface that I am a member of the Alaska Independent Power Producers Association and a member of the City and Borough of Juneau's- Juneau Commission on Sustainability and I am employed by Juneau Hydropower, Inc. a Juneau based hydropower development. However, the comments I am making are my own and do not reflect or are representative of the opinion or standing of any of these organizations. These comments are my own.

DM.1.001

Hecla Greens Creek has been operating this mine located in the City and Borough of Juneau since Hecla purchased the controlling share interest from Kennecott Mines in February 2008. Hecla Mining has been a great community citizen and has contributed not only significant property taxes to the City and Borough but also has been a large financial contributor to charities, education (funding the Juneau Mine Training center) and many arts and humanities organizations in Juneau. I mention these factors because our community is positively, directly and indirectly, impacted by Hecla Greens Creek mine.

Greens Creek is proposing to expand their mine tailings expansion so that the mine can effectively operate for up to 30 to 50 more years. Their continued operation provides sustainable jobs and a sustainable economy for Juneau and surrounding communities. I have taken the time to read a substantial portion of the 418 page Environmental Impact Statement and support Alternative B of the proposed alternatives.

I will provide my rationale for this support.

DM.1.002

Alternative B is an expansion of the area that is currently used for the mine's tailing facilities. Collocating the new tailings facility of Alternative B with the current facility provides better site control and management control of the facility rather than operating tailings facilities in two separate locations. This provides an additional environmental safeguard and security of the mine tailings since employees will traverse and be located in the same area directly adjacent to the existing tailings facility.

Comment ID: DM.1.001

Comment noted. The socioeconomic effects of the mining operation are discussed in Section 3.18 (Socioeconomics).

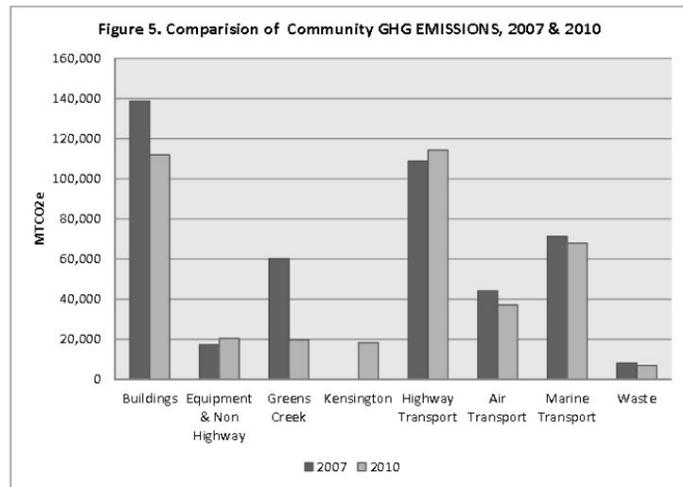
Comment ID: DM.1.002

Comment noted. The Forest Service's decision and the rationale for selecting it are presented in the Record of Decision.

Comment

Alternative B uses less fuel and energy to handle and store tailings than Alternative C and D. The City and Borough of Juneau in October 2011 passed its CBJ Climate Action Plan¹. This plan calls for the reduction of carbon emissions within the boundaries of the City and Borough of Juneau. Alternative B is 5.6 roundtrip miles shorter than Alternative C or D haul distance. Over the course of multiple trips per day by haul vehicles and supporting vehicles to and from the tailing site for 30-50 years will result in the expenditure of significant amounts of fossil fuels. Comparatively to Alt C and Alt D, Alternative B will significantly require less fossil fuel use, require a smaller requirement of on-site storage, require less frequent resupply of fossil fuels and will therefore decrease the carbon emissions over the 30-50 year extended life of the mine. The EIS did not quantify the carbon emissions of the various alternatives and the EIS did not acknowledge the CBJ climate action and implementation plan, but Alternative B is the preferred alternatives from these perspectives and vantage points. Further, it should be pointed out that Hecla Greens Creek has significantly reduced their carbon footprint from approximately 60,000 MTCO₂ in 2007 to 20,000 MTCO₂ in 2010² (See CBJ Climate Action and Implementation Plan Figure 5 below). Alternative B appears to be in alignment with Hecla management's effectiveness to look for and find ways to further reduce its carbon footprint.

DM.1.003



¹ CBJ Climate Action and Implementation Plan
http://www.juneau.org/manager/documents/CAP_Final_Nov_14.pdf
² CBJ Climate Action and Implementation Plan, page 13

Response

Comment ID: DM.1.003

An account of mobile greenhouse gas emissions has been added to Section 3.2, Air Quality, in the EIS. Currently, energy consumption and stationary source greenhouse gas emissions at the Greens Creek Mine account for 5% of Juneau's greenhouse gas emissions (*Juneau Climate Action and Implementation Plan, 2011*). Mobile greenhouse gases were calculated as follows for each action alternative:

Alternative B: 707 tons of carbon dioxide emissions per year, which would add 0.16% annually to Juneau's greenhouse gas emissions.

Alternative C: 946 tons of carbon dioxide emissions per year, which would add 0.21% annually to Juneau's greenhouse gas emissions.

Alternative D: 910 tons of carbon dioxide emissions per year, which would add 0.21% annually to Juneau's greenhouse gas emissions.

The difference in greenhouse gas emissions is 0.05% between Alternative B and alternatives C and D.

Comment

Response

Further, Alternative B appears to be in alignment with both the short term and long term goals of the CBJ Climate Action and Implementation plan to decrease GHG emissions associated with mining operations.

Goal MC-1: Decrease GHG emissions associated with mining operations.

Strategy MCI-A Work with local mines to reduce GHG emissions and energy use.	
Short-Term Actions	Responsible Party
• Support/provide incentives to encourage the use of renewable energy sources for local industrial operations.	CBJ government/ Private sector
• Incentivize and reward companies that reduce energy use, GHG emissions, and waste.	CBJ government
• Encourage local operations to implement best energy management practices to reduce energy use (e.g. turning off equipment when not in use, keeping motors in good repair, etc.).	CBJ government/ Private sector
Long-Term Actions	Responsible Party
• When evaluating proposals for new mines or other large industrial projects, consider the potential impact on the community's GHG emissions.	CBJ government

CM 1.003

It should be noted that the CBJ climate action and implementation plan under its mining goals has a long term action: "When evaluating proposals for new mines or other large industrial projects, consider the potential impact on the community's GHG emissions." Additionally under the short term actions, the plan has the following action item, "Encourage local operations to implement best energy management practices to reduce energy use." Based on the objective fact that Alternative B will have a shorter haul distance of Alternative C&D and therefore the implementation of Alternative B will use less fuel and generate less GHG emissions, it appears that Alternative B meets the guidance of goal MC1-A of the CBJ Climate Action and Implementation Plan. I would further suggest the USFS reference the CBJ Climate Action and Implementation Plan (dated Nov. 2011) in the FEIS document. Further, the Alternative B in the FEIS should be documented as objectively superior to Alternative C and Alternative D in reducing GHG emissions not only in the CBJ boundaries but also in reducing carbon emissions and GHG in the Admiralty National Monument.

Comment

Response

DM.1.004

In addition to the superior GHG attributes of Alternative B, Alternative B is more conservative in the use of USFS land. Further, it appears that it is objectively wiser to provide a long term risk reduction to the environment by providing the tailings expansion at the existing facility as suggested in Alternative B.

DM.1.005

Placing all tailings as suggested in Alternative B also ensures less impact on wildlife. From this perspective, Alternative B provides a concentration of resources as well as a concentration of effort to contain the tailings over the term of the tailings facility life.

DM.1.006

I appreciate the opportunity to comment on and support the Hecla Greens Creek Tailing Alternative B proposal for this EIS. Hecla Greens Creek has been an excellent corporate neighbor for the community of Juneau. Hecla's dedicated and well thought out efforts to continue their mine operation and provide economic sustainability for Juneau is appreciated by our community. Alternative B seeks to protect the environment, complies with the CBJ Climate Action Plan and provides one of Juneau's largest employers the opportunity to continue their mining operations in an environmentally responsible manner.

Sincerely,



Duff W. Mitchell
3274 Pioneer Ave.
Juneau, AK 99801

Comment ID: DM.1.004
Comment noted.

Comment ID: DM.1.005
Comment noted.

Comment ID: DM.1.006
Comment noted.

Comment

Response

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Monday, June 04, 2012 5:05 PM
To: Cox, David; Weglinski, Gene
Cc: Samuelson, Sarah J -FS
Subject: FW: Greens Creek expansion comments

 Karen Iwamoto
 Land Management Planner
 Tongass National Forest
 907-747-4230
kiwamoto@fs.fed.us

-----Original Message-----

From: DOUGLAS MERTZ [<mailto:dkmertz@ak.net>]
 Sent: Monday, June 04, 2012 4:04 PM
 To: FS-comments-alaska-tongass-admiralty-national-monument
 Subject: Greens Creek expansion comments

DM.2.001

I strongly oppose the attempt to expand the tailings area at Greens Creek Mine with Admiralty National Monument.

DM.2.002

1. In the past Greens Creek grievously overestimated how long it would take before the capacity of its tailings area would be exceeded. This time it is important to assume that Greens Creek's estimate is very conservative, may be way off, and that the need for yet another expansion may likely happen.

DM.2.003

2. Large amounts of toxic and deleterious materials have already been dumped into or reached Hawk Inlet as a result of the existing project -- mercury, cadmium, cyanide, copper, lead and zinc. Yet the plan seems to assume that the harmful and longterm effects will all be mitigated through a mixing zone in Hawk Inlet. However, a mixing zone is an area where limits are exceeded and resources sacrificed, and there does not appear to be any serious study establishing lack of effects beyond the mixing zone, given that the area is narrow and subject to tidal dispersion twice a day, every day.

DM.2.004

3. It is evident that subsistence, sport, and commercial fishing will be and is being harmed by the release of this toxic substances. There is no planned mitigation at the site of the harm -- remote "mitigation" does nothing to lessen the immediate loss of centuries old subsistence resources.

DM.2.005

4. This entire mining venture was initially permitted on the premise of a minor footprint and on no harm to the resources of the area or its users. Yet repeatedly these promises have been found to be hollow. It is a necessity for the appointed guardians of these resources to protect the area, not work to find a way around legal restrictions.

Douglas K. Mertz
 319 Seward Street, No. 5
 Juneau, Alaska 99801

Comment ID: DM.2.001

Comment noted.

Comment ID: DM.2.002

Greens Creek has calculated tailings and waste rock disposal needs at a conservative (high) level based on current production and disposal rates, with consideration for some small increases in efficiency (production). These capacity numbers also account for the volume for all other wastes authorized for disposal in the TDF under the ADEC Waste Management Permit (#0211-BA001). All action alternatives have been designed to provide capacity for an additional 50 years of disposal.

Comment ID: DM.2.003

Issuance of the discharge permit is a process independent from the proposed action under consideration—neither action depends on the outcome of the other. As noted in comments and in the EIS in Section 1.8.3.1, the Forest Service is responsible for ensuring that the CWA requirements are met on National Forest System lands. Regulations in 36 CFR 228.8(h) state that “certification of 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 these regulations.”

As expressed in other comment responses, the Forest Service defers to the USEPA's and ADEC's expertise in managing the reissuance of the authorized wastewater discharge permit and assumes for the purposes of this analysis that the permitted discharge complies with the CWA. The Forest Service recognizes that the discharge is being conducted as a legally permitted activity and that the discharge into Hawk Inlet is considered protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, and other aquatic life and wildlife.

The setting of effluent limits, treatment requirements, monitoring, and other requirements of the CWA are under the authority of ADEC and the USEPA.

Comment ID: DM.2.004

Please see the response to Comment DM.2.003. The Forest Service recognizes that the discharge is being conducted as a legally permitted activity and with the awareness that the discharge

Comment

Response

into Hawk Inlet is protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, and other aquatic life and wildlife.

The analysis of impacts presented in Section 3.7.3 (Aquatic Resources) describes the effects of the mine's operations, including the permitted discharge. The document discusses impacts to subsistence resources in Section 3.16.3 (Subsistence). The comment provides no evidence or other information to support the assertion that the discharge will harm these resources.

Comment ID: DM.2.005

Comment noted. The Forest Service's decision and the rationale for it are discussed in the Record of Decision.

Comment

Response

DM.3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
 1200 Sixth Avenue, Suite 900
 Seattle, Washington 98101-3140

JUL 24 2012

OFFICE OF THE
REGIONAL ADMINISTRATOR

Forrest Cole, Forest Supervisor
 Tongass National Forest
 648 Mission Street
 Federal Building
 Ketchikan, Alaska 99901-6591

Dear Mr. Cole:

The U.S. Environmental Protection Agency has reviewed the Greens Creek Mine Tailings Expansion Draft Environmental Impact Statement. Our review and comments are provided in accordance with our responsibilities under the National Environmental Policy Act (NEPA), the Council of Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and our review authority under Section 309 of the Clean Air Act. For the reasons described below, the EPA is rating the Greens Creek Mine Tailings Expansion Draft Environmental Impact Statement (DEIS) "3-Inadequate Information." An explanation of our rating system is enclosed. The EPA would like to discuss these comments with you so that we can develop a path forward that both allows for a more fully-developed, sufficient EIS and ensures a mine plan that will provide adequate protection of public resources. We recommend that this information be provided as a supplement to the draft EIS and circulated for public comment.

DM.3.001

Background

DM.3.002 On November 14, 2011, the EPA signed a Memorandum of Understanding with the U.S. Forest Service to be a cooperating agency for the Greens Creek Mine Tailings Expansion EIS. The EPA has a particular interest in the water quality issues, especially the need for long-term water quality treatment at the Greens Creek Mine.

DM.3.003 The Greens Creek Mine is an active underground metals mine located near Hawk Inlet on northern Admiralty Island on the Tongass National Forest. In addition, portions of the mine facilities are within the Admiralty Island National Monument. Full scale development began in 1987 and because of the operator's continued identification of ore reserves and the need for additional capacity for waste rock and tailings, the Forest Service conducted previous NEPA analyses in 1984, 1988 and 2003. The current EIS evaluates the proposal to expand the tailings facility to accommodate disposal of additional tailings and waste rock based on known and projected reserves for the next thirty to fifty years.

DM.3.004 The DEIS analyzes a Proposed Action (Alternative B) to allow up to fifty years of additional capacity for tailings disposal. The proposal includes expanding the existing tailings facility and would result in a loss of 4,046 feet of Tributary Creek (Class I and Class II stream) and 99 acres of jurisdictional wetlands. It would also directly impact an additional 109 acres of the Admiralty Island National Monument. The proposed action's reclamation plan includes an engineered soil cover and synthetic liner system as part of the water management system. The two other alternatives, Alternatives C and D, would minimize impacts to Tributary Creek and the Monument by constructing an additional tailings

Comment ID: DM.3.001

Comment noted. See the responses to detailed comments.

Comment ID: DM.3.002

Comment noted.

Comment ID: DM.3.003

Comment noted.

Comment ID: DM.3.004

Comment noted. The FEIS has been corrected to state that no Class I streams would be directly affected by Alternative C or Alternative D.

Comment ID: DM.3.005

Comment noted. See the responses to specific comments.

Comment ID: DM.3.006

Comment noted. Please see the response to detailed comments regarding impacts to wetlands (DM.3.017). Monument values are discussed in Section 3.19; without additional detail on USEPA concerns regarding long-term environmental effects on Monument values, we cannot provide further clarification.

Comment ID: DM.3.007

In its approach to NEPA, the Forest Service uses the assumption that facilities will be operated in compliance with applicable regulations, including the need to meet water quality standards. The EIS explains the process through which financial assurance will be determined, including the facts that the funding will need to accommodate long-term treatment and that the State of Alaska's portion of the process allows for public comment. The Forest Service considers the information presented adequate to meet the disclosure required under NEPA.

Comment ID: DM.3.008

Ambient monitoring of area streams and water features is required by the ADEC Waste Management Permit and through the FWMP established as a part of the GPO. HGCMC prepares annual monitoring reports through both of these programs and tracks trends in water quality. Mitigation measures are employed if "trigger" values are exceeded. In addition, the Forest Service is requiring additional study, and mitigation if needed, of impacts associated with fugitive dust (see Section 3.2.3.1).

The Forest Service does not have jurisdiction over the APDES permit conditions.

Comment

Response

DM.3.004 facility north of the current facility. This new facility would impact 1,044 feet of Fowler Creek (Class I and Class II) and result in a loss of 114 or 124 acres of wetlands respectively. Under the proposed action and all alternatives, the DEIS identifies the need for water quality treatment in perpetuity.

DM.3.005 The EPA provided comments to the Forest Service on the preliminary DEIS on December 9, 2011. We are pleased to note that the DEIS addresses a number of our concerns, clarifying the need for and commitment to long term water treatment and adaptive management. However, the EPA still believes that there is inadequate information regarding financial assurance and environmental analysis. DM.3.006 The EPA also has concerns regarding long term environmental impacts to wetlands and Monument values.

Financial Assurance and Environmental Analysis

DM.3.007 The EPA commends the Forest Service for acknowledging the need for long term water treatment. We appreciate the information about the process for establishing financial assurance provided in Appendix B, and subsequent discussions about developing financial assurance for long term water quality treatment at Greens Creek Mine that may hold promise. However, funding for long term water management/treatment is not addressed in the DEIS. Therefore, without this information the EPA cannot determine whether water management and source control will be adequate to protect beneficial uses and habitat. Beneficial uses are established for waters within the Greens Creek project area. The most stringent parameters and metals criteria are for the protection of fish propagation and aquatic life. The DEIS states that water quality criteria would be exceeded for both freshwater and marine waters for multiple parameters without active collection and treatment. DM.3.008 The DEIS includes a table showing monitoring data for 22 surface water locations over 10 years and lists exceedances of contaminants of concern for each monitoring site. This demonstrates that improved material handling and source control are required and that the current National Pollutants Discharge Elimination System (NPDES) permits for the facility may need additional conditions to protect water quality.

DM.3.009 We believe that the full range of potential impacts to aquatic resources should be analyzed in the context of mitigation uncertainty. In addition, we also believe that the modeling predictions used in the analysis are limited and lack sufficient detail to support long term planning. Without knowledge of the model and assumptions, reviewers and the decision maker cannot understand the environmental risks, ensure that DM.3.010 adequate mitigation is required, and support selecting an alternative that meets the purpose and need while minimizing impacts.

Recommendations:

- DM.3.011 • Provide sufficient detail on the cost of proposed reclamation and long term water treatment. (Please see the attached detailed comments for a list of items that the EPA believes are components of adequate financial assurance).
- DM.3.012 • Include an analysis of environmental impacts to aquatic resources from reasonably foreseeable scenarios.
- DM.3.013 • Provide information on the quality of the geochemical modeling—specifically disclosing the impacts of limited and unknown information on the model predictions and the sensitivity of the model to changes in parameters and assumptions.

The Forest Service does not have jurisdiction over the APDES permit conditions.

Comment ID: DM.3.009

Required mitigation, reclamation, and long-term water treatment are considered in the evaluation of effects to aquatic resources. See the response to Comment DM.3.015.

Comment ID: DM.3.010

HGCMC presented the model design and preliminary results to the USEPA, the Forest Service, and ADEC in a meeting at the USEPA Region 10 office on August 29, 2011. The USEPA did not comment on the model design or the results presented at that time.

As discussed in the DEIS, HGCMC’s model predicts that leachate quality would not meet Alaska Marine or Fresh Water Quality Standards for hundreds of years after closure and perhaps in perpetuity. This outcome was obvious, even without the model, based on existing monitoring data that shows poor leachate quality and knowledge of the tailings mineralogy and mass in the TDF. The Forest Service and our third-party contractor (Tetra Tech) used the reported model data in the DEIS as an additional source of information substantiating the need for water treatment.

We did not rely heavily on the modeling predictions, since actual field data indicates that metal leaching is occurring and will continue to occur. Because we did not rely on the model for this conclusion, we do not agree that it is necessary to expend the resources and time to revise or further explain the modeling.

Comment ID: DM.3.011

See the responses to detailed comments DM.3.014 and DM.3.018 through DM.3.023.

Comment ID: DM.3.012

Required mitigation, reclamation, and long-term water treatment are considered in the evaluation of effects to aquatic resources. See the response to Comment DM.3.015.

Comment ID: DM.3.013

HGCMC’s Solid Waste Management Permit requires that HGCMC monitor various water quality parameters in the Greens Creek TDF and at established points of compliance. In 2011, HGCMC chose to develop a water quality-based calculator (model) based on

Comment

The following discussion is provided to further clarify our concerns regarding financial assurance, analyses of long term impacts, and geochemical modeling.

Financial Assurance

In our review of the 2003 EIS for this project and throughout the development of this DEIS, the EPA has stressed the importance of establishing and disclosing the details of financial assurance for reclamation and long term water management. We believe the Forest Service and State of Alaska agree that financial assurance is important and needed. For example, the State identified the lack of long term bonding as the greatest uncertainty for the mine¹. However, inadequate financial assurance persists at the Greens Creek Mine. While the DEIS states that financial assurance will be established, the DEIS limits the discussion to the Forest Service and State's process to establish financial assurance and information about the current bond amount of \$30,455,000 which does not include long term water treatment.

DM.3.014

The EPA appreciates the inclusion of Appendices B and F that outline the process for establishing financial assurance and current bond information. However, the DEIS does not provide an adequate level of detail about the mechanism and cost for long term bonding or proposed reclamation. This information is needed to provide assurance that significant environmental impacts will be avoided or mitigated and that mitigation measures, operation and maintenance, and closure/post closure activities will be adequately bonded if the company fails to meet its requirements. Adequate financial assurance should be required for reclamation and potential long term maintenance of the cover system and long term water management. In order to resolve these issues regarding inadequate information, the EPA recommends that the Forest Service develop and disclose details regarding long term bonding and reclamation of proposed activities as a supplement to the draft EIS, and circulate it for public comment.

Analyses of Long Term Impacts

Without details in the EIS of adequate financial assurance to ensure that mitigation and regulatory requirements will be met to protect resources over the long term, we believe the impact analysis for aquatic resources is inadequate. The EIS needs to analyze the potential of the project to adversely impact beneficial uses of aquatic life and fish propagation and the potential to cause or contribute to water quality standards violations. Watersheds within the Greens Creek project area support anadromous and resident fish, and Hawk Inlet (site of the NPDES discharge point) supports a high value fishery. Through our conversations with the Forest Service, we understand that the assumption underlying the analyses in the DEIS is that there will be full compliance with the mine's NPDES permit in perpetuity. As noted above, there may be a need for more protective conditions in the current NPDES permit to prevent continued and additional water quality impacts. However, the DEIS does not analyze the potential environmental impacts if active water treatment ceases. We acknowledge that full compliance with an appropriately protective permit is a best case scenario; however, we believe that it is not reasonable or realistic to rely solely on this assumption given that the DEIS does not disclose adequate financial assurance to fund mitigation and water management. We note that it is not uncommon for mines to experience unforeseen circumstances as demonstrated at Greens Creek Mine where acid generating material resulted in greater than expected elevated metal concentrations in surface and ground water.

DM.3.015

Mines may undergo unexpected closures due to factors such as fluctuating metals prices and safety (e.g., Greens Creek closure between 1993 and 1996 due to low metal prices and Hecla's Lucky Friday mine in

¹ ADEC. 2009. *Environmental Audit of the Greens Creek Mine*.

Response

requirements established by the Solid Waste Management Permit issued by ADEC. HGCMC's primary objective was to develop a tool that they could use in the future to assist them in managing the TDF and their water treatment plant. The modeling objectives and methods employed were developed by HGCMC, and were intended to assist them in reporting conditions of the TDF to ADEC and the Forest Service based on the Solid Waste Permit requirements.

While HGCMC did not conduct a formal sensitivity test, the review of the model by the Forest Service, Tetra Tech, and ADEC as part of the EIS process showed that HGCMC evaluated a range of conditions and predicted minimum, maximum, and average water quality of leachate and runoff from the pile.

Also, see the response to DM.3.010. Rerunning the model to test sensitivity would not change the outcome of the EIS (that long-term water treatment is needed) nor the alternatives evaluated.

Comment ID: DM.3.014

See the responses to comments DM.3.018 through DM.3.023.

Regarding the concern brought up in the environmental audit (SRK 2009), the commenter is correct that SRK found that the need for long-term water treatment represented the greatest uncertainty in the reclamation plan and cost estimate. Based on that, SRK recommended that the site should continue to collect the data needed for assessing long-term water quality treatment, treatment requirements, and treatment options. Appropriately, the need for long-term water treatment has been reviewed concurrently with and as part of this NEPA analysis. The EIS clearly states that long-term water treatment will be required, perhaps in perpetuity, and that financial assurance for long-term water treatment will be required (see sections 2.4.9.2, 3.4.3, and 3.5.3.1 and Appendix B).

The USEPA recommends that, in addition to the discussion already contained in the EIS, more detail is needed on the mechanism and cost. However, it is not clear to us why an estimated cost would provide the USEPA with more certainty than the Forest Service's current commitment that financial assurance will include long-term water treatment.

Comment ID: DM.3.015

Required mitigation, reclamation, and long-term water treatment are considered in the evaluation of effects to aquatic resources. We do

Comment

Response

DM.3.015 Idaho in 2011 due to safety concerns). The USFS should evaluate reasonable scenarios in order to disclose the potential impacts and to design appropriate alternatives and mitigation. Given that permanent wastewater treatment does not appear to be funded under the current bond for the mine, changes to waste management that would prevent wastewater treatment in the future appear to be the only viable mechanisms to protect water quality.

Geochemical Modeling

The USFS should disclose the probability that predictions are accurate and identify any uncertainties or gaps. The level of confidence in predicted outcomes should be provided so that reasonable decisions about management, monitoring, and mitigation will be made.

DM.3.016 Disclosure of the uncertainty and sensitivity analysis is a key component in interpreting predictions. We recommend considering the EPA's guidance² (previously provided) as a resource on sufficient level of detail when discussing environmental modeling.

Long Term Impacts to Wetlands

The Greens Creek EIS will be adopted by the Corps of Engineers for their decision to issue a Clean Water Act Section 404 permit. As such, the alternatives analysis must satisfy the Section 404(b) (1) Guidelines. The Guidelines require that waters of the United States be avoided to the maximum extent practicable and that the least environmentally damaging practicable alternative be selected for permitting. The Corps of Engineers released a Public Notice of Application on April 20, 2012, for the discharge of fill material into waters of the United States to facilitate the construction of a dry stack mine tailings disposal site in a southward direction to create a maximum capacity for 15 million cubic yards of additional tailings and waste rock materials.

All alternatives discussed in the DEIS and Public Notice would fill high value wetlands and impact salmon bearing streams. The Proposed Action, Alternative B, would fill portions of Tributary Creek, which would affect stream habitat and Alternatives C and D would fill wetlands that drain into Fowler Creek.

DM.3.017 Concurrent, coordinated NEPA processes are encouraged to save time and money. CEQ recommends that to the fullest extent possible, agencies prepare draft EISs concurrently with and integrated with environmental analyses required by other environmental laws and executive orders³. We note that this DEIS includes information that the EPA and the Corps of Engineers requested on the functions and values of aquatic resources, but does not include other information relevant to the analysis of wetland impacts and mitigation.

The EPA recommends that the 404(b)(1) analysis be completed before publication of the final EIS, giving agencies an opportunity to take a hard look at minimizing long term impacts to wetlands.

² USEPA. 2009. Guidance on the Development, Evaluation, and Applications of Environmental Models. https://ecf.oknd.uscourts.gov/cgi-bin/DisplayPDF.pl?dm_id=852412&dm_seq=17

³ 40 CFR Sections 1502.25. <http://ceq.hss.doc.gov/nepa/regs/ceq/1502.htm>

not believe that it is reasonably foreseeable for water treatment to cease in violation of state and federal laws. We respectfully disagree that the language in the EIS describing the Forest Service's commitment to require financial assurance is inadequate to ensure that long-term water treatment would be carried out. As stated in the EIS and Appendix B, the reclamation cost estimate and bond will be updated to reflect the ROD, including long-term water quality treatment, prior to implementation of any action alternative. Also see the response to Comment DM.3.018.

Please note that procedures are in place in the event of a temporary shutdown, such as the one that occurred at the Greens Creek Mine between 1993 and 1995. The GPO, Appendix 15, addresses temporary shutdowns. Required and necessary activities, such as water treatment, erosion control, and monitoring, would continue.

Comment ID: DM.3.016

Please see the responses to comments DM.3.010 and DM.3.013. HGCMC's model predicts that leachate quality would not meet Alaska Marine or Fresh Water Quality Standards for hundreds of years after closure and perhaps in perpetuity. As a result, the DEIS discloses that HGCMC will be responsible for capturing, managing, and treating the leachate under all evaluated alternatives.

Requiring HGCMC to conduct additional modeling, or to additionally conduct a formal sensitivity analysis above the range of conditions already evaluated, would not change how leachate must be controlled, managed, and treated. For this reason, it would not provide additional or more robust information concerning impacts and water treatment that could be used to distinguish among alternatives. Ultimately, if the water quality were to become worse than the ranges predicted by the HGCMC model, the conclusions in the EIS and the treatment requirements would remain the same.

Comment ID: DM.3.017

Comment noted. The USACE has indicated that a determination of project compliance with the 404(b)(1) guidelines cannot be accomplished without the information contained in the FEIS. Discussion of the alternatives required by NEPA and disclosed in the FEIS is required to conduct the 404(b)(1) analysis. See the USACE's response to USEPA Comment KK.0.020.

Comment

The EPA is committed to continuing our discussions with you to identify mechanisms to resolve the issues identified in these comments. Thank you for the opportunity to provide comments on this DEIS. Our detailed comments are attached.

Please contact Kate Kelly, Director of the Office of Ecosystems, Tribal and Public Affairs at 206-553-1271 or Christine Reichgott, Manager of the Environmental Review and Sediment Management Unit at 206-553-1601 if you have questions.

Sincerely,



Dennis J. McLerran,
Regional Administrator

cc: US Army Corps of Engineers
Alaska Department of Natural Resources
Alaska Department of Environmental Conservation

Enclosures

Response

Comment ID: DM.3.018

Current Forest Service regulations and policy do not require the development or disclosure of financial assurance costs in NEPA documents. We disagree with the assertion that the language in the EIS regarding the need for long-term water treatment and the Forest Service will require financial assurance for this in an updated bond is inadequate without an estimated cost. In fact, an estimated cost at this point would have so much uncertainty (since the Forest Service has not selected a preferred alternative) that we have concerns that including such a number in the EIS could be misleading to the public.

The Forest Service and the State of Alaska cooperate under a Memorandum of Understanding (MOU) to calculate and secure financial assurance for mines located on National Forest System lands in Alaska. This MOU is handled outside and independently of the NEPA process. An important aspect of the agreement is a requirement from the State of Alaska for public disclosure and opportunity to comment prior to final approval of bonding. The State of Alaska publishes the Waste Management Permit for a 30-day public notice period. The permit documents include a narrative reclamation plan, which describes the work that will be done upon cessation of operations, the sequencing of that work, and the long-term aspects of the project that will continue once the earthwork is completed. The public notice materials also include the financial assurance cost estimate and all the spreadsheets, together with notes on items such as vendor quotes, which were used to determine the costs.

All financial assurances must be in place before the initiation of work approved in the Record of Decision. This process, which is separate from the current NEPA process, adequately addresses the interests of public disclosure and comment on financial assurance requirements.

Comment ID: DM.3.019

Consistent with 36 CFR 228.13(g), the reclamation plan, cost estimate, and bond will be adjusted to fit the modified GPO based on the Record of Decision. All financial assurances must be in place before the initiation of work approved in the Record of Decision. See the response to Comment DM.3.018 and Appendix B of the FEIS.

Comment

Response

EPA's Detailed Comments on Greens Creek Mine DEIS

Financial Assurance

Hardrock mines without appropriate financial assurance can pose significant risks to human health and the environment, and financial risks to responsible parties and the government should clean up become necessary⁴. Appropriate financial assurance ensures that adequate funds will be available to reclaim mines and conduct post-closure management according to approved plans, and thus avoid serious environmental impacts. If information on financial assurance is not disclosed in a NEPA document, decision makers, the EPA, other agencies, and the public are unable to evaluate the potential environmental consequences of proposed mine activities on public lands in a public forum. Because the adequacy of financial assurance is critical to determining the probability of mitigation measure implementation, the estimated amount and adequacy of the financial assurance should be discussed in the EIS transparently and prospectively.

DM.3.018

The EPA understands that the Forest Service is currently working with the State to update current reclamation costs and financial assurance at the Greens Creek Mine, as part of the State's five year review cycle. This evaluation includes activities covered in the 2003 EIS but does not include the current, proposed activities. We recommend that the Forest Service consider including the proposed activities and financial information for long term site management in an updated financial assurance package. We note that Appendix B of the DEIS states that financial assurance for proposed actions will need to be developed prior to approving the Plan of Operations. Including the current activities and financial information in the financial assurance update could expedite the approval process.

DM.3.019

Our specific comments and recommendations for developing the financial assurance for reclamation and long term water management are provided below.

Review of Appendix B

The Forest Service and State's process is described in Appendix B, which states that the cost estimate and financial assurance will not be finalized until after the modification is approved by the Forest Service. We continue to believe that information about the cost estimate and bonding should be made available during the NEPA process.

DM.3.020

Appendix B states that bonding will occur incrementally, in periods not to exceed 10 years. Since water quality treatment will be required at this site in perpetuity, operation and maintenance (O&M) costs will

DM.3.021

⁴ For example, EPA chose classes of facilities within the hardrock mining industry as the first for which EPA would develop financial responsibility requirements under CERCLA Section 108(b), based upon those facilities' sheer size; the enormous quantities of waste and other materials exposed to the environment; the wide range of hazardous substances released to the environment; the number of active hardrock mining facilities; the extent of environmental contamination; the number of sites in the CERCLA site inventory, government expenditures, projected clean-up costs and corporate structure and bankruptcy potential. Identification of Priority Classes of Facilities for Development of CERCLA Section 108(b) Financial Responsibility Requirements, 74 Fed. Reg. 37,213 (July 28, 2009).

Comment ID: DM.3.020

Comment noted. See the response to Comment DM.3.018.

Comment ID: DM.3.021

Bonding occurs incrementally for reclamation, but not for long-term water treatment. Pages B-7 and B-8 of Appendix B state that 100 years of treatment will be assumed in calculating the treatment cost. Costs beyond 100 years would make little difference in the bond amount since those years are heavily discounted.

For clarity, the Appendix B statement has been revised to state "If the changes proposed by HGCMC are approved, the Forest Service and State will determine the operational mining period and extent of disturbance that will be authorized and bonded for incrementally, not to exceed 10 years. Long-term components of the reclamation plan (e.g., water treatment operations and maintenance) will be included in the financial assurance requirements."

An incremental reclamation plan is appropriate for surface reclamation because later phases of expansion are decades in the future. As an example, there is no need to secure financial assurance for earthwork, cover installation, and materials to reclaim the full footprint of the TDF considered 30 to 50 years into the future. Note that later phases of expansion could not occur until the financial assurance is reviewed and modified to account for the phased expansion.

Comment ID: DM.3.022

As stated in Appendix B, additional comprehensive bond reviews may be conducted if, after modification of a reclamation or operating plan, an annual overview, or an inspection of the permit area, an agency determines that an increase in the bond level may be necessary. The Forest Service will review the bond as needed according to our guidance.

Comment ID: DM.3.023

See the response to Comment DM.3.018. This level of detail is not available until after the Forest Service makes its NEPA decision. In addition, this level of detail is not required for a Forest Service NEPA analysis.

Comment

Response

DM.3.021 ↑
 be necessary for potentially hundreds of years. Financial assurance is meant to ensure that there will be funds to complete required reclamation tasks, (as Appendix B states, to serve as "the public's insurance policy that reclamation will be performed,"). We believe there is risk to the federal government if the bond only covers a fraction of that time period. If only 10 years is bonded at a time, and Hecla Mining Company is unable to perform reclamation, the taxpayers may incur this liability.

DM.3.022
 Appendix B states that the bond review cycle will be 5 years. However, Forest Service guidelines recommend that bonds be reviewed annually for adequacy. Given the volatility of the minerals market, annually ensuring that the financial assurance amount is at least equal to the current cost estimate may prevent a situation where a drop in commodities prices leaves the company in poor financial health and unable to update the instrument. Annual adjustments ensure that the financial assurance amount is close to the cost estimate amount in any given year.

Review of Current Bond

We appreciate the information that the Forest Service shared regarding the current bond for \$30,455,000. Our assessment is based on what is disclosed in the EIS. To ensure that the overall financial assurance is protective at Greens Creek Mine, the USFS should provide the following additional information:

Site Reclamation (e.g., facility closure, earth moving/stabilization, revegetation, etc.):

- Estimated cost (+/- percent) to reclaim and close the site in a manner that achieves reclamation goals and post-mining land use objectives.
- Criteria for determining success of reclamation activities for bond release.
- Costs associated with implementing contingency measures to address reasonably foreseeable but not specifically predicted outcomes.

DM.3.023
Long-Term Site Management (e.g., post-closure water treatment, mitigation of aquatic resources, site maintenance, and monitoring):

- Itemized cost estimate (including reasonable contingencies) and appropriate economic variables to calculate the net present value of future expenses, including the time period to complete long term treatment, monitoring and maintenance.
- The "mechanics" of the financial assurance mechanism for the site, for example, if a trust is being used, include such details as:
 - Requirements for timing of payments into the trust fund and for "true-ups";
 - Discount rate used, if any, including assumptions for inflation, management fees, and tax rates;
 - Acceptable investment instruments;
 - Tax status of the trust fund and how management fees and taxes are paid; and
 - Identification of the trust fund beneficiaries.

Aquatic Resources

DM.3.024 ↓
 The DEIS states that metals concentrations in fish tissue have been observed in area streams. For example, in Tributary Creek and Greens Creek fish tissue samples have shown an accumulation of metals including cadmium, copper and selenium, a bioaccumulating metalloid. The DEIS does not clearly present the basis for this summarized conclusion. The discussion of baseline conditions related to

Comment ID: DM.3.024

The EIS provides this information to describe the existing conditions. This information is derived from aquatic biomonitoring conducted in Greens and Tributary Creek by the ADF&G since 2001. The monitoring program was developed with input from the State of Alaska Department of Natural Resources (ADNR), USEPA, Forest Service, U.S. Fish and Wildlife Service (USFWS), ADF&G, State Attorney General's Office, and ADEC. The purpose of monitoring resident fish tissue metals concentration is to identify changes in water chemistry that could be a result of mining operations.

In the most recent aquatic biomonitoring report (monitoring year 2011, ADF&G 2012), ADF&G found that whole-body metals concentrations in juvenile Dolly Varden char collected in 2011 were not significantly different compared to data from previous years and, overall, the data suggests a productive aquatic community at Site 9, downstream of the existing TDF.

In Greens Creek, outside the TDF expansion area, the report (ADF&G 2012) also concludes that fish tissue metals concentrations downstream of the mill (Site 54) were similar in 2011 to those observed in previous years. Further, it states that, overall, samples collected in 2011 suggest a healthy aquatic community at Site 54. Site 54 is located downstream of the mine and Site 23 and is monitored to detect potential effects from the rock storage areas and treatment ponds, as well as from the mine, mill, and shop facilities upstream.

Based on these conclusions from the ADF&G, it is not clear to us that there is a change in the baseline trends or that mitigation measures are warranted.

Comment ID: DM.3.025

Corrective action is already required under the FWMP, GPO Appendix 1, which states that if a water quality standard exceedance is indicated, HGCMC will notify the Forest Service and ADEC within 14 days and conduct confirmation sampling. If the results are confirmed, HGCMC would prepare and submit a mitigation plan to the Forest Service and ADEC for review and approval.

Comment	Response
<p>DM.3.024 mine activities should include a method to identify the source(s) of contaminants and measures to control source(s). The USFS should consider the suite of mitigation measures and the potential impacts to aquatic resources from current and proposed activities.</p> <p>The DEIS includes Table 2.6-3 listing monitoring requirements and thresholds which would trigger an action. For aquatic resources, the threshold is a significant change as compared to baseline or reference site. The follow up action is to increase the number of parameters analyzed in water samples. We believe that there should also be corrective action required to identify the source(s) causing an impact and intent to control that source or sources.</p>	<p>Comment ID: DM.3.026 ADF&G does not consider the fish passage to be “temporary mitigation” and has stated that the passage must be maintained. Monitoring and maintenance of the fish passage project will be included in the revised reclamation bond and required through the Record of Decision.</p>
<p>Wetlands The DEIS proposes mitigation in the form of repairing a fish pass on Greens Creek, which is considered a temporary mitigation. Flood damage caused the constructed fish pass, used as mitigation previously, to fail and it has not been repaired. Because it is not part of the natural geomorphic form of the stream, the fish pass is not self sustainable and requires maintenance. After mine closure if maintenance ceases and the next flood damage at the fish pass is not repaired, fish will again be eliminated from that stretch of stream. Although the EPA would not typically consider actions that are not self sustaining to be adequate mitigation, if this is determined to meet mitigation requirements, financial assurance should be included to cover the costs of ongoing maintenance.</p>	<p>Comment ID: DM.3.027 The USACE is responsible for determining the mitigation ratio and will do so in their own Record of Decision. Since the USACE will use information in the Final EIS to evaluate the mitigation proposed by HGCMC and establish the final ratios, that information is not available for the Final EIS.</p>
<p>DM.3.025</p> <p>DM.3.026</p> <p>The Corps of Engineers’ Public Notice proposes in-lieu-fees to mitigate for wetland loss. The impacted wetlands are all high value and support salmon streams. A very high ratio would need to be required by the Corps to effectively offset these impacts through in-lieu-fees. The USFS should provide details of how the proposed in-lieu-fee amount and credits for aquatic resource compensation were determined so that their adequacy for mitigation can be determined. In the event that long term water management and mitigation fail, waste rock and tailings facilities sites will produce acid drainage, increasing mobility of metals, allowing them to flow to Hawk Inlet and the respective salmon stream, Tributary Creek and/or Fowler Creek. We believe it is crucial that engineered structures constructed to direct flow in a particular direction function without active maintenance. During the analysis to determine the least environmentally damaging practicable alternative, additional design may be needed to further minimize the risk to surface waters. For example it may be possible to concentrate the placement of additional tailings to minimize impacts. We will be providing comments to the Corps of Engineers per the EPA’s shared responsibility to administer and enforce CWA Section 404.</p>	<p>Comment ID: DM.3.028 Comment noted. To assume a long-term failure represents a worst-case scenario; NEPA does not require analyses of worst-case scenarios. During operations, diversions would be designed to keep contact water flows out of Hawk Inlet and the Tributary and Fowler Creek drainages. The design of the engineered cover as proposed would allow surface flows to follow natural drainage patterns once the cover is stabilized. Surface flow across the reclaimed TDF would be unlikely to exhibit acid drainage or mobilized metals. Water directed to the treatment systems following closure would be from subsurface collection areas.</p> <p>The commenter has not provided adequate clarity on how the Forest Service might evaluate the potential to “concentrate the placement of additional tailings to minimize impacts” for us to formulate a specific response.</p>
<p>DM.3.027</p> <p>DM.3.028</p> <p>The DEIS states that increased flow to the stream channels may be capable of scouring sediment and impacting the dynamic equilibrium of stream channel morphology. In such a case, habitat values are likely to be lost for an extended distance downstream. If the stream is entrenched as a result, then riverine wetlands would be hydrologically disconnected from the stream, degrading their functional role with the stream (flood water and sediment storage and nutrient export). Erosion of the channel would likely cause sediment deposition in estuarine waters of the delta and marine waters at either Hawk Inlet or Youngs Bay. The DEIS states that monitoring will be required to detect this effect and implement remedial measures. However, once the erosive process starts, damage to stream quality will have occurred. Construction of storm water ponds, proposed as remedial measures, will take time, allowing damage to progress. Once stream morphologic equilibrium has been upset it will likely be reestablished in a different geomorphic and ecological state, responding to the new post erosion conditions. Quality in stream habitat may take a very long time to become reestablished. Therefore, we recommend that the</p>	<p>Comment ID: DM.3.029 Stormwater detention structures or ponds will be required in order to maintain the hydrogeomorphic integrity of the stream (see Table 2.6-2). Geomorphic and/or habitat monitoring would be for the purpose of detecting unanticipated changes, despite the use of detention structures or ponds. The last sentences in subsections 3.5.3.2–3.5.3.5 refer to the issue (DEIS and FEIS).</p>
<p>DM.3.029</p>	<p>Comment ID: DM.3.030 See the responses to detailed comments DM.3.031 through DM.3.036.</p>

Comment

Response

DM.3.029 USFS consider the construction of stormwater detention structures along with the facility rather than post monitoring. If this results in additional wetland impacts, these impacts should be disclosed and mitigated.

Geochemistry

DM.3.030 We have several issues regarding different aspects of the geochemical characterization of the site. Specifically these issues are regarding: 1) the temporal representativeness of samples collected from the tailings; 2) the accuracy of the predictive modeling of the tailings water quality; and 3) the visualization of acid-base accounting data.

DM.3.031 Sample temporal representativeness The DEIS offers inadequate justification/citation to support the statement that the tailings data shown in Table 3.4-1 represents a ~5 year range of materials (i.e. mid-to-late 1990s). During previous discussions with the agency’s EIS technical team the temporal representativeness of this same data has been said to represent an approximately 24 year time frame (i.e. 1988 to present). The large range of estimates of the temporal representativeness of the data (and lack of citation/justification) makes interpretation difficult.

DM.3.032 The DEIS presents data from single samples that were “randomly” collected; however it is unclear whether these samples were truly randomly selected or whether these are grab samples collected for another specific study, and therefore not representative of the average conditions of the tailings. It is important that the data is representative of the average conditions of the tailings. The DEIS should rely on summary statistics (e.g. averages, medians) that also include measures of variability (e.g., standard deviations/errors, ranges, etc.) to provide an overall and unbiased understanding of the data that has been collected.

DM.3.033 Tailings water quality modeling Overall, there are three main reasons why we believe the modeling performed as part of this DEIS is inadequate: 1) The model has not been subject to the peer-review process and is not publically available or available to the EPA—a cooperating agency on this project; 2) the model was not developed for the purposes of predicting long-term water quality. From Condon, 2011 “[The model] is intended to be used as a tool to provide a reasonable indication of the characteristics of drainage under anticipated conditions, particularly following closure of the facility. It is not intended to predict exactly the concentration of trace elements or metals hundreds to thousands of years in the future”; and 3) a sensitivity and uncertainty analysis was not performed on the model.

DM.3.034

DM.3.035

DM.3.036 To support the validity of the geochemical modeling, the DEIS cites similarities between the 2003 final EIS and the current Condon, 2011 modeling results. For example: *The agreement between model results generated on a theoretical basis (2003) and an empirical, field data basis serves to reinforce confidence in the estimates produced by Condon (2011) (p3-33)*. However, this is not an entirely accurate description of the 2003 model. For example, from the 2003 EIS it states that: *The model is semi-empirical, meaning that portions of the model mechanistically simulate physical and chemical processes based on basic principles, and other parts of the model rely on empirical measurements...* Furthermore, the 2003 model was calibrated using empirical wet well data from the tailings. As such, the two models are not entirely independent and the agreement between them should not be used to imply greater confidence than is warranted.

Comment ID: DM.3.031
The text was modified to show when and where samples were taken. Ten samples were taken in the early 2000s. Two were taken in the early 1990s and two were taken in 2004 in the mill. The field samples were collected along a west-to-east transect and in one additional location in the southwest corner of the tailings facility.

Comment ID: DM.3.032
Please see the response to Comment DM.3.031.

Comment ID: DM.3.033
Please see the responses to comments DM.3.010, DM.3.013, and DM.3.016.

Comment ID: DM.3.034
Please see the responses to comments DM.3.010 and DM.3.016.

Comment ID: DM.3.035
Please see the responses to comments DM.3.010 and DM.3.016.

Comment ID: DM.3.036
Please see the responses to comments DM.3.010, DM.3.013, and DM.3.016.

Comment ID: DM.3.037
Edit made per comment. Page 2-6 has been changed to read “the proposed action includes the expansion of the TDF by an additional 14.2 million cubic yards, based on the calculated disposal rate of annual tailings, waste rock, and other permitted materials.”

Comment ID: DM.3.038
Edit made per comment. Title 83 has been removed; 83 has been added to the list of chapters under Title 18 in the above line.

Comment ID: DM.3.039
Edit made per comment. “Resources” has been changed to “resource.”

Comment

Response

EPA Specific Comments on Greens Creek DEIS

Document Page Number	Line Number	Comment	
DM.3.037	1-7 and 2-6	On page 1-7 the DEIS states that the tailings disposal facility (TDF) would accommodate an additional 15 million cubic yards of tailings and waste rock. On page 2-6 the DEIS states that the proposed action includes expanding the TDF to a total of 15 million cubic yards. Please correct these discrepancies.	
DM.3.038	1-14	10	The wording should be to add Chapter 83 to Title 18 not "Title 83"
DM.3.039	2-1	¶2	2 nd to the last line – "resources" should be "resource"
DM.3.040	2-8	3	This part states that there will be room for an additional 1 m yd ³ and that this room would allow for 3 more years of disposal. But Section 2.3.1 says that 180,000 yd ³ /yr of tailings are disposed and 54,000 yd ³ /yr are co-disposed. 1m yd ³ / (180,000 + 54,000) = 4.3 years
DM.3.041	2-12	3	Same comment as above except it is 3 m yd ³ adding 10 more years of disposal but even adding the average waste rock going to Site 23, the math comes out to 12 yrs.
DM.3.042	2-12	Footnote 2	Is this necessary since Footnote 1 says the same?
DM.3.043	2-16	6	then discharged to Hawk Inlet
DM.3.044	2-20	11	The existing mitigation measures listed further seem to apply to both water and wind so should wind be deleted here or should "surface water diversions" be deleted from line 13?
DM.3.045	2-23	Section 2.4.8 ¶2	It is not clear how surface water diversions prevent wind erosion
DM.3.046	2-28	Section 2.5.2	The language about submarine tailings disposal from the previous page is repeated here.
DM.3.047	3-21	Last ¶	Please clarify how the Nevada Division of Water Resources safety factors are applicable in SE Alaska given the differential rainfall and the potentially related differential in pore water pressure conditions.
DM.3.048	3-24	Table 3.4-1	Several issues: 1) There are extra periods in the data (e.g. 3.8.3 %); 2) Barite should be 12.0 instead of 12.3; 3) the chemical formula for chlorite the "5" should be subscripted; and 4) n=12 should be added to the Table title.
DM.3.049	-24		The averages are based on 12 samples not 14 samples.
DM.3.050	3-24		Waterloo (2011) is not listed in the references.
DM.3.051	3-25		Regarding: "Data presented in the figure span ages from 1994 to 2008 and provide a representation of the variability of the acid-base balance in Greens Creek tailings." It should be clear what the dates represent—are these the dates the samples were collected or the dates the ABA analysis was completed? It's not entirely clear, but it appears that the data referred to as "2008 data" may have been collected in 2005 and stored in the freezer

Comment ID: DM.3.040

An average of 360,000 cubic yards of tailings are produced each year, with approximately one-half, or 180,000 cubic yards of tailings, being backfilled whereas the remaining 180,000 cubic yards are disposed of in the TDF. Additional material from Site 23 and Site E and miscellaneous materials are permitted to be disposed of in the TDF. Based on the Annual Tailings and Production Rock reports from HGCMC to the ADNR over the past 5 years (2007–2011), an average of 260,143 cubic yards of tailings, waste rock, and other permitted materials have been annually disposed of in the TDF. This average disposal rate allows for approximately 4.28 years of disposal.

Based on HGCMC's proposed action's capacity calculations, approximately 14.2 million cubic yards of additional capacity are needed. The first stage of Alternative B years 1–10 is designed to accommodate 3,183,874 cubic yards of tailings, waste rock, and other materials disposal: 3,183,874 cubic yards/10 years = 318,387 cubic yards of tailings, waste rock, and other materials annually.

This is based on HGCMC's projected disposal needs (318,387 cubic yards per year × 3 years = 955,161 cubic tons for three years). Edits have been made to text to clarify numbers. Calculations are based on projected disposal rates provided by HGCMC.

Comment ID: DM.3.041

An average of 360,000 cubic yards of tailings are produced each year, with approximately one-half, or 180,000 cubic yards of tailings, being backfilled while the remaining 180,000 cubic yards are disposed of in the TDF. Additional material from Site 23 and Site E and miscellaneous materials are permitted to be disposed of in the TDF. Based on the Annual Tailings and Production Rock reports from HGCMC to the ADNR over the past 5 years (2007–2011), an average of 260,143 cubic yards of tailings, waste rock, and other permitted materials have been annually disposed of in the TDF. This average disposal rate allows for approximately 4.28 years of disposal.

Based on HGCMC's proposed action's capacity calculations, approximately 14.2 million cubic yards of additional capacity are needed. The first stage of Alternative B years 1–10 is designed to accommodate 3,183,874 cubic yards of tailings, waste rock, and

Comment

Response

DM.3.051			for 3 years before it was analyzed. If this is the case, the Figure and text should be changed to say 2005 data instead of "current study" or "2008".
DM.3.052	3-25		Regarding: "The dashed box in (b) corresponds to the range of data in (a) for the years 1994-2004." This information should be placed in the Figure 3.4-1 caption and not in the main body of the text.
DM.3.053	3-27	Table 3.4-3	For Hg there is a footnote 14 that doesn't seem to refer to anything.
DM.3.054	3-27		The statement that the grain size of the tails remains essentially constant would only be accurate if there were no co-disposal occurring, since the waste rock material in the tailings would result in the tailings having very heterogeneous grain sizes (as mentioned on p 3-25). Other statements on p 3-29 also make reference to the tailings being fine-grained and how this would restrict infiltration; however, the impacts on infiltration during co-disposal scenarios due to the large grain size of the waste rock is not discussed.
DM.3.055	3-28		Regarding "Laboratory rate equations have also been established for oxidation of pyrite at the Greens Creek Mine site (Williamson and Rimstidt 1994)." A reasonable interpretation of this sentence implies that Williamson and Rimstidt, 1994 performed a laboratory study on Greens Creek tailings materials to determine the pyrite oxidation rates. However, the rate law presented in Williamson and Rimstidt, 1994 is not based on Greens Creek samples but instead was performed on pyrite that was obtained from Peru. Presumably, the pyrite oxidation rate of 200 mg/kg/week presented in the DEIS was calculated using the rate law established in Williamson and Rimstidt, 1994 by using Greens Creek site specific data. The way the sentence is currently worded and cited may be misleading. Suggested change "Using the general rate law for pyrite destruction established by Williamson and Rimstidt, 1994, Greens Creek site specific data was used to predict...."
DM.3.056	3-29		Text describes the development of ARD in seeps associated with tailings "where unlimited water and oxygen were available." It is clear that a distinction is being made between those areas and the current and future TDF based on their exposure to oxygen, but it isn't clear what those areas were other than that they were "associated with tailings." Describe their locations and other characteristics and explain how their setting is different from those that will be found in the future.
DM.3.057	3-33		Regarding: "In other words, the inherent error of the points associated with each model line overlaps every other line." The graphs do not show any measure of the error associated with the

other materials disposal: 3,183,874 cubic yards/10 years = 318,387 cubic yards of tailings, waste rock, and other materials annually. This is based on HGCMC's projected disposal needs (318,387 cubic yards per year x 10 years = 3.2 million cubic yards for ten years). Edits have been made to text to clarify numbers. Calculations are based on projected disposal rates provided by HGCMC.

Comment ID: DM.3.042
Edit made per comment (footnote 2 deleted).

Comment ID: DM.3.043
Edit made per comment. Text has been changed from "then it would be discharged to Hawk Inlet" to "then discharged to Hawk Inlet."

Comment ID: DM.3.044
Edit made per comment. Wind was deleted from line 11 so the discussion now applies to all erosion types.

Comment ID: DM.3.045
Edit made per comment. See edit to Comment DM.3.045; language edited for clarity.

Comment ID: DM.3.046
The second reference to submarine tailings deposition has been deleted from Section 2.5.2 in the Final EIS.

Comment ID: DM.3.047
ADEC has not established specific requirements for factors of safety; therefore, the factor of safety cited from the Nevada Division of Water Resources regulations was presented strictly as an example of how factors of safety are implemented. Factors of safety are calculated based on the specific aspects of a particular facility, including slope, compaction levels, materials characteristics (e.g., size and cohesiveness), and degree of saturation. The calculations therefore are developed independent of location—a safety factor of 1.3 means the same thing in Nevada or Alaska, although site-specific conditions and design aspects may be different.

Comment ID: DM.3.048
Table data have been replaced with correct values; other edits have been made.

Comment

Response

DM.3.057		lines. If uncertainty and sensitivity analysis were not performed on the model how was the level of error determined?
3-33		Regarding: "Overall, the modeled estimates for future water quality discharging from the tailings impoundment is very similar to the estimates made in 2003." The term "very similar" is vague and a more quantitative statement is preferable. In doing our own comparison of the 2003 and 2011 models, for most parameters the predictions between the two are within the same order of magnitude, though 2 to 7-fold differences are common. For some elements (such as Selenium and Cadmium) the difference in the two model's predictions means the differences between meeting and exceeding Alaska Chronic Fresh WQS. As such, stating that the model results were within the same order of magnitude is more accurate than stating that they were "very similar".
DM.3.058		
3-76		"The groundwater monitoring system will be used..." Doesn't the expansion require a new ground water monitoring system? Explain when that system is designed, where it will be fully described and whether it will be available for public review.
DM.3.059		
Section 3.4.2		Clarify the locations of the seeps discussed here-- are they within the TSF, in nearby areas with drainage controlled and directed to treatment, or in uncontrolled areas?
DM.3.060		
Section 3.4.4, p 3-34	Figure 3.4	The summary should list the parameters that are expected to exceed WQS. <u>Acid-base accounting</u> We believe the geochemistry data presented in Figure 3.4- contains inaccurate and incomplete information. For example: <ul style="list-style-type: none"> In graph (a) the "boxes" labeled 2002-2004 should be labeled 1994; and presumably the "triangle" data labeled 1994 should be changed to 2002-2004. The DEIS text refers to the "circle" data as "raw data"; however on graph (a) it is referred to as "Current study" and on graph (b) it is referred to as "Reported". Using consistent terminology between graphs and the text will increase the clarity of the information presented. Showing the raw data twice on graph (a) and (b) does not make sense as the raw data should not be used for temporal comparisons—instead the corrected/calculated values are a better comparison. If the "calculated" values were added to graph (a) instead of the "reported" values this would then negate the need to the "dashed box" in graph (b). This would result in a stronger visual representation of the data. To demonstrate that there has not been any systematic change in the acid-base ratios over time, the EIS should present all of the years' data on a single graph. As such, data that was collected
DM.3.061		

Comment ID: DM.3.049

Edit made per comment (changing the value from 14 to 12).

Comment ID: DM.3.050

Waterloo (2011) is referenced in the EIS as Lindsey and Blowes (2011).

Comment ID: DM.3.051

The figure was taken directly from Lindsay and Blowes (2011) as a report of the work done. It has not been changed. However, text has been added to the document to indicate that the ages of the tailings samples pre-dates 2008 (see text in Section 3.4.2) and provides estimated ranges for those dates of tailings production.

Comment ID: DM.3.052

Edit made per comment.

Comment ID: DM.3.053

Edit made per comment.

Comment ID: DM.3.054

The grain size of tails remains essentially constant, although the grain size of material in the TDF does vary due to the presence of any co-disposed waste rock. Co-disposed waste rock is placed at depth in the tailings and does not occur near the margins. Thus, the infiltration characteristics of the tailings facility are dictated by the properties of the tailings themselves and are not affected by any co-disposed material.

Comment ID: DM.3.055

The text in Section 3.4.2 has been modified to indicate that the literature rate laws were applied to the Greens Creek tailings site-specific data to produce a comparison rate.

Comment ID: DM.3.056

The indicated text is not trying to make a distinction between those areas and the current and future TDF. It is making the point that ARD has been observed in limited and restricted seeps in the TDF and the timing of its appearance is consistent with estimates for the delay before onset. The text has not been modified.

Comment

Response

DM.3.061			from 1990 and 1999 (as presented in the 2003 EIS) should be added to this figure.
DM.3.062	3-77	¶ before 3.6.3.5	"would" should be "could" (this was changed in an earlier reference (pg 76 ¶ before Mitigated B) but not here or the next one)
DM.3.063	3-78	¶ 3	"would" should be "could" (see above)
DM.3.064	3-93	1 – 13	Earlier in the document, there was a statement about the inlet fully flushing every 5 tidal cycles. Does this have any impact on what is presented in this section?
DM.3.065	3-135	1 st line after Table	"were" should be "are"
DM.3.066	3-136	Tables 3.10-4,6,7,8	For each of these tables except 10-6, the numbers in the columns add up to the Total shown. Each has a note below stating that a certain amount of acreage is included but that amount is only added in to the total in Table 3.10-6. Why is it added here and not in the other Tables?
DM.3.067		Table 3.4.1	The percent by weight column has extra decimals. The paragraph above the table describes the number of samples and the multiple depths, but needs to clarify the number of separate locations sampled as well.
DM.3.068	Section 3.22		The cumulative effects of activities potentially impacting water resources at the mine need to be considered. For example, we understand that waste rock storage facility, Site 23, was constructed on a historic landslide event in uplands directly above Greens Creek and has been incrementally shifting. The EIS should disclose site conditions such as this that may impact water resources in the future should be disclosed.

Comment ID: DM.3.057

The level of error was estimated by consideration of the typical uncertainty of analysis of metals in water ($\pm 15\%$) and then conceptually increased from that minimum to reflect increasing uncertainty associated with other error for parameters included in the model calculations and the extension of all to future time periods. For example, in Figure 3.4-2, the error associated with estimated zinc concentration of 0.45 mg/L, considering $\pm 15\%$, produces a range 0.45 ± 0.07 (0.38 to 0.52), which spans all the model prediction lines in the graph. Thus, owing to analytical uncertainty alone, no distinction between the various model results is appropriate.

Comment ID: DM.3.058

The text has been amended to indicate that current and 2003 model calculations are within one order of magnitude of each other.

Comment ID: DM.3.059

Additional groundwater monitoring requirements and wells would be incorporated, as needed, with appropriate modifications to the FWMP (required through the GPO) and ADEC's Waste Management Permit.

Comment ID: DM.3.060

The EIS has been revised to reflect that the seeps are in the TDF and are controlled and treated.

Comment ID: DM.3.061

It would be highly speculative to list parameters, especially metals, that could potentially cause excursions above water quality standards. Observed effluent chemistry and in situ monitoring is discussed in Section 3.5, Water Resources.

As indicated on the figure, the graphs presented were taken from Lindsey and Blowes (2011) and presented in the EIS. If the recalculated data in graph (b) were combined with the original data in graph (a), the figure would be excessively crowded and cluttered, because the differences are small. We believe this is the reason Lindsey and Blowes (2011) chose to make the illustration as they did. Data from 1990 and 1999 were amended to the figure.

Comment ID: DM.3.062

Edit made per comment.

Comment

**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Response

Comment ID: DM.3.063

Edit made per comment.

Comment ID: DM.3.064

Tidal flushing information provided in Section 3.5.2.3 provides a context for the behavior of water in Hawk Inlet in relation to effluent discharged by the mine, as currently authorized by the USEPA. To our knowledge, the relationship between tidal flushing rates, sediment deposition rates, and metals concentrations in Hawk Inlet has not been investigated.

Comment ID: DM.3.065

Edit made per comment.

Comment ID: DM.3.066

The numbers in the tables in the wetlands section (now Section 3.8) have been revised and the total values equal the sum of the individual components.

Comment ID: DM.3.067

Data in Table 3.4-1 have been edited. Text has been added to clarify number of tailings sample locations.

Comment ID: DM.3.068

At this time, we have no reason to believe Site 23 stability is likely to affect water quality in Greens Creek. HGCMC continues to monitor and assess stability at Site 23. Ongoing stability monitoring consists of inclinometers and several survey hubs monitored full time by GPS. The operator recently reported that there has been about 12 mm of lateral movement at a surface about 80 feet deep since 2006, with about 2 mm of movement from November 2010 to December 2011. This depth roughly corresponds to the base of what is believed to be the slide/colluvium unit and the top of the dense till in the foundation. At this point we believe that ongoing monitoring is the best approach to addressing Site 23 and that impacts to water quality from the site are not reasonably foreseeable.

Additional details are provided in *Hecla Greens Creek Mining Company, Tailings and Production Rock Site, 2011 Annual Report*. This report is available online at <http://dnr.alaska.gov/mlw/mining/largemine/greenscreek/pdf/gc2011tailings.pdf>.

Comment**Response****Comment ID: DR.0.001**

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

From: [Don Reid](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens Creek Tailings Expansion
Date: Tuesday, May 08, 2012 11:15:17 AM

DR.0.001

I am writing this letter in support of the proposed tailing expansion being proposed by Hecla Greens Creek Mine. I have lived in Juneau for 47 years and I am a heavy user of Hawk Inlet for hunting and fishing. I am also a local business person that recognizes the need for responsible resource development in Southeast Alaska. The business I manage has done business with Greens Creek Mining Company since the mine was initially developed. I have had several tours of the facility over the years as well as have advised them on facility development issues and safety issues. In every case they have demonstrated that their first priority is to operate safely and responsibly in regards to employee safety and environmental impacts and secondly to operate efficiently. It is getting harder and harder to operate an economically viable mine in the United States due to the ever increasing regulation coming from every direction. For that reason I urge you to take into consideration economic impacts of the various alternatives to avoid unnecessary cost increases that could jeopardize the long term viability of the mine. GGMC has demonstrated that their current tailings facility performs it's purpose in an environmentally responsible manner so I support their request to expand the current disposal facility rather than requiring them to create and manage a second and separate facility. I see no advantage to starting another tailings disposal site which would impact a separate area and create more environmental issues for them to contend with.

In regards to the other uses of Hawk Inlet I spend several weekends each year in Hawk Inlet on my boat hunting and fishing. I am continually impressed with how an operation the size of the Greens Creek Mine can operate in a relatively small area and supply excellent employment and still not adversely affect the ability for locals to enjoy Hawk Inlet. They have proven to be a responsible user of the area and a good neighbor.

I have several personal friends that are employed at the mine and they and their families depend on the mine for their livelihood. You would have to look a long time to find someone that would argue that they are not one of the best employers we have in our area. We need them in Southeast Alaska and based on their track record of being a responsible employer and member of the mining community I urge you to approve their permit using their preferred method of expanding the existing tailings facility.

Regards,

Don Reid
 16870 Glacier Hwy
 Juneau, AK 99801
 907-789-3242

Comment

Response

Comment ID: DS.0.001
Comment noted.

From: [Doug Schwartz](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens Creek Mine Tailings expansion!
Date: Tuesday, May 08, 2012 4:12:44 PM

DS.0.001

I support the efforts of Greens Creek and hope this expansion succeeds, sincerely Doug Schwartz

Doug Schwartz
Arrowhead Transfer
Wrangell Alaska
907 874 3314
Cell 907 305 0383

Comment

Response

Comment ID: DW.0.001
Comment noted.

From: [david.l.wilmarth](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens creek tailings expansion.
Date: Thursday, May 31, 2012 7:56:28 PM

DW.0.001

Leave them alone. They are a much needed customer.

Comment

Response

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Monday, June 04, 2012 2:14 PM
To: Weglinski, Gene; Cox, David
Cc: Samuelson, Sarah J -FS
Subject: FW: Greens Creek Tailings Expansion

Karen Iwamoto
 Land Management Planner
 Tongass National Forest
 907-747-4230
kiwamoto@fs.fed.us

From: David Wetzel [<mailto:dwetzel@admiraltyenv.com>]
Sent: Monday, June 04, 2012 10:11 AM
To: FS-comments-alaska-tongass-admiralty-national-monument
Subject: Greens Creek Tailings Expansion

Good morning,

DW.1.001

I am writing to you to express my support for the tailings expansion of the Greens Creek mine by the Hecla Mining Company. I am the owner of Admiralty Environmental, a Juneau-based environmental testing and consulting firm. We perform analytical testing and environmental sampling for a broad variety of clients in southeast Alaska, including cruise ship companies, local municipalities, drinking water operators, and large mining companies. We are currently analyzing compliance samples for both of the local large mines (Coeur Alaska Kensington and Hecla Greens Creek). In our position, we interact closely with the Hecla Mining Company with respect to their environmental compliance programs and testing, and in this regard have a unique perspective on their approach to environmental issues. In my opinion, the Hecla Mining Company has been highly responsible from an environmental impact standpoint and their presence is crucial in order to support the local economy in Juneau.

The environmental compliance staff at Hecla Greens Creek is a group of well trained environmental professionals with a great deal of integrity. I have personally worked with several of them over the last 12 years and know them to be dedicated to their work and the requirements of environmental compliance with their EPA permit. I am confident that any type of expansion of their tailings facility will be handled in the most environmentally responsible manner and with the least possible impact to Admiralty Island.

DW.1.002

In this consideration, I believe that Alternative B of the Hecla Greens Creek Mining Company proposal is the most logical approach to expanding their tailings facility. This option would merely expand the existing footprint of the tailings facility and fits in with the original agreement to consolidate the mine's facilities to the maximum extent possible. This would allow for more efficient treatment and monitoring of the tailings facility, would lessen disturbance, and would minimize closure and reclamation costs. This option would also limit the tailings facility to a single watershed, in contrast to the other options that would involve multiple watersheds and thus a greater impact. This option would also use existing road and support facilities, in contrast to other options that involve new road building. I also understand that there is an active goshawk nest at the new location proposed by options C and D. I worked for the Forest Service for several years at the Juneau Ranger District on a project to monitor and track goshawks, and am acutely aware of their sensitivity to human disturbance. I would be opposed to options that would potentially disturb these birds.

DW.1.003

As a contractor for Hecla and the Greens Creek Mine, I also support the tailings expansion because it will extend the operation of one of our largest clients. We maintain a business that is crucial for providing drinking water compliance testing in northern southeast Alaska, and the work of large clients like Hecla allows for us to maintain a viable laboratory

Comment ID: DW.1.001

Comment noted. The Record of Decision presents the Forest Service's final selection and the rationale behind that choice.

Comment ID: DW.1.002

Comment noted.

Comment ID: DW.1.003

Comment noted.

Comment

Response

Comment ID: DW.1.004
Comment noted.

operation in Juneau for our smaller clients. We have 4 full time employees that depend on this work in order to support their positions here. We also have many local vendors that we purchase goods and services from in the Juneau area that would be impacted if Hecla were not operating the Greens Creek Mine to full capacity.

DW.1.004

In conclusion, I support the Hecla Mining Company's proposal to expand their tailings facility under Alternative B. This would provide the least environmental impact and would allow the mine to operate for many years to come. I am confident that they will do this in an environmentally sound manner, just as they have done so far with their existing facility.

Best Regards,

David Wetzel
Admiralty Environmental
641 W. Willoughby Ave., Suite 301
Juneau, AK 99801
(907) 463-4415 ofc
(907) 723-4415 cell

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Comment	Response
<p>From: Ethan Berto To: FS-comments-alaska-tongass-admiralty-national-monument Subject: Greens Creek Tailings Expansion Date: Wednesday, May 16, 2012 7:10:04 AM</p>	
<p>To Whom it May Concern:</p>	
<p>EB.0.001 I am in support of Hecla Greens Creek Mining Company and their proposed alternative B for the following reasons:</p>	<p>Comment ID: EB.0.001 Comment noted.</p>
<p>EB.0.002 • HGCMC’s proposal provides for a logical expansion of the existing facility where tailings have been placed for nearly a quarter century and abides by the original agreement for the mine’s facilities to be consolidated to the maximum extent practicable <i>VERSUS</i> the alternatives that would spread the disturbances, operational and reclamation impacts, and monitoring requirements between two sites separated by over 2 miles.</p>	<p>Comment ID: EB.0.002 Comment noted. The Record of Decision presents the Forest Service’s final selection and the rationale behind that choice.</p>
<p>EB.0.003 • HGCMC’s proposal allows for both a southward extension and an upward expansion of the existing facility, which lessen disturbance and closure/reclamation costs <i>VERSUS</i> more disturbance and higher costs for the alternatives.</p>	<p>Comment ID: EB.0.003 Comment noted.</p>
<p>EB.0.004 • Under its proposal, HGCMC will maintain tailings disposal in an engineered, contained facility within a portion of a single watershed (Tributary Creek) <i>VERSUS</i> the alternatives that would place tailings in a similar facility but in multiple watersheds and create more disturbance.</p>	<p>Comment ID: EB.0.004 Comment noted.</p>
<p>EB.0.005 • HGCMC’s proposal utilizes existing site support facilities, including the continued use of B Road that has served for tailings delivery since the mine opened <i>VERSUS</i> the need, under the alternatives, for a major construction upgrade to approximately 2.5 miles of the A road.</p>	<p>Comment ID: EB.0.005 Comment noted. Additional acres would be disturbed under alternatives C and D, as well as an additional 14 acres of wetland for the A road upgrade.</p>
<p>EB.0.006 • HGCMC’s proposal will have minimal disruption to wildlife <i>VERSUS</i> the alternatives. There is an active goshawk nest at the new location under the alternatives, and the nest and surrounding habitat for this sensitive species would be impacted if development in this area were to occur. Also, the heavy hauling and increased maintenance over 2.5 miles of the A road necessary for the alternative location would cause increase impacts to all wildlife in this area.</p>	<p>Comment ID: EB.0.006 Comment noted. Additional acres would be disturbed under alternatives C and D, as well as an additional 14 acres of wetland for the A road upgrade.</p>
<p>EB.0.007 • Under its proposal, HGCMC maintains existing haul distances to the tailings facility <i>VERSUS</i> the alternatives where an additional 7 miles of haulage would be added to each truck trip, resulting in an extra 20,000 to 30,000 gallons of diesel fuel being burned every year. That amounts to burning an extra 1,000,000 gallons of diesel fuel over the life of the project. This higher fuel use means more fuel transport to Admiralty Island and more greenhouse gas emissions. More energy will be consumed pumping contact water from the alternate site to the water treatment plant as well.</p>	<p>Comment ID: EB.0.007 Correction: Alternatives C and D would add an additional 5.6 miles round-trip for haul trucks to travel from the portal to the new northern TDF. Fuel usage would vary by alternative.</p>
<p>EB.0.008 HGCMC for the past 25 years has contributed to the southeast Alaska economy while being a good steward of the land, for these reasons I support their ongoing development.</p>	<p>Greenhouse gas calculations were added for each action alternative in Section 3.2.3. Mobile source greenhouse gas emissions at the Greens Creek Mine for Alternative B would add 707 tons of carbon dioxide emissions per year, or 0.16% of Juneau’s total greenhouse gas emissions; Alternative C would add 946 tons of carbon dioxide emissions per year, or 0.21% of Juneau’s total greenhouse gas emissions; and Alternative D would add 910 tons of carbon dioxide emissions per year, or 0.21% of Juneau’s total greenhouse gas emissions. Alternatives C and D would produce 0.05% more greenhouse gas emissions than alternatives A and B yearly. In comparison, Juneau’s yearly highway transportation greenhouse gas emissions equal 29% of the borough’s total greenhouse gas emissions.</p>
<p>Regards,</p>	<p>Comment ID: EB.0.008 Comment noted.</p>

Comment

Response

From: [Eric Badger](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: Greens Creek Tailings Expansion
Date: Tuesday, May 08, 2012 4:42:28 PM



To Whom It May Concern;

EB.1.001

Alaska Marine Lines and Alaska Marine Trucking are writing in support of Hecla Greens Creek Mine's efforts to expand their existing tailings facility using "**Alternative B**" under the draft EIS submitted by the US Forest Service for the following reasons:

- Expansion of their tailings facility is an essential component in their plans to continue operating the Greens Creek Mine now and for the future
- Alternative B minimizes the impacts to the environment by keeping the tailings facility consolidated versus the other alternatives
- Alternative B would continue their tailings disposal in an engineered, contained facility within a single watershed versus the other alternatives that would place tailings in multiple watersheds
- Alternative B would allow them to continue to utilize existing site support facilities including "B" Road versus other alternatives that would require major construction upgrades to "A" Road
- Alternative B using the current location for tailings has no new impacts on area wildlife versus the other alternatives that have an active goshawk nest in the area
- Alternative B is the only option that would not increase Greens Creek's use of fossil fuels in the transportation of tailings to the disposal facilities

EB.1.002

Hecla Greens Creek Mine has been an integral part of our Southeast Alaska Community for the past 25 years by providing high paying jobs, purchasing supplies and services locally, and operating in a safe and environmentally friendly manner. Alternative B gives them the additional capacity for their future and to continue to be a part of our future here in Southeast Alaska.

Sincerely,

Eric W. Badger

Eric Badger

Juneau Port Manager

ALASKA MARINE TRUCKING

Phone: (907) 463-9326

Fax: (907) 463-3298

ebadger@lynden.com

Comment ID: EB.1.001

Comment noted. The Forest Service's decision and the rationale behind it are presented in the Record of Decision.

Comment ID: EB.1.002

Comment noted.

Comment

Response

Comment ID: EM.0.001

Comment noted.

From: emorrison-dia@gsi.net [mailto:emorrison-dia@gsi.net]
Sent: Wednesday, May 16, 2012 2:37 PM
To: Gilliam, Myra -FS
Ce: Peter Naoroz; Walter Jack; Andrea Cadiante-Laiti
Subject: RE: Consultation on Greens Creek Dry Tailings Expansion Project

Myra;

sorry I was hoping the consultation was to be today on the request from the Greens Creek mine for additional acreage for tailings and I checked the scheduled date that you had and noticed it is scheduled for next week. I am at an air conference all next week. I will be looking forward to another date and may invite an elder and an Angoon rep if possible. But I do have some thoughts on the request for additional acreage for tailing. We at DIA would be very interested in developing some means to commence water studies on the beach waters adjacent to the tailing site as well as the adjacent 2 streams. we may also want to request a permit to acquire some salmon from these streams to check for their health and viability. I will continue to keep Angoon informed on our progress in this matter because I know their resources are as limited as ours.

EM.0.001

Eric Morrison
Douglas Indian Association
Environmental Planner
811 W. 12th St.
Juneau 99801
907-364-2916

Comment

Response

Comment ID: EP.0.001

Comment noted.

4-24-2012
PO Box 34315
Juneau, AK 99803

Sarah Samuelson
Tongass National Forest
Juneau, AK

RE: Hecla Greens Creek Mine Proposed Tailings Expansion

Dear Ms. Samuelson:

EP.0.001

I am writing regarding the EIS for Hecla Greens Creek Tailings Expansion. I support the project as submitted. Greens Creek has proven to be a company that complies with regulations and goes the extra step to maintain environmental constraints.

I recently had the opportunity to go on a mine tour with the Introduction to Mining class the University of Alaska Southeast sponsors for Juneau High School students. I was extremely impressed with their treatment facility for water quality. We had the opportunity to tour the facility and have a representative from the mine explain the tailings pile, the layers and how it is protected from storms, earthquakes, etc.

The mine employs over 350 people with good wages with benefits. Safety is a major concern and was stressed throughout the tour. Their reputation for community and long term employment is important to Juneau and surrounding communities. This expansion will assure the mines longevity into the future for many years. Unless a person has actually had the opportunity to tour the site they have no concept of how important this project is and how it has been designed to preserve the environment.

Thank you for the opportunity to comment.

Sincerely,



Elaine Price

Comment

Response

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Monday, June 04, 2012 9:09 AM
To: Weglinski, Gene; Cox, David
Cc: Samuelson, Sarah J -FS
Subject: FW: Greens Creek Tailings Expansion

#8 and now we are caught up for the moment!

Karen Iwamoto
Land Management Planner
Tongass National Forest
907-747-4230
kiwamoto@fs.fed.us

-----Original Message-----

From: Eric Twelker <mailto:twelker.eric@gmail.com>
Sent: Monday, June 04, 2012 8:05 AM
To: FS-comments-alaska-tongass-admiralty-national-monument
Subject: Greens Creek Tailings Expansion

ET.0.001

I write in support of Alternative B of the Draft EIS. This option represents an incremental increase into an adjacent area with very similar characteristics to the existing facility. Everything significant aspect of this option is a known quantity based on experience from the years of prior operation.

ET.0.002

That said, I object to submitting a full-blown EIS for a project like this. In the past, numerous projects of equal or larger impact throughout the country have been approved with 'findings of no significant impact' and EAs. By introducing a highly complex, lengthy, and contentious EIS process to an incremental expansion-including ridiculous made up high-impact off site alternatives-the Forest Service elevates process over common sense. It makes the decision-making less accessible to the public and makes it far more difficult for itself. Decisions like this one are in danger of being converted into a game for the lawyers of special interest groups with process overwhelming the substance. That's not right. The Forest Service needs resist if it wants to remain an effective land management agency.

Eric Twelker
10430 Dock Street
Juneau, AK 99801
907-789-6800

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Comment ID: ET.0.001

Comment noted.

Comment ID: ET.0.002

Respectfully, it appears that the commenter does not have recent exposure to the permitting process for mining activities in the western United States. The Forest Service determined early in the process that the proposed action had the potential to cause significant impacts to the environment and therefore determined it was appropriate to develop an EIS. To have done otherwise would have invited a longer process involving lawsuits and appeals.

Comment

Response

Amerikanuak, Inc.

PO Box 22909
Juneau, AK 99802
(907) 523-1995 phone/fax
(907) 321-3637 cell
aki2k@gci.net

May 31, 2012

Admiralty Island National Monument – Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, Alaska 99801

RE: Comments on DEIS for Greens Creek Mine Tailings Expansion

Dear Sir/Madame:

FB.0.001

The USFS and its contractor have prepared a draft environmental impact statement in response to a request by Hecla Greens Creek Mining Company's to modify their General Plan of Operations (GPO) for expansion of the existing tailings facility. Please select Alternative B – discussed therein – as the preferred environmental alternative in the FEIS and ROD.

FB.0.002

Greens Creek Mine is a pillar of the Juneau community and economy as the single largest provider of private sector jobs. It also pays significant CBJ property and sales taxes. Without a doubt, CBJ growth resulting from Greens Creek has helped offset population and economic decline in the remainder of the private and public sectors. This has netted a stagnant CBJ population relative to declining population in the remainder of Southeast Alaska. The ill effects of this regional population decline have been highlighted by the Forest Service via its own initiative to research and spur economic growth in the post pulp mill era (e.g. JEDC cluster working groups). To lose Greens Creek employment would be catastrophic for Juneau and Southeastern. Increased operating costs associated with alternatives other than B would degrade project economics and threaten project viability. Therefore, there must be a highly compelling case to select any alternative other than B.

FB.0.003

Greens Creek has conducted a very responsible and environmentally sensitive operation these past 25 years. Because the proposed action is a continuation of the ongoing successful operation there is no reason to project any impacts beyond those measured to date. Actual impacts are negligible – if measurable. Alternatives C and D would result in expansion of impacts into otherwise undisturbed areas, greater energy consumption, greater fuel transportation and combustion, and expanded closure requirements.

FB.0.004

While NEPA requires study of action alternatives, those proposed clearly fail to fulfill the purpose and need as compared to Alternative B. Indeed, the other alternatives run counter

Comment ID: FB.0.001

Comment noted.

Comment ID: FB.0.002

Comment noted.

Comment ID: FB.0.003

Comment noted.

Comment ID: FB.0.004

Comment noted.

Comment

May 31, 2012

to USFS agreements that the facility be consolidated to the maximum practicable extent (ANILCA Section 503).

FB.0.005

Ultimate closure of the expanded Alternative B facility would have the least potential environmental impacts. The water balance cap would be minimized in area (lower surface area to volume), resulting in minimum infiltration, percolation, and seepage. Impacts – such as they are – would be limited to a single watershed. Alternatives C and D would require expansion of appurtenant facilities and consumables (fuel and equipment) relative to Alternative B.

FB.0.006

The facts clearly support Alternative B as the superior environmental choice. Please select Alternative B in the FEIS and ROD, and proceed with all alacrity to issue the revised GPO.

Best regards,



Frank Bergstrom
Principal

Enclosure

Response

Comment ID: FB.0.005

Comment noted. Alternatives A and B would impact three watersheds: Cannery Creek, Tributary Creek, and the South Hawk Inlet. Alternatives C and D would impact five watersheds: Cannery Creek, Tributary Creek, South Hawk Inlet, Fowler Creek, and North Hawk Inlet (see Section 3.5, figures 3.5-5 and 3.5-6).

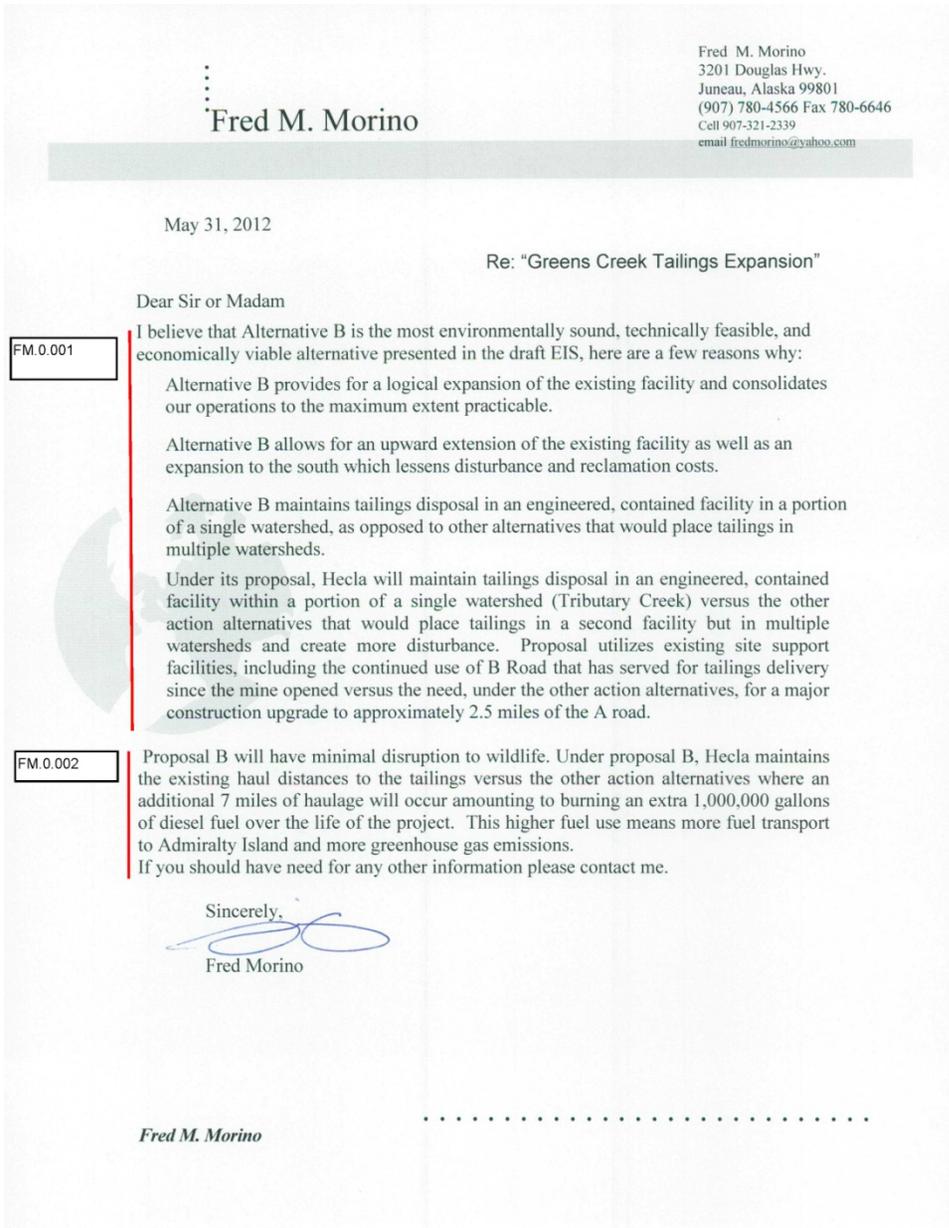
Mobile source greenhouse gas emissions at the Greens Creek Mine for Alternative B would add 707 tons of carbon dioxide emissions per year, or 0.16% of Juneau's total greenhouse gas emissions; Alternative C would add 946 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions; and Alternative D would add 910 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions. Alternatives C and D would produce 0.05% more greenhouse gas emissions than alternatives A and B yearly. In comparison, Juneau's yearly highway transportation greenhouse gas emissions equal 29% of the borough's total greenhouse gas emissions.

Comment ID: FB.0.006

Thank you for your comment. Please see the Record of Decision for the Forest Service's selected alternative and the rationale for that selection.

Comment

Response



Comment ID: FM.0.001

Comment noted. Alternatives A and B would impact three watersheds: Cannery Creek, Tributary Creek, and the South Hawk Inlet. Alternatives C and D would impact five watersheds: Cannery Creek, Tributary Creek, South Hawk Inlet, Fowler Creek, and North Hawk Inlet (see Section 3.5, figures 3.5-5 and 3.5-6).

Upgrades to the A road would impact an additional 30 acres of wetlands under alternatives C and D.

Comment ID: FM.0.002

Correction: Alternatives C and D would add an additional 5.6 miles round-trip for haul trucks to travel from the portal to the new northern TDF. Fuel usage would vary by alternative.

Mobile source greenhouse gas emissions at the Greens Creek Mine for Alternative B would add 707 tons of carbon dioxide emissions per year, or 0.16% of Juneau's total greenhouse gas emissions; Alternative C would add 946 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions; and Alternative D would add 910 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions. Alternatives C and D would produce 0.05% more greenhouse gas emissions than alternatives A and B yearly. In comparison, Juneau's yearly highway transportation greenhouse gas emissions equal 29% of the borough's total greenhouse gas emissions.

Comment

Response

Comment ID: HG.0.001

Comment noted. The Forest Service's decision and the rationale for selecting it are presented in the Record of Decision.

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Monday, June 04, 2012 5:05 PM
To: Weglinski, Gene; Cox, David
Cc: Samuelson, Sarah J -FS
Subject: FW: Support for Greens Creek Tailings Expansion-EIS Alternative B

Karen Iwamoto
Land Management Planner
Tongass National Forest
907-747-4230
kiwamoto@fs.fed.us

From: Howard Grey [mailto:h_l_grey@hotmail.com]
Sent: Monday, June 04, 2012 3:41 PM
To: FS-comments-alaska-tongass-admiralty-national-monument
Subject: Support for Greens Creek Tailings Expansion-EIS Alternative B

HG.0.001

This is to acknowledge support for Alternative B of the Green's Creek proposed tailings expansion. This will permit the expansion to occur where the existing facility is located which has advantages both environmentally and economically. Placing the facility in any of the other proposed locations would increase the impact, make maintenance and operations more difficult and not be as useful to the mine. Location B will also have less impact on wildlife and the watershed. Thank you for the opportunity to comment on this issue.

Howard J. Grey
1927 W 13th Ave.
Anchorage, AK 99501
Email: h_l_grey@hotmail.com

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Comment

Response

Hugh Noel Grant

5165 Glacier Highway
Juneau, Alaska 99801
(907) 780-4566 Fax 780-6646

May 31, 2012

Re: "Greens Creek Tailings Expansion"

Dear Sir or Madam

HG.1.001

I support Alternative B

Since opening in 1987, the Greens Creek Mine has operated within the Admiralty Island National Monument in accordance with federal, state and local laws and regulations. One of the original agreements between Greens Creek and the USFS calls for facilities to be consolidated to the maximum extent practicable

HGCMC's proposal (Alternative B) provides for a logical expansion of the existing facility where tailings have been placed for a quarter century and abides by the original agreement for the mine's facilities to be consolidated to the maximum extent practicable.

HGCMC's proposal allows for both a southward extension and an upward expansion of the existing facility, which lessen disturbance and closure/reclamation costs.

HG.1.002

The Alaska Department of Environmental Conservation (ADEC) regulates mill tailings and waste rock disposal facilities at the Greens Creek mine as well as other aspects of the operation primarily through Title 18 of the Alaska Administrative Code (AAC), Chapters 50, 60, 70, 72 and 80. ADEC's Waste Management Permit authorizes tailings and waste rock disposal and prescribes design, monitoring, reporting, closure, post-closure and financial responsibility requirements.

HGCMC proposes to extend the existing dry stack disposal site in a southward direction to create a maximum capacity for 15 million cubic yards of additional tailings and waste rock materials. This volume will allow for up to 50 years of capacity for ongoing operations and project reserves, and provide volume for tailings that will be generated from processing of a resource base being defined by ongoing on-site exploration activities. The proposed expansion will meet HGCMC management direction to design and permit a long-term tailings facility capable of handling projected operational requirements.

HGCMC proposes to use the same tailings disposal techniques, environmental management procedures, and reclamation measures that were reviewed in the 2003 Forest Service environmental impact statement (EIS) for the site and have been approved by the Forest Service, the Alaska Department of Environmental Conservation (ADEC) and the Alaska Department of Natural Resources (ADNR).

Upon permanent cessation of project activities, HGCMC plans to reclaim the tailings facility. Unnecessary structures and facilities will be decommissioned and removed. An engineered soil cap will be placed over the tailings facility, which will include a covering of reclamation growth material to facilitate revegetation.

If I can be of any other assistance please contact me.

Sincerely


Hugh Noel Grant

Hugh Noel Grant

Comment ID: HG.1.001

Comment noted. The Forest Service's decision on the selected alternative and the rationale for selecting it are presented in the Record of Decision.

Comment ID: HG.1.002

Comment noted.

Comment

Response



June 4, 2012

Sarah Samuelson, Interdisciplinary Team Leader
 Tongass National Forest Minerals Program Leader
 Admiralty Island National Monument
 8510 Mendenhall Loop Road
 Juneau, AK 99801

RE: Preliminary Draft Environmental Impact Statement (PDEIS) for Greens Creek Tailings Disposal Facility (TDF) Expansion

IA.0.001

These comments are submitted on behalf of the Sierra Club. We request that they be included in the administrative record. As indicated in our following comments, the deficiencies of this PDEIS are so egregious and out of line with requirements of the National Environmental Policy Act (NEPA) that a supplemental DEIS is required in order for the public and government agencies to have enough information to evaluate decision alternatives for the proposal. Notable examples of how the document is deficient are the lack of any water quality alternative, lack of a cost benefit analysis comparing various decision alternatives, lack of a cultural analysis, and lack of any meaningful analysis as to how the decision alternatives relate to National Monument standards for Admiralty Island, as they are provided for in the Alaska National Interest Lands Conservation Act (ANILCA).

IA.0.002

That said, we wish to point out that our organization strongly supports the Angoon Community Association's review of Tlingit cultural resources. The people of Angoon and the Sierra Club have a long history of cooperation in preserving the cultural, natural, wildlife and wilderness values of Admiralty Island, including our joint effort in Congress to establish Admiralty Island National Monument & Kootznoowoo Wilderness.

The PDEIS

IA.0.003

It is apparent that there is insufficient information provided in the PDEIS for the USFS or the public to determine the full effects of the existing mine and its operation on marine and freshwater resources. Thus it is premature to determine what the next 30 to 50 years of mining operations will have on these resources. It also appears National Monument values are being sacrificed to compensate for poor business and planning decisions made by the project proponent.

Comment ID: IA.0.001

The Forest Service respectfully disagrees with the commenter's opinion on the adequacy of the DEIS. Please see the responses to specific comments below.

Comment ID: IA.0.002

Comment noted.

Comment ID: IA.0.003

The commenter provides no rationale for the assertion that there is insufficient information on effects of the mine on marine and freshwater resources or that Monument values are being sacrificed to compensate for poor planning. The EIS presents a detailed evaluation of marine and freshwater resources (Section 3.5) and aquatic resources (Section 3.7). The commenter does not state why the evaluation is insufficient; therefore, we cannot respond more specifically to this comment.

Comment ID: IA.0.004

The EIS has been modified throughout to reflect the current status of the APDES permit (AK0043206). Sections 1.2, 1.8.3.3, 2.4.4, and 3.5.2.1, among others that refer to the discharge permit, have been modified to reflect that the 2005 NPDES permit conditions have been administratively extended until the APDES permit is reissued. Reissuance of the wastewater discharge permit is a process independent from the proposed action under consideration. As noted in comments and in the EIS in Section 1.8.3.1, the Forest Service is responsible for ensuring that the CWA requirements are met on National Forest System lands. Regulations in 36 CFR 228.8(h) state that "certification of 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 these regulations."

For this reason, the Forest Service defers to the USEPA's and ADEC's expertise in managing the reissuance of the authorized wastewater discharge permit and assumes for the purposes of this analysis that the permitted discharge complies with the CWA.

The Forest Service recognizes that the discharge is being conducted as a legally permitted activity and with the awareness that the discharge into Hawk Inlet is protective of the receiving water body and its designated beneficial uses, including the propagation of fish, shellfish, and other aquatic life and wildlife.

Comment	Response
IA.0.004	<p>Comment ID: IA.0.005 The proposed action and alternatives were developed in response to HGCMC's request for expansion of the TDF to accommodate 30 to 50 years of additional tailings. See the response to Comment BL.0.011. Mining beyond the current proposal of 30 to 50 years is possible; therefore, the effects of tailings disposal throughout the duration of the lease period is addressed in the cumulative effects discussion (Section 3.2.2).</p>
IA.0.005	<p>Comment ID: IA.0.006 Comment noted. Alternative C was developed to address this issue and to minimize any additional encroachment on the Monument.</p>
IA.0.006	<p>Comment ID: IA.0.007 Sections 3.5.2.3 and 3.7.1.2 in the EIS describe the Hawk Inlet Monitoring Program, which requires regular monitoring of water quality, sediments, mussels, and worms at various locations in the inlet. The results of this monitoring is reviewed by both the Forest Service and ADEC annually.</p> <p>The Forest Service does not have the authority to determine what information is necessary to change a water body's level of attainment or whether the information is sufficient. Categorizing water bodies for attainment is under the authority of ADEC and is not within the scope of the EIS.</p>
IA.0.007	<p>Comment ID: IA.0.008 See the response to Comment IA.0.004. The Forest Service cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, or monitoring requirements associated with the permit. Since the discharge is and will continue to be permitted by agencies with authority for CWA compliance, the Forest Service considers the discharge to be protective of water quality for the purposes of this analysis (36 FCR 228.8(h)). As such, the EIS does not consider alternative discharge or treatment scenarios.</p>
IA.0.008	<p>Comment ID: IA.0.009 Comment noted. To our knowledge, data on the density of the species inside and outside the mixing zone are not available. Section 3.7.2.2 discloses the information and data that are available for commercial fish and shellfish harvests in Hawk Inlet. Also see the response to Comment IA.0.007.</p>
IA.0.009	
IA.0.010	

After more than 20 years of mining activity and monitoring, Greens Creek and Hawk Inlet are both listed as Category 3 waters in Alaska's Final 2010 Integrated Water Quality Monitoring and Assessment Report. Water bodies are placed in Category 3 if data or information is insufficient to determine whether water quality standards are being attained for any of the designated uses. Additionally since DEC withdrew the new waste water discharge (APDES) permit that was issued in November 2011, there is uncertainty about how mining effluent will meet water quality requirements.

Further, the PDEIS does not disclose the total expected need for mine tailings disposal over the life of the mine. While the alternatives are intended to cover 30-50 years of mining, it is likely that new reserves will continue to be discovered, as they have in the past. The mine has a lease that does not expire until 2096. The additional tailings will have to be put somewhere, creating additional foreseeable impacts that have not been evaluated or disclosed. This is a critical omission that should be corrected in a supplemental draft EIS. The action alternatives should describe options for potential future expansion and discuss the impacts of any such expansion.

Only the No Action Alternative precludes further encroachment into the National Monument. Greens Creek mine has increased tailings production from the projections in the 2003 ROD, adding acid-generating waste rock into the TDF. Poor planning has resulted in not allowing a new facility to be permitted and built outside monument boundaries prior to the existing TDF reaching capacity.

Water Quality Issues

Marine Waters: The USFS should immediately determine what additional data and information is required to make an analysis of the water quality status of Hawk Inlet so it can be removed from Category 3. There is a significant source of pollutants and a responsible party that is still operating. A determination of future impacts cannot be made when past actions have been little evaluated. After 20+ years of operating a mine in Hawk Inlet there should be a clear understanding of how this water body has changed due to this activity.

The expired waste water outfall permit, APDES, has been extended after the renewed permit was withdrawn after an informal review request. Because the permit has not been reissued or the problem clarified, it is not clear how this mining operation is going to meet water quality standards in Hawk Inlet. Alternative treatment or discharge methods need to be considered, both of which could influence TDF design and siting.

Little information is supplied on the dungeness crab population in Hawk Inlet. Dungeness crab should be a key indicator species as they are bottom scavengers and are important to commercial and subsistence fisheries. The density and quality of this species inside and outside of the mixing zone should be evaluated.

Freshwater: If there is a feasible alternative, eliminating a large portion of a productive and cataloged Class 1 and 2 anadromous fish streams should not be considered. An economic advantage for the mining operator only indicates that mitigation requirements are too lenient for the destruction of this type of habitat.

Comment	Response
<p>IA.0.011 As noted above in <i>marine waters</i>, in order that Greens Creek can be removed from Category 3 status, the USFS should determine what additional data and information is required for an analysis of the water quality of the creek. The mine is a significant source of pollutants and is operated by a responsible party that is accountable. A determination of future impacts cannot be made when past actions have been little evaluated.</p>	<p>Comment ID: IA.0.010 Comment noted. Class I streams support anadromous species while Class II streams support resident fish species. Alternatives C and D were developed, in part, to reduce impacts to aquatic habitat; however, due to the ubiquitous nature of streams in the area, it was not possible to find a feasible alternative site that completely avoided aquatic habitat.</p>
<p>IA.0.012 It is unlikely that ADF&G permitted a partially functioning fish passage project in Greens Creek to mitigate loss of fish habitat. Improving fish passage actually means repairing a damaged fish passage structure/facility that is required to be maintained per standard permit stipulations for these types of structures. The repair of an existing permitted structure to enable it to operate as designed should not be considered mitigation for further loss of fish habitat.</p>	<p>The commenter’s point with regard to “an economic advantage” is unclear; the CWA requires that an alternative be “practicable,” with practicability including an economic element. Mitigation requirements under the CWA are defined in 40 CFR 230 and 33 CFR 325 and 332.</p>
<p><u>National Monument Values</u></p>	<p>Comment ID: IA.0.011 See the response to Comment IA.0.007. Section 3.5 presents a detailed description of water quality in the study area. Monitoring of water quality at the site, including in Greens Creek, is required through various permits and programs, including the Solid Waste Permit and the APDES permit, and as a part of the GPO. Both ADEC and the Forest Service oversee these sampling programs.</p>
<p>IA.0.013 All alternatives except the No Action Alternative require additional encroachment into the National Monument. The primary reasons appear to be the economic advantage of the operator and poor planning of the operator and USFS. The mine operator increased the rate of deposition into the TDF significantly and requested permission to add acid-generating waste rock. These business decisions were apparently made with the assumption that National Monument values were expendable compared to operator profits. This is not an acceptable rationale for the permanent loss of National Monument values.</p>	<p>Comment ID: IA.0.012 As stated in Section 3.7.3.1 of the EIS, the fish passage project was constructed as mitigation for a tailings dam that was never built. Therefore, the Forest Service, in consultation with ADG&G, has determined that the project can still be considered mitigation for the lost habitat under the proposed action and alternatives. The requirement for maintenance of the fish passage structure will be included as part of the authorization for the amended GPO.</p>
<p>IA.0.014 Sections 503(i)(1)(B) and 504(f)(2)(A) of the Alaska National Interest Lands Conservation Act (ANILCA) require the Forest Service to deny approval for any mining-related actions that would cause “irreparable harm” to the Monument. The permanent destruction of Class 1 and 2 catalogued anadromous streams in the Monument is certainly “irreparable harm” that must be prohibited under these provisions of ANILCA.</p>	<p>Comment ID: IA.0.013 Comment noted. Monument values are discussed in Section 3.19 and in the Record of Decision.</p>
<p>IA.0.015 <i>USFS Responsibility:</i> Under section 1.8 of the DEIS document describing USFS responsibilities the following is excerpted: “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.” It appears DEC is unable or unwilling to fulfill its responsibilities to safeguard water quality in and around this mining operation. The requirements for removal of Greens Creek and Hawk Inlet from the list of Category 3 waters needs to be determined. The issues surrounding the APDES permit need to be resolved in a way that will protect the waters of Hawk Inlet without an excessive mixing zone.</p>	<p>Comment ID: IA.0.014 Comment noted. Alternatives C and D were developed, in part, to provide alternatives that would reduce effects to fish habitat. Repairing the existing but non-functioning fish passage facility in Greens Creek has been considered as mitigation for the loss of this habitat under all action alternatives. Irreparable harm is discussed in Section 3.19 (Monument Values) and in the Record of Decision.</p>
<p>Irene Alexakos Alaska Chapter Sierra Club</p>	

Comment

Response

Comment ID: IA.0.015

As previously indicated, both ADEC and the Forest Service are actively involved with setting monitoring programs throughout the site. We disagree with the commenter's assertion that ADEC is unable or unwilling to fulfill its responsibilities. See the response to Comment IA.0.007 with regard to the Category 3 listing.

Comment	Response
<p>Admiralty Island National Monument Tongass National Forest ATTN: Greens Creek Tailings Expansion 8510 Mendenhall Loop Road Juneau, AK 99801 Email: comments-alaska-tongass-admiralty-national-monument@fs.fed.us</p> <p>RE: Greens Creek Tailings Expansion</p> <p>To Whom It May Concern:</p> <p>IG.0.001 I am writing to express my support for Alternative B in the Draft Environmental Impact Statement for the Draft Greens Creek Mine Tailings Disposal Facility Expansion (April 2012). This option would extend the footprint of the tailings disposal facility to the south, providing capacity to dispose of approximately 30-50 years worth of tailings and waste rock.</p> <p>EXPANSION OF CURRENT LOCATION</p> <p>IG.0.002 I am in support of expanding the current location of the mine tailings site, rather than relocation out of the Admiralty National Monument area. Relocation has more significant impacts to the environment at large:</p> <ul style="list-style-type: none"> • The existing road would need to be more extensively developed, creating a bigger road footprint • Traffic on the road would be increased, increasing dust, erosion, and carbon footprint. • A pipeline for dewatering would need to be developed to drain to the holding pond. <p>Every time tailings are handled there is the opportunity for an accident – key to environmental safety is minimizing transfer and handling. The more time hazardous materials spend in transit and being transferred between modes, the more exposure there is to environmental risk – trucks can wreck, pipelines can leak, monitoring two sites can create distractions. Expanding the current site assures that the area being watched for environmental impact is contained and all environmental monitoring efforts are focused.</p> <p>IG.0.003 In a more developed area, protection of the monument for the sake of the monument would be extremely important. Admiralty’s isolation creates a situation where this sort of protection has a more significant environmental impact than further development of the tailings site in the monument. The monument border is just a line on the map. The forest is no different on one side of the border than the other, and significant development outside of the monument is highly unlikely in the foreseeable future, not in part because it is National Forest land and extremely isolated.</p> <p>50 YEAR PERMITTING</p> <p>IG.0.004 I am whole-heartedly supportive of a 50-year timeline in permitting the tailings site. Hecla Greens Creek plans to develop the additional tailings storage incrementally, to accommodate 10 years worth of tailings at a time. Over-development would not serve the company’s bottom line, as it makes no sense to develop infrastructure that will not be used. Over-development also does not make environmental sense either, as it would impact lands that may or may not be needed in the future, and require maintenance in the interim, and reclamation at closure. Ongoing costs to over-development would include maintaining structural integrity, as well as wastewater monitoring and mitigation.</p>	<p>Comment ID: IG.0.001 Comment noted.</p> <p>Comment ID: IG.0.002 Comment noted.</p> <p>Alternatives C and D would add an additional 5.6 miles round-trip for haul trucks to travel from the portal to the new northern TDF.</p> <p>Mobile source greenhouse gas emissions at the Greens Creek Mine for Alternative B would add 707 tons of carbon dioxide emissions per year, or 0.16% of Juneau’s total greenhouse gas emissions; Alternative C would add 946 tons of carbon dioxide emissions per year, or 0.21% of Juneau’s total greenhouse gas emissions; and Alternative D would add 910 tons of carbon dioxide emissions per year, or 0.21% of Juneau’s total greenhouse gas emissions. Alternatives C and D would produce 0.05% more greenhouse gas emissions than alternatives A and B yearly. In comparison, Juneau’s yearly highway transportation greenhouse gas emissions equal 29% of the borough’s total greenhouse gas emissions.</p> <p>Comment ID: IG.0.003 Comment noted.</p> <p>Comment ID: IG.0.004 Comment noted.</p>

Comment

Response

Comment ID: IG.0.005

Comment noted.

While accorded extremely valuable environmental protections, the permitting process is extensive and costly. A 50-year permit, with an agreement for phased development, would provide HGC with the economic stability to continue development in the area.

ECONOMIC AND SOCIAL IMPACT OF THE MINE

IG.0.005

The company I work for is a planning, environmental and engineering firm with deep roots in Southeast Alaska. Our Juneau office was begun in 1945 by a mining engineer searching for work after the closure of the Alaska Juneau Gold Mine. Today that office supports six engineers, three surveyors, an environmental analyst, a planner, and administrative support, all of whom live in Juneau.

This cadre represents a significant community impact as well. Between all of the staff we serve one secular and two Christian social service organizations, participate in the Chamber of Commerce, coach youth sports and play on hockey teams, support Juneau Jazz and Classics and Perseverance Theatre, run a lodge, and serve on various boards. Nine of us are property owners, and two are looking to purchase this year.

Over the last year our survey team was a subcontractor to one of Greens Creek's contractors. We were able to keep 1 surveyor employed full time, and two others part time. With an office this size, that sort of stability is vital to modulating the seasonal shifts in construction and design. Our on-site work has given us a glimpse into a mine that does things right. Greens Creek extensively self-regulates on safety and environmental impact, and that culture that is evident in every worker we've been exposed to.

Not only is HGC Juneau's top private employer (JEDC Juneau and Southeast Economic Indicators 2011) in an industry with an average wage of \$95,085, and not only are they Juneau's largest tax payer, but HGC continues to contribute to the community, and has illustrated a commitment to hiring locally. They provided \$300-thousand dollars toward an \$800-thousand dollar mine trainer for the University of Alaska Southeast Center for Mine Training (Juneau Empire, May 3, 2012). They've also shown a commitment to developing our youth with the "Introduction to Mining Occupations and Operations" class provided to high school students, which included basic orientation and training, a field trip to the mine, and the possibility of internships (Capital City Weekly, May 3, 2012). This class stresses requirements for various mine jobs, including the need to be drug-free to work at the mine.

In summary, the HGC is a model corporate citizen that I would like to see supported in their efforts to continue doing business in the region.

Thank you,



Irene M. Gallion
PO Box 21254
(800 F Street)
Juneau, AK 99802
imgallion@yahoo.com

Comment

JOEL BENNETT PRODUCTIONS

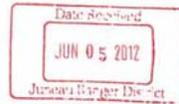
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EMAIL: killik@gci.net

June 4, 2012

Admiralty Island National Monument
8510 Mendenhall Loop Rd
Juneau, AK 99801

Attention: Hecla Greens Creek Mine tailings Expansion DEIS

To Whom It May Concern:



JB.0.001 This is to support Alternative "C" as the preferred DEIS alternative for Greens Creek tailings expansion.

JB.0.002 It is unfortunate that this issue even arises as it appears that underestimated production needs and poor planning have created the problem in the first place. Now the American public is being asked to give up more land and resources to remedy these mistakes.

If these alternatives are the only ones available, I believe that the alternative that is the least injurious to Monument values must be chosen. If either the proposed alternative "B" or Alternative "D" is chosen, irreparable harm will occur to the headwaters of Tributary Creek and other watercourses and high value wetlands south of the existing tailings deposit area. Water quality is a key issue here and this will be further compromised due to the size and duration of the tailings disposal in the plan as outlined in either Alternative B or D. Therefore, it is critical to locate a site for expanded tailings off Monument lands.

The legislation that created the Monument mining exemption for Admiralty specifically provides that mining must not cause irreparable harm to Monument values. In this case irreparable harm clearly will result due to tailings deposited on Monument lands and over the headwaters of Tributary creek, Fowler creek and other watercourses.

JB.0.003 Alternative "C" gives Greens Creek adequate extended time to continue to add to its existing tailings deposit in order to construct a new off monument tailings site 6 miles to the north. This is a viable option. This area has no anadromous streams and is near

Response

Comment ID: JB.0.001

Comment noted.

Comment ID: JB.0.002

Comment noted. Please note, however, that the headwaters of Fowler Creek that would be affected by alternatives C and D are outside the Monument. Water quality is discussed in Section 3.5, wetlands in Section 3.8, and irreparable harm in Section 3.19 (Monument Values) and the Record of Decision.

Comment ID: JB.0.003

Comment noted.

Comment

Response

Comment ID: JB.0.004

Comment noted.

existing road development. This is a reasonable compromise and not unduly burdensome given the national significance of Monument lands.

JB.0.004

President Carter, in his Proclamation creating Admiralty Island Nat'l Monument in 1978, stressed that the island had unique island ecology and was the largest unspoiled coastal island ecosystem in North America. Future mining development must not compromise these overall values.

I am a 42 year resident of Juneau, Alaska, who has spent a considerable time every year enjoying recreational and wilderness pursuits on Admiralty island National Monument. This includes hunting, fishing, hiking, mountain climbing, river paddling and photography.

I own property in Funter Bay on the Mansfield Peninsula and often utilize Hawk Inlet for fishing and wildlife viewing.

I support and treasure Admiralty's Monument values and do not wish to see them further compromised.

Sincerely,



Joel Bennett
15255 Point Louisa Rd
Juneau, AK 99801
(907)789-1718

Comment

Response



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

June 18, 2012

Forrest Cole, Forest Supervisor
Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

Re: POA-1988-0269-2, Hawk Inlet
and Greens Creek Mine Tailings Expansion
Draft Environmental Impact Statement

Dear Mr. Cole:

The National Marine Fisheries Service (NMFS) has reviewed USDA Forest Service's (USFS) Draft Environmental Impact Statement (DEIS) for the Greens Creek Mine Tailings Disposal Facility Expansion. In conjunction with the DEIS, the U.S. Army Corps of Engineers (Corps) has published the above referenced public notice and is requesting comments on activities regulated by the Corps. NMFS offers the following comments under the Fish and Wildlife Coordination Act and the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), to both the USFS and the Corps on the DEIS.

Background

The Greens Creek mine is operated by the Hecla Greens Creek Mining Company (Hecla) and located on Admiralty Island, approximately 18 miles southwest of Juneau, Alaska. The mine has been in operation since 1988 and produces lead and zinc concentrates that also contain silver. Mine tailings are co-disposed with waste rock. Major portions of the mine are located on National Forest System lands and most of the existing tailings disposal facility (TDF) is located in the Admiralty Island National Monument (Monument). The TDF is currently approved to hold 5.3 million cubic yards of tailings and waste rock and cover approximately 62 acres. At the current mining rate, the TDF will be filled to capacity by 2014. Hecla proposes to expand the TDF to accommodate up to 10 million cubic yards of tailings and waste rock over a period of 30 to 50 years.

Project Alternatives

Four alternatives were analyzed for the project, a no action alternative and three action alternatives. The main differences between the three action alternatives are the location and configuration of the TDFs and the type and amount of wetlands and fish streams that would be lost. All actions design for an additional 30–50 year timeframe for mine production.



ALASKA REGION - www.fakr.noaa.gov

Comment

Response

Comment ID: JB.1.001

Comment noted. The 404(b)(1) guidelines require the USACE to identify and select the Least Environmentally Damaging Practicable Alternative. The Forest Service's selected alternative and the rationale behind that selection are presented in the Record of Decision.

Under Alternative A (the no action alternative), the Corps would not issue a permit and mining would cease in 2014, or thereabouts, when the currently approved TDF reaches its full capacity.

Under Alternative B (Hecla's proposed action), the footprint would extend the existing TDF south into the Monument. Approximately 1,646 feet of anadromous fish stream in Tributary Creek would be lost under this proposal. Ninety-nine acres of wetlands would be filled. The proposed action includes expansion of the existing TDF from its currently permitted capacity of 5.3 million cubic yards of tailings and waste rock to a total capacity of 15 million cubic yards of tailings and waste rock, an increase in capacity of approximately 9.7 million cubic yards.

Under Alternative C (TDF located outside the Monument), the existing TDF would be expanded to hold an additional one million cubic yards of tailings (about three years of additional capacity). Under this alternative, a new TDF would be developed north of the existing TDF, outside of the Monument. The new TDF would be developed to accommodate the remaining 8.7 million cubic yards, providing adequate capacity to contain the same amount of tailings and waste rock considered under the proposed action. No anadromous reaches would be filled. An additional 114.2 acres of wetlands would be filled.

Under Alternative D (modified proposed action), the existing TDF would be expanded to accommodate an additional three million cubic yards of tailings (about 10 years of capacity). A new, separate TDF would be built outside the Monument to accommodate seven million cubic yards of tailings and waste rock over the additional 30-50 years. Approximately 1,044 feet of resident fish stream and 124.9 acres of wetlands would be disturbed. No anadromous reaches would be filled.

Essential Fish Habitat

Section 305(b)(2) of the MSA requires federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. The DEIS states that an EFH assessment is being prepared by the USFS and the Corps to consult with NMFS on adverse impacts to EFH as a result of the proposed project. NMFS recently received a copy of the EFH Assessment (June 8, 2012) and will be providing EFH conservation recommendations as appropriate to complete consultation with the USFS and the Corps under section 305(b)(2) of the MSA.

General Comments and Recommendations

Least Environmentally Practicable Alternative

JB.1.001

The Clean Water Act Section 404(b)(1) Guidelines (Guidelines) state that only the least environmentally damaging practicable alternative (LEDPA) for a proposed discharge of fill into jurisdictional wetlands or waterways can be permitted by the Corps. Both

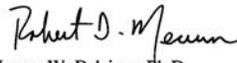
Comment	Response
<p>alternatives C and D do not require fill in anadromous streams. NMFS recommends the USFS and Corps select either Alternative C or Alternative D as the LEDPA.</p>	<p>Comment ID: JB.1.002 Comment noted. Wetlands mitigation requirements and guidelines are established by the USACE. The focus of mitigation has shifted from a preference for on-site, in-kind mitigation to the in-lieu fee approach discussed in the EIS. Forested lands will be reestablished following closure; however, there will be some long-term reduction in the number of acres of wetlands at the site.</p>
<p>JB.1.002 Mitigation The Guidelines require the applicant to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States. Compensatory mitigation for unavoidable impacts may be required to ensure that an activity complies with the Guidelines.</p>	<p>Comment ID: JB.1.003 Comment noted. The Forest Service will work with ADF&G and the USACE in determining final mitigation plans. The USACE ultimately has the authority to establish compensatory mitigation requirements through the Section 404 permit.</p>
<p>JB.1.003 The Alaska District Regulatory Guidance Letter (RGL) ID No. 09-01 provides sample ratios for compensatory mitigation. The RGL suggests that high quality habitat be mitigated at a ratio of at least 3:1. Anadromous waters are considered high-quality habitat where impacts should be avoided if possible. NMFS recommends that a minimum ratio of 3:1 be used to mitigate for unavoidable impacts associated with this project.</p>	<p>Comment ID: JB.1.004 Comment noted.</p>
<p>JB.1.004 In 1983, during the original permitting process for the Greens Creek mine, the mine operator and agencies agreed to mitigate for potential lost fish production by creating upstream fish passage on Greens Creek at river mile 3.6. The fish pass, constructed in 1989, has not properly functioned since 2005. The applicant has proposed repairing the fish ladder on Greens Creek to mitigate for their proposed project.</p>	<p>Comment ID: JB.1.005 The ADF&G, a cooperating agency in this analysis, has determined that the fish passage was successful when it functioned. Quarterly monitoring of the fish passage will be required and financial assurances will ensure continued operation of the fish passage. See Table 2.6-2.</p>
<p>JB.1.005 NMFS recommends that prior to requiring the existing fish pass be repaired, the applicant complete an analysis on the success of the fish passage above mile 3.6. The analysis should use data between 1989 and the last date of known records. The analysis should include the extent of stream surveyed, adult survival records, and estimates of stream carrying capacity. In addition, the analysis should describe why and how often failure occurred. If the proposed failed fish ladder is selected as part of the mitigation package, it should include a monitoring plan with adaptive management measures in the event of failure(s). Due to fish passage failure in the past, and the possibility of failure in the future, NMFS recommends additional mitigation measures be identified and developed with input from NMFS, to mitigate for the loss to fish production.</p>	<p>Comment ID: JB.1.006 Monitoring requirements are established in the APDES permit, ADEC's Waste Management Permit, and the Record of Decision for the amended GPO, all of which include monitoring requirements that extend beyond five years. The freshwater monitoring program is established under the GPO, which is approved by the Forest Service. The ADEC is responsible for establishing monitoring requirements associated with the wastewater discharge permit. All permitting requirements are subject to regular review and allow for adaptive management if adverse trends are detected.</p>
<p>JB.1.006 The DEIS states that Hecla will have to actively treat the water from the tailings piles for "hundreds of years if not in perpetuity." Continued annual monitoring could detect stochastic events of both natural and project-caused origin that have or could have adverse impacts to aquatic resources. Therefore, NMFS supports annual monitoring for the life of the project, rather than discontinuing monitoring after five years. Monitoring should include quantitative statistical analyses for meaningful comparisons of periphyton, invertebrates, and fish health over the life of the project. Standardized macro-invertebrate metrics developed for Southeast Alaska can be used to characterize stream health (Rinella et al. 2005). Adaptive management alternatives should be developed and applied if unacceptable changes in monitored biota are detected.</p>	

Comment

Response

Should you have any questions regarding our comments on the DEIS please contact Chiska Derr at 907-586-7345 or Chiska.Derr@noaa.gov.

Sincerely,


for James W. Balsiger, Ph.D.
Administrator, Alaska Region

cc: comments-alaska-tongass-admiralty-national-monument@fs.fed.us
Randall.P.Vigil@usace.army.mil, Corps, Juneau
Steve_Brockman@fws.gov, USFWS, Juneau
brenda.krauss@alaska.gov, ADNR, Juneau
Chiska.Derr@nmfs.gov, NMFS, HCD, Juneau

References

Rinella, D. J., D. L. Bogan, K. Kishaba, and B. Jessup. 2005. Development of a Macroinvertebrate Biological Assessment Index for Alexander Archipelago Streams – Final Report. For Alaska Department of Environmental Conservation. 52 pp.

G:USFS Greens Creek Expansion DEIS comments cd 6-18-12

Comment

Response

LAW OFFICE OF JAMES F. CLARK
1109 C Street
Juneau, Alaska 99801
Telephone: 907-586-0122 Fax: 907-586-1093

Comment ID: JC.0.001
Comment noted.

Comment ID: JC.0.002
Comment noted.

Comment ID: JC.0.003
Comment noted.

Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, Alaska 99801
June 1, 2012

Dear Sir/Madam,

JC.0.001

I write in support of the continued expansion of the existing Tailings facility for the Greens Creek Mine, Alternative B. The No Action alternative would result in mine closure which would have significant and serious socio-economic impacts on Juneau from the resulting loss of 360 jobs. For the reasons given below, development of a new tailings site two miles from the existing facility would be more environmentally damaging than continued expansion of the existing facility and would provide no offsetting environmental benefit.

JC.0.002

Alternative B would extend the existing tailings impoundment southward and upward, thereby providing sufficient capacity for another 50 years of operation. This would allow Greens Creek to continue to use exactly the same tailings facility operating practices that it has successfully used for 25 years and that were approved by DEC, DNR, and the Forest Service when Tailings facility expansion was previously permitted.

JC.0.003

Alternative B has the additional following advantages that make it superior to the other alternatives:

- o Fewer acres of disturbance;
- o Facility contained within an engineered facility in a single watershed; and
- o Transportation of tailings from mine to tailings facility contained to the B road; no need to upgrade the A road thereby avoiding reconstruction of a portion of the A road and the increased fuel usage of a longer haul.

Comment

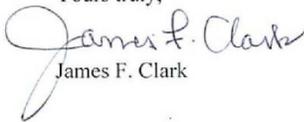
Response

Comment ID: JC.0.004
Comment noted.

JC.0.004

Given the continued, successful operation of the existing Tailings facility, it makes the most sense for the Forest Service to allow sufficient expansion of that facility to meet Greens Creek's needs going forward. Accordingly, I urge the Forest Service to select Alternative B in the Record of Decision.

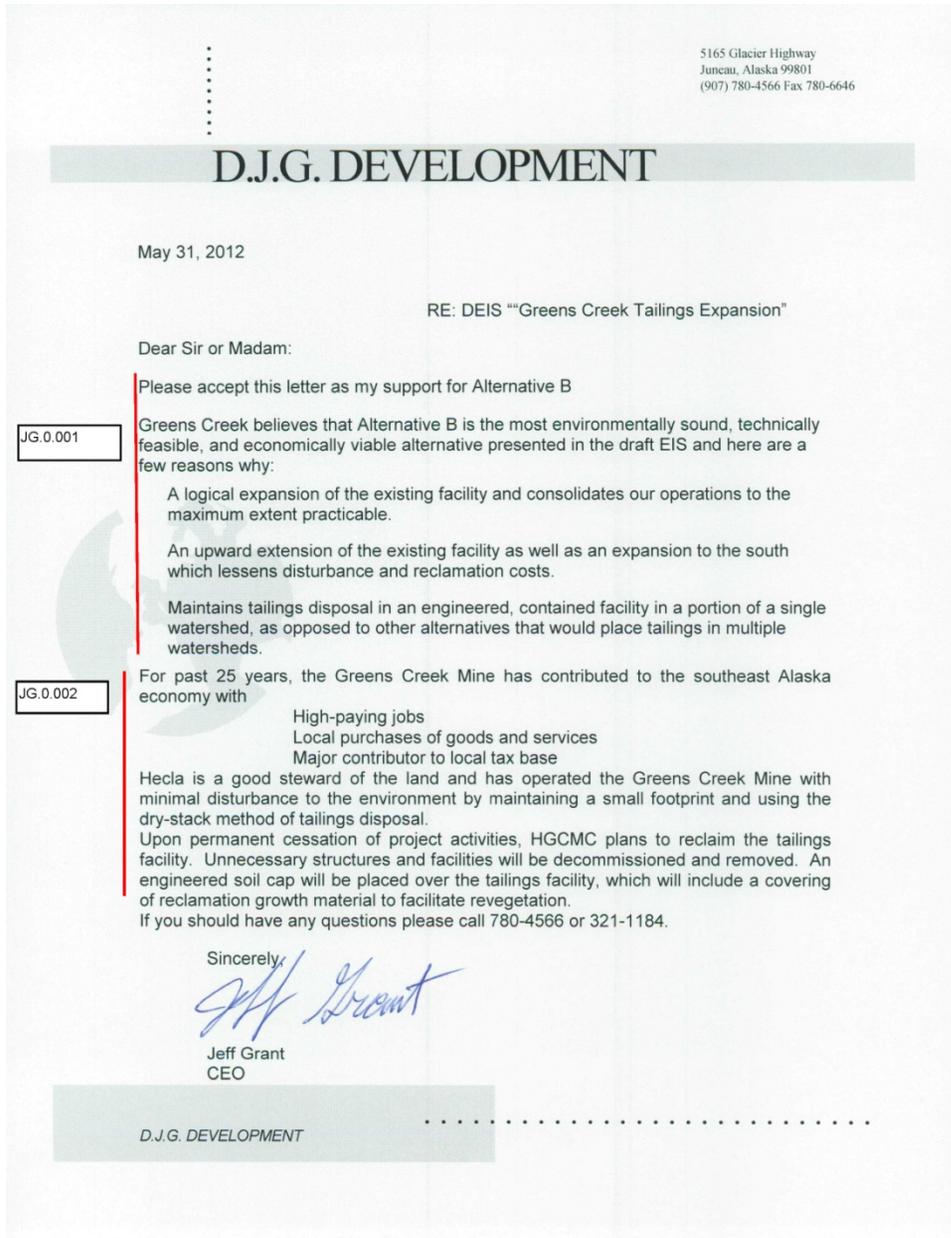
Yours truly,



James F. Clark

Comment

Response



Comment ID: JG.0.001

Comment noted. Please note that alternatives A and B would impact three watersheds: Cannery Creek, Tributary Creek and the South Hawk Inlet. Alternatives C and D would impact five watersheds: Cannery Creek, Tributary Creek, South Hawk Inlet, Fowler Creek, and North Hawk Inlet (see Section 3.5, figures 3.5-5 and 3.5-6).

Comment ID: JG.0.002

Comment noted.

Comment

Response

Comment ID: JM.0.001
Comment noted.

From: [Jason Morford](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Subject: IN FAVOR OF GREENS CREEK'S TAILINGS FACILITY EXPANSION
Date: Tuesday, May 08, 2012 11:39:19 AM

To Whom It May Concern:

JM.0.001

I just wanted to briefly voice my opinion that the new tailing facility seems like a no-brainer. I have read their environmental impact document, and I believe it's of good reasoning, and well thought out. I know that Greens Creek has a great track record as a responsible company for safety, lowest possible environmental impact, and as a financial support for our community. I hope this helps them stay in business for the next 50 years with the same positive impact they've been making so far. Thank you for your consideration.

Sincerely,

Jason Morford (resident of Juneau, AK)

Comment

Response

Comment ID: JM.1.001
Comment noted.

Cox, David

From: Iwamoto, Karen -FS <kiwamoto@fs.fed.us> on behalf of FS-comments-alaska-tongass-admiralty-national-monument <comments-alaska-tongass-admiralty-national-monument@fs.fed.us>
Sent: Tuesday, June 05, 2012 8:37 AM
To: Cox, David; Weglinski, Gene
Cc: Samuelson, Sarah J -FS
Subject: FW: Greens Creek Mine Dry Stack Expansion

Karen Iwamoto
Land Management Planner
Tongass National Forest
907-747-4230
kiwamoto@fs.fed.us

From: Morrison, Jason [<mailto:Jason.Morrison@redpathmining.com>]
Sent: Monday, June 04, 2012 4:33 PM
To: FS-comments-alaska-tongass-admiralty-national-monument
Subject: Greens Creek Mine Dry Stack Expansion

As a former Mine Manager of the Greens Creek Mine the expansion of the dry stack facility will allow continued operations of the Greens Creek Mine to continue with resulting minimal impact.

The facility has operated for 24 years without creating any undue harm to the environment, has allowed for continual co-existence with the animals inhabiting the area and places the dry stack in a focused area where they can best be handled in the future for reclamation. Adding another area of dry stack will require additional impact. Need for additional roads, placement of materials in a new area will have a much more significant impact on the surrounding area.

JM.1.001

The facility is located in an area where there is minimal drainage to the surrounding environment and is well maintained at all times.

The water treatment facility is positioned ideally to allow for continued treatment of waters contacting the tailings.

Alternative locations will create the need for additional facilities of current infrastructure, require additional clearing of forested areas and change current patterns which would create an adverse impact on wildlife that has adapted very well to the current facility.

Consideration of other areas for an additional facility does not make for effective stewardship of the available land.

Jason Morrison
Area Manager
J.S. Redpath Corporation
Office 907-789-3752
Cell 907-723-6127

Comment

Response

Comment Form

Greens Creek Mine
Tailings Disposal Facility Expansion
Environmental Impact Statement

Name: Jeannette (Jenny), Pursell

Date: May 22, 2012

Organization (if applicable): _____

Mailing Address: P.O. Box 33578 Juneau AK 99803

Email Address: mikejen@qci.net

Comments: Dear U.S. Forest Service, (1)

JP.0.001

As an 11 year resident of Juneau, AK and a frequent recreational user of Admiralty Island, I am concerned about the approach that will be selected to enable the Green Creek's mine tailing expansion. In considering the alternatives that are available I have selected alternative C.

JP.0.002

The reason for my selection is that I believe that the waters and sediment of Hawk Inlet need a 'rest' from the outflow of minerals such as mercury, cadmium, cyanide, copper, lead, and zinc. Should the

Return written comments at the meeting or send to the Forest Service no later than **June 4, 2012.**

Address:
Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

e-mail:
comments-alaska-tongass-admiralty-national-monument@fs.fed.us
Subject: Greens Creek Tailings Expansion
Fax: (907)586-8808

Comment ID: JP.0.001

Comment noted.

Comment ID: JP.0.002

The control, treatment, and discharge of effluent to Hawk Inlet and the management of stormwater is currently regulated through the APDES permit. Leaching untreated effluent from the TDF would be in violation of the existing permit.

The Forest Service has no authority over the permit reissuance process and cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, or monitoring requirements associated with the permit. Since the discharge is and will continue to be permitted by agencies with authority for CWA compliance, the Forest Service considers the discharge to be protective of water quality for the purposes of this analysis (36 CFR 228.8(h)). As such, the EIS does not consider alternative discharge scenarios.

Financial assurance will be required to control and treat water in perpetuity. A description of financial assurance procedures is found in Section 1.8.3.1 and in Appendix B.

Comment

Response

Comment Form

Greens Creek Mine
Tailings Disposal Facility Expansion
Environmental Impact Statement

Name: Jeannette, (Jenny), Pursell

Date: _____

Organization (if applicable): _____

Mailing Address: P.O. Box 33578 Juneau Ak 99803

Email Address: mikejen@qci.net

JP.0.002 cont

Comments: ... current tailings dump be permitted 'as is' by the DUSEF then this outflow will continue to occur for the next 50 years, which is the projected life of the mine. Even after the mine is closed, the tailings dump will persist with ongoing leaching into the waters of Hahak Inlet. To allow such outflow for the next 50 years 'plus' is not acceptable to me. Reclamation funds will not be sufficient to monitor and regulate this leaching after the mine closes.

JP.0.003

Alternative C would relocate the tailings dump to a new location 6 miles from the cont...

Return written comments at the meeting or send to the Forest Service no later than **June 4, 2012.**

Address:
Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

e-mail:
comments-alaska-tongass-admiralty-national-monument@fs.fed.us
Subject: Greens Creek Tailings Expansion
Fax: (907)586-8808

Comment ID: JP.0.003

Comment noted. Please be aware that while water control, treatment, and management would be required under all alternatives, the streams in the vicinity of the TDF under alternatives C and D drain to Young Bay.

Comment

Response

Comment Form

Greens Creek Mine
Tailings Disposal Facility Expansion
Environmental Impact Statement

Name: Jeanette Russell (Jenny)

Date: May 22, 2012

Organization
(if applicable): _____

Mailing Address: P.O. Box 33578 Juneau, AK

Email Address: mikejen@qci.net 99803

(3)

JP.0.003
cont

Comments: ... current location. This site is not adjacent to identified salmon streams or large bodies of water such as Hawk Inlet.

I urge the USFS to select alternative C.

Sincerely,
Jeanette E. Russell

Return written comments at the meeting or send to the Forest Service no later than
June 4, 2012.

Address:
Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

e-mail:
comments-alaska-tongass-admiralty-national-monument@fs.fed.us
Subject: Greens Creek Tailings Expansion
Fax: (907)586-8808

Comment

Response

Comment ID: JR.0.001
Comment noted.

From: [Rust, John](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#); heidi.x.firstencel@usace.army.mil
Cc: [Lois Norrard](#); [Amy Rust](#); [Amy Rust](#); [Dawn](#); [Schaust, Steve](#); admiralty_friends@yahoo.com; info@beyondak.com; info@iunaukavak.com
Subject: Admiralty Island: Greens Creek Tailings Expansion - Tongass national Forest
Date: Friday, May 25, 2012 9:34:24 AM

May 25, 2012
Subject: Greens Creek Tailings Expansion on Admiralty Island

JR.0.001

Dear USDA Forest Service and U.S. Army Corps of Engineers

My son and I kayaked and camped on Admiralty Island during August of 2010 for 8 days. We were very impressed with the huge Sitka Spruce, Western Red Cedar, and Western Hemlock trees of the Tongass National Forest – part of a temperate rain forest. We watched wild salmon swimming upstream, brown bears fishing for salmon; saw a proliferation of bald eagles, and diversity of sea life including jellyfish, seals and whales. This area is truly a national treasure. Please note and register our comments as to the expansion of the Greens Creek Mine Tailings areas. Our recommendation and preference is to do the utmost to truly protect the pristine and beautiful character of Admiralty Island, the channels surrounding the island and the habitat and wildlife.

Thank you for taking the time to register our comments.

Sincerely,
John and Kyle Rust
9725 Oliver Ave. North
Brooklyn Park, MN 55444
763-202-3346

The information contained in this message is proprietary and/or confidential. If you are not the intended recipient, please: (i) delete the message and all copies; (ii) do not disclose, distribute or use the message in any manner; and (iii) notify the sender immediately. In addition, please be aware that any message addressed to our domain is subject to archiving and review by persons other than the intended recipient. Thank you.

Comment

Response

From: [Shearer, Justin](#)
To: [FS-comments-alaska-forepass-admiralty-national-monument](#)
Subject: Greens Creek Tailings Expansion
Date: Friday, June 01, 2012 2:56:56 PM

Comment ID: JS.0.001
Comment noted.

Comment ID: JS.0.002
Comment noted.

To whom it may concern,

JS.0.001

As a member of the Southeast Alaska Business Community, we support Hecla Greens Creek in believing that "Alternative B" is the most feasible and logical alternative to expand their existing tailings facility. This alternative creates less disturbances to all areas of the site on Admiralty Island, AK. Continually, it keeps the tailings disposal in a contained single watershed and minimizes impact to the environment.

JS.0.002

Hecla Greens Creek remains one of the most important parts of the Juneau Economy. For the past 25 years, they have employed over 300 families with good high paying jobs that filter revenue into the surrounding Juneau Economy. They have played a major roll working with the University of Alaska Southeast to ensure students have proper training before starting a career in the mining industry. Juneau and Southeast Alaska depend on Hecla Greens Creek. Please join me in supporting them on "Alternative B".

Thank you,


Justin Shearer
Branch Manager (Juneau)
Office: 907-789-0181
Cell: 907-321-2464

Comment

From: [Jeanine St. John](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Cc: [Jeanine St. John](#)
Subject: Greens Creek Tailings Expansion
Date: Friday, May 11, 2012 7:15:30 AM



May 11, 2012

Admiralty Island National Monument – Tongass National Forest

ATTN: Greens Creek Tailings Expansion

8510 Mendenhall Loop Road

Juneau, Alaska 99801

Comments-alaska-tongass-admiralty-national-monument@fs.fed.us

To Whom It May Concern:

Lynden is a multi-modal transportation and logistics company, with over 700 Alaska employees, a history of scheduled service to Alaska starting in 1954, and extensive activity throughout the state of Alaska, including support for all segments of the economy. Lynden has provided support services for the mining industry including significant logistics support for virtually every project in Alaska.

JS.1.001

Lynden is writing in support of Hecla Greens Creek Mine's efforts to expand their existing tailings facility using "**Alternative B**" under the draft EIS submitted by the US Forest Service for the following reasons:

- Expansion of their tailings facility is an essential component in their plans to continue operating the Greens Creek Mine now and for the future
- Alternative B minimizes the impacts to the environment by keeping the tailings facility consolidated versus the other alternatives

Response

Comment ID: JS.1.001

Comment noted. Calculations of mobile source greenhouse gas emissions at the Greens Creek Mine showed that Alternative B would result in 707 tons of carbon dioxide emissions per year, or 0.16% of Juneau's total greenhouse gas emissions; Alternative C would add 946 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions; and Alternative D would add 910 tons of carbon dioxide emissions per year, or 0.21% of Juneau's total greenhouse gas emissions. Alternatives C and D would produce 0.05% more greenhouse gas emissions than alternatives A and B annually. In comparison, Juneau's yearly highway transportation greenhouse gas emissions equal 29% of the borough's total greenhouse gas emissions.

Alternatives A and B would impact three watersheds: Cannery Creek, Tributary Creek, and the South Hawk Inlet. Alternatives C and D would impact five watersheds: Cannery Creek, Tributary Creek, South Hawk Inlet, Fowler Creek, and North Hawk Inlet (see Section 3.5, figures 3.5-5 and 3.5-6).

Comment

Response

Comment ID: JS.1.002

Comment noted.

- Alternative B would continue their tailings disposal in an engineered, contained facility within a single watershed versus the other alternatives that would place tailings in multiple watersheds
- Alternative B would allow them to continue to utilize existing site support facilities including "B" Road versus other alternatives that would require major construction upgrades to "A" Road
- Alternative B using the current location for tailings has no new impacts on area wildlife versus the other alternatives that have an active goshawk nest in the area
- Alternative B is the only option that would not increase Greens Creek's use of fossil fuels in the transportation of tailings to the disposal facilities
-

JS.1.002

Hecla Greens Creek Mine has been an integral part of our Southeast Alaska Community for the past 25 years by providing high paying jobs, purchasing supplies and services locally, and operating in a safe and environmentally sound manner. Alternative B gives them the additional capacity for their future and supports our business, which provides transportation services throughout Southeast Alaska.

Sincerely,

LYNDEN LOGISTICS

Jeanine M. St. John
 Vice President
 Lynden Logistics
 6400 S. Airpark Place Suite 1
 Anchorage, AK 99502
 (907)249-0215
 Mobile (907)250-4038
 Email: jjohn@lynden.com

Comment

Response

Comment ID: JS.2.001
Comment noted.

From: Joe.G.Sorenson@leschwab.com
To: [FS-comments-alaska-tonoass-admiralty-national-monument](#)
Subject: greens creek tailing expansion
Date: Tuesday, May 08, 2012 5:42:45 PM

to: US Forest Service

JS.2.001

It would seem to me that that the B tailings is the only way to go on the island . way would you want to double up on all the monitoring and treatment equipment when you try and lessen a foot print . and only having one sight to keep track of for the rest of time seems to be a better solution . so I would only support the B tailings proposal.

Thank you,
Joe Sorenson
Juneau resident
Les Schwab co.

NOTICE: This communication (including any attachments) may contain privileged or confidential information intended for a specific individual and purpose, and is protected by law. If you are not the intended recipient you should delete this communication and/or shred the materials and any attachments and are hereby notified that any disclosure, copying or distribution of this communication, or the taking of any action based on it, is strictly prohibited. Thank you.

Comment**Response****Comment ID: JS.3.001**

Comment noted.

From: [John Sandor](#)
To: [FS-comments-alaska-tongass-admiralty-national-monument](#)
Cc: [John Sandor](#); [Don Burford](#); [shartman@hecla-mining.com](#); [fredmorino@yahoo.com](#); [Neil MacKinnon](#); [ombell@uas.alaska.edu](#); "Juneau Chamber"; [Cal Richert](#); [Brian Kleinhenz](#)
Subject: Hecla Greens Creek Tailings Expansion
Date: Tuesday, May 15, 2012 10:32:06 AM

U.S. Forest Service Admiralty Island National Monument:

I am John A. Sandor, 3311 Foster Avenue, Juneau, AK 99801 commenting on the recently issued Draft EIS that examines alternatives for the additional tailings disposal at the Hecla Mining Company Greens Creek Mine on Admiralty Island.

JS.3.001

The Hecla Mining Company has successfully operated this mine for over twenty years, and has been in conformance with all federal and state regulatory requirements - and is a major employer in our community.

I support the Hecla Greens Creek Mining Company plan to use Alternative B - which continues their past method of tailings disposal and is most environmentally sound, technically feasible and economically viable.

Hecla Mining Company's Greens Creek Mine is one of the largest employers in the Juneau-Douglas region and a major contributor to the economy and quality of life of our community.

We are looking forward to the continued positive benefits of this mine's operations in our community.

John A. Sandor
 3311 Foster Avenue
 Juneau, AK 99801
 907-596-2497

Comment

Admiralty Island National Monument Tongass National Forest
Attention: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801
email: comments-alaska-tongass-admiralty-national-monument@fs.fed.us

June 4, 2012

To the Forest Service Decision Makers:

JS.4.001

Please accept my comments on the proposed expansion of the tailings disposal facility for the Greens Creek mine on Admiralty Island. I am a thirty year resident of southeast Alaska and I have spent a great deal on time on Admiralty Island. I hunt and fish on lands immediately adjacent to the Greens Creek mine. Family and friends fish commercially for a living along the shores of Admiralty Island, harvesting seafood from the streams and estuaries of the island as well as migratory fish that feed on the abundant forage fish and plankton that thrive in the coastal waters of Admiralty Island. I engage in recreational boating and hiking in the area as well as throughout Admiralty Island National Monument and Kootznoowoo Wilderness Area. For many years I worked as a wilderness guide on Admiralty Island. Our clients were there to see bears, catch fish, photograph eagles, watch birds and learn about wildland natural history. Many came to Admiralty specifically because of its wilderness quality, to experience first hand a vast northern old growth forest. These resources, these uses and these intact wild ecosystems are important to my way of life and to the jobs and businesses and quality of life of many other Alaskans.

As a Juneau resident and a past three-term member of the Juneau Economic Development Council I am keenly aware of the contribution the Greens Creek mine makes to the local economy. Greens Creek is our community's largest private sector taxpayer and, like many Juneau residents, I know people who have good jobs at or related to the mine. I know local businesses owners whose patrons include mine employees. The mine is an important part of the local economy and enjoys strong support from Juneau's business and political community.

I am also a conservationist, a strong supporter of protecting and taking care of the natural, wild and renewable resources that also are important to our lives. I understand that most of Admiralty Island is a National Monument, an International Biosphere Reserve, a Wilderness Area. It has great ecological, scientific and recreational importance to the United States and to the world. In fact, in a global context Admiralty Island is and perhaps always will be the largest contiguous, intact tract of temperate rainforest that is protected as a conservation area.

JS.4.002

Perhaps most significant, Admiralty Island – Kootznoowoo - is the home of the Angoon Tlingit people. The Angoon people were instrumental leaders in establishing Admiralty Island National Monument and Kootznoowoo Wilderness.

Response

Comment ID: JS.4.001

Comment noted.

Comment ID: JS.4.002

Traditional uses of the region are discussed in sections 3.16 (Subsistence) and 3.17 (Cultural Resources).

Effects to marine and freshwater resources, including Hawk Inlet and salmon streams, are addressed in Section 3.7, Aquatic Resources. All lands currently used or proposed for use for mining, milling, or related processes are open to mineral entry or the claimant retains valid existing rights that were established before the withdrawal. No alternative would extend into the Wilderness portion of the Monument or into what was formerly the Young Bay Experimental Forest, both of which are currently withdrawn from lands available for mineral entry. Although termination of the mineral withdrawal for the former experimental forest would be consistent with management of the area under the Semi-Remote Recreation Land Use Designation (LUD), which includes direction providing that "Forest lands within this LUD are open to mineral exploration and development," this has not occurred. For the withdrawal to be terminated, the Regional Forester would have to request that the U.S. Department of the Interior revoke the 1963 mineral withdrawal, and a decision whether to approve that request would be made by the Secretary of the Interior. The process would include an environmental analysis under NEPA. The Forest Service uses the Forest Plan to guide management actions throughout the Tongass National Forest and therefore does not maintain a separate Monument/Island Plan. Based on internal review and the public scoping process (Section 1.5), Monument values were identified as a significant issue (Section 1.7) and alternatives and mitigation measures (sections 2.2 and 2.6) were identified and included in the EIS to reduce effects to the Monument. Section 3.19 is dedicated for consideration of impacts to the Monument specifically.

It is not possible to predict an absolute fixed date of closure. The current proposal is to authorize additional disposal capacity to accommodate another 30 to 50 years of operations, although under the terms of the Greens Creek Land Exchange Act, mining may not continue past 2095. This is acknowledged in Section 3.22, Cumulative Effects.

Comment

JS.4.002 cont

Tlingit people from the Juneau area, Hoonah, and especially Kake have also used and depended upon the traditional uses and resources of Admiralty Island since time immemorial.

I cite these interests, values and perspectives because they together call on the Forest Service decision makers to summon their best talents and convictions as land stewards for the American – and Alaskan -- people. There is and will be pressure to get the decision done with fewer staff and less money than ever. Pressure will come to bear from the mining company to make a decision that maximizes their profits while minimizing their costs and their risk of delay due to appeals and litigation. The Juneau City & Borough leaders are facing their own budgeting challenges and will have their eyes on the tax revenues related to the mine. There will be concerns, alternate proposals and objections from conservationists. Why? Because the tailings are toxic and pollute to varying degrees, depending on conditions, and could threaten the productivity of Hawk Inlet and other water bodies. Because the expansion will bury and destroy a salmon spawning stream. Because the proposed expansion will likely spill into lands previously off limits to mining development. Because this expansion proposal is likely to be followed, in the future, by additional expansion proposals and there is concern that there is no "life of the mine" plan. Because there is no long-range plan for Admiralty Island as a geographic unit and as a result truly significant decisions are being made in a piecemeal, incremental fashion that probably is not consistent with long term stewardship.

For all of these reasons the Forest Service must step up from the permit-processing and minimum-legal-compliance mindsets and claim their crucial role as steward of a magnificent local, national and international conservation area: Admiralty Island – Kootznoowoo – Fortress of the Bear. This means that the Monument values must be the priority in this decision. This does not mean they trump mining that was authorized in ANILCA. It does not mean Greens Creek has a bad track record – there are some environmental problems but overall the mine is one of the better examples of how mineral development can proceed responsibly in Alaska. The Forest Service's stewardship responsibility that at the end of each decision related to Admiralty Island the Monument and Wilderness are in as good or better condition as they were before the decision.

The mine is likely going to continue to operate for decades; there are no signs it is going to close until the ore plays out; their reports are that there is a lot more lucrative ore to be mined. The mining company needs to accept, as previous owners have, at times, demonstrated, that in doing business on Admiralty Island they must meet a very high conservation standard. When they take they should also give back. This means they should take extra measures to protect the environment, reduce environmental risk and fund or engage in compensatory measures to make the Monument whole. It means they need to accept very lucrative profits and forego maximizing profits. To a significant extent this will be a product of technology and law and a diligent permitting process. It is also about seeing the forest for the trees, seeing the whole of Admiralty and what it means to so many people -- not just the blueprint for a tailings impoundment.

Response

Numerous practices are in place or will be implemented to reduce effects to the environment, including those found in the GPO, USACE CWA Section 404 permit, APDES permit, ADNR reclamation plan approval and water right authorizations, ADEC Waste Management Permit and Air Quality permit, ADF&G Fish Habitat Permit, and City and Borough of Juneau Large Mine Permit.

Many of these measures that relate to tailings placement and operations at the TDF are called out in Table 2.6-2. The EIS assesses the environmental effects of various aspects of tailings disposal across a wide range of resources, including the consideration of the Monument (discussed in Section 3.19, Monument Values).

The Forest Service is working closely with cooperating agencies, including the USEPA, USACE, State of Alaska, and CBJ in addition to interested parties from the USFWS and NMFS. We have also conducted meetings with local tribal entities in Angoon and Juneau. The Forest Supervisor's selected alternative and the rationale for his choice are presented in the Record of Decision.

Comment

Response

While the company can do a lot to work with people who care about Admiralty Island to strike a better balance, and many other groups and individuals can engage in the process with that result in mind, the Forest Service must be the leader. The Forest Service has a public mission and very good staff who can do this right. In this instance the Forest Service leadership needs to support the Monument Manager and all project staff in making this a top priority for both the local economy and the conservation and preservation of the Admiralty Island Monument values. There are plenty of people in the community, and beyond, who will help in that regard – if the Forest Service steps up to the plate. There is potential for an excellent outcome overall. There is also potential for a tough, protracted dispute.

My call is for the Forest Service to lay the groundwork for the better result, for the mining company to embrace a conservation area mining strategy, and for local people to support alternatives that solve problems and in which all parties can take pride. If the agency can't get it right on Admiralty Island, what does this say about the prospects for managing mineral development on other Forest Service lands in Alaska? Yet if the Forest Service can handle this proposal in a way that protects the Monument while allowing business to continue to prosper, a very strong precedent is set for the future.

Thank you for the opportunity to comment on the Greens Creek Tailings Expansion.

Sincerely,

John Sisk
4435 North Douglas Highway
Juneau, AK 99801

Comment

Response



June 4, 2012

VIA EMAIL

Ms. Sarah Samuelson
Interdisciplinary Team Leader
Admiralty Island National Monument
Tongass National Forest
ATTN: Greens Creek Tailings Expansion
8510 Mendenhall Loop Road
Juneau, AK 99801

Re: Hecla Greens Creek Mining Company Comments on Draft EIS

Dear Ms. Samuelson:

On behalf of Hecla Greens Creek Mining Company ("HGCMC"), I am pleased to provide comments on the draft Environmental Impact Statement ("DEIS") concerning the Greens Creek Mine Tailings Disposal Facility Expansion. Completion of the EIS and issuance of the Clean Water Act Section 404 dredge and fill permit is critically important to the Mine, and we appreciate the hard work that the U.S. Forest Service and U.S. Army Corps of Engineers have put into this project. We will provide comments on the draft 404 permit (Appendix A of DEIS) under separate cover to the U.S. Army Corps of Engineers.

If you have any questions, please contact me at (907) 790-8474.

Sincerely,

Jennifer Saran

Jennifer Saran
Environmental Manager

Comment	Response
 <p style="text-align: center;"><u>HECLA GREENS CREEK MINING COMPANY DRAFT EIS COMMENTS</u></p> <p>Comment 1</p> <p style="text-align: center;">General.</p> <p>JS.5.001 All APDES permit references to values for flow/discharge are not for the permit currently in place; they are the proposed values under the current permit renewal that have not yet been approved.</p> <p>Comment 2</p> <p style="text-align: center;">Abstract, p. i.</p> <p>JS.5.002 There is a typo in the second sentence of the Abstract, which should read: "The analysis includes four alternatives: the proposed action which calls for a 30 to 50-year expansion of facilities within the Monument; a no action alternative under which an expansion would not be authorized; an alternative that provides an equal amount of waste disposal capacity while reducing the footprint within the Monument; and an alternative that would allow expansion into the Monument but would avoid direct impacts to Tributary Creek, an anadromous stream in the project area."</p> <p>Comment 3</p> <p style="text-align: center;">Summary, p. iii.</p> <p>JS.5.003 The third sentence in the first paragraph should be corrected to read: "The mine has been in operation since 1989 with a two year period of temporary closure."</p> <p>Comment 4</p> <p style="text-align: center;">Summary, p. iii, General Comment.</p> <p>JS.5.004 In the last sentence of the second paragraph, and in numerous locations elsewhere in the document, the DEIS incorrectly states that the expansion of the existing TDF will hold an additional 9.7 million cubic yards of tailings and waste rock. This figure is incorrect and instead should be 15 million cubic yards. Section 1.3 (Proposed Action) on p. 1-7 correctly states that the "TDF expansion would accommodate an estimated additional 15 million cubic yards of tailings and waste rock." Please change all references in the DEIS regarding the TDF expansion volume to 15 million cubic yards.</p> <p>Comment 5</p> <p style="text-align: center;">Summary, p. iii, General Comment.</p> <p>JS.5.005 In the second paragraph, and in numerous locations elsewhere in the document, the DEIS incorrectly states that the existing "TDF will be filled to capacity in 2014." Please correct this date to "2016" to reflect that the mine can continue to operate until late 2016 if the remaining capacity at the TDF is judiciously used to the extent practicable.</p>	<p>Comment ID: JS.5.001 The EIS has been modified throughout to reflect the current status of the APDES permit (AK0043206). Sections 1.2, 1.8.3.3, 2.4.4, and 3.5.2.1, among others that refer to the discharge permit, have been modified to reflect that the 2005 NPDES permit conditions have been administratively extended until the APDES permit is reissued. All related text has been modified.</p> <p>Comment ID: JS.5.002 Edit made per comment.</p> <p>Comment ID: JS.5.003 Edit made per comment.</p> <p>Comment ID: JS.5.004 Edit made per comment. All numbers referring to the expansion of the existing TDF have been corrected to 14.2 million cubic yards, which is the total calculated disposal rate for all tailings, waste rock, and other permitted materials.</p> <p>Comment ID: JS.5.005 The FEIS has been revised to indicate that HGCMC anticipates reaching capacity in 2016.</p>

Comment

Response



Comment 6

Summary, p. iv, Scoping and Significant Issues.

JS.5.006

Under Scoping Issue 1, Water Quality, the first sentence should be revised to reflect that discharges to the marine environment are discharges permitted pursuant to an ADEC-issued Alaska Pollution Discharge Elimination System (APDES) permit. This section should read: "Water quality may be impacted directly by runoff from acid-generating material or by direct impacts of the expanded facilities or by permitted marine discharges of treated mine water."

Comment 7

Summary, p. v, Alternatives.

JS.5.007

In the description of Alternatives C and D, the DEIS states "... a new, separate TDF would be built outside the Monument..." A sentence should be added to both alternatives clarifying that the new facility would be located on Juneau Ranger District Forest Service semi-remote recreation land. In addition, this clarification should also be reflected throughout the DEIS.

Comment 8

Summary, p. v, Alternatives.

JS.5.008

The first sentence of the paragraph following the bullet list states, "The major difference among the alternatives is the location and configuration of the TDF (or TDFs)." Please revise this to read: "The major differences among the alternatives are the location and configuration of the TDF (or TDFs), the ability to use existing infrastructure versus building new infrastructure, and the ability to gravity drain water to collection and treatment at closure versus pumping the water."

Comment 9

Summary, p. v, Alternatives.

JS.5.009

The first sentence of the last paragraph in this section should be revised to read: "Each of the action alternatives (B through D) also includes construction of water management ponds, access roads, and laydown areas for storage of reclamation materials."

Comment 10

Summary, p. vi, Alternatives, Table ES-1.

JS.5.010

It appears an incorrect boundary line was used to determine the acreages of total new disturbances for the alternatives listed in the Table (and shown and discussed throughout the document). Please correct the acreages using the 2003 Forest Service lease boundary line as the starting location for new disturbances.

It is unclear why the acreage for ponds would be less in Alternatives C and D than for B. More ground will be disturbed in C and D, and therefore more contact water will need to be collected and sent to treatment. The summary for Alternative B indicating 12.0 acres seems within reason. The June 2011, phase 4, plate 3 of the EDE wastewater collection document lists 7.9 acres of pond, which should be

Comment ID: JS.5.006

Edit made per comment.

Comment ID: JS.5.007

The requested information is presented in Section 3.13.

Comment ID: JS.5.008

The HGCMC Proposal (April 2011) describes active pumping from Pond 13. The summary and other chapters of the EIS have been modified to show that alternatives C and D and Mitigated Alternative B would require pumping of effluent from additional TDF collection areas to the water treatment plant and that this would be required as long as necessary to meet water quality standards.

Comment ID: JS.5.009

Edit made per comment.

Comment ID: JS.5.010

Acres of total new disturbance were determined using the currently approved disturbance footprint. The acreages for ponds and reclamation sites were developed based on preliminary levels of design that are adequate for this analysis and the comparison of alternatives. Pond and reclamation site sizes relate to the size of the disturbance as well as the facility configuration (e.g., height or depth) and the thickness of materials removed. Construction level design of the selected alternative may result in some modification of the facility footprints.

Comment	Response
 <p>acreage based on high surface water, excluding disturbance due to embankments, etc. With 5 pond sites and embankments, it is reasonable this figure may reach 12 acres. However, it is confusing and misleading to state that the pond acreages for Alternatives C and D would be about 60% less than for Alternative B. It is reasonable to expect total pond disturbance for Alternative D to be more than Alternative C and not less. Alternative D includes expansion of the existing TDF for the first 10 years, which includes expanding Pond 9 and constructing a new pond south of the TDF. Including Pond 7, net acreage at the existing facility under Alternative D should be roughly 8 acres. Combined with the construction of a new pond at the new TDF location under Alternative D, the total number of acres disturbed for ponds in Alternative D should be between 10 to 12 acres.</p> <p>The allotted acreages for reclamation materials are less for Alternatives C and D than for Alternative B yet the tailings acreages are greater. There may be insufficient space for development and storage of reclamation materials as outlined for Alternatives C and D.</p> <p>Comment 11</p> <p>Summary, p. vi, Alternatives, Table ES-1.</p> <p>Please add a footnote to Table ES-1 to define "Ancillary Disturbance" and define this term in Chapter 6, Glossary.</p> <p>Comment 12</p> <p>Summary, p. vi, Affected Environment and Environmental Consequences.</p> <p>The description of Current Baseline Conditions should be revised to read as follows: "The current (baseline) conditions for each resource are described. Since the mine has been in operation for more than 20 years, the baseline conditions may include impacts that have occurred as a result of existing operations."</p> <p>Comment 13</p> <p>Summary, p. vii, Table ES-2, and p. 2-43, Comparison of Alternatives, Table 2.7-1.</p> <p>The following list of comments relate to Table ES-2 (p. vii) and Table 2.7-1 (p. 2-43).</p> <ul style="list-style-type: none"> Please add a new column for Mitigated Alternative B for ease of comparing to all other alternatives. Under the "Water Resources – Surface Water" section, the "Percent of watersheds affected by new disturbance" category is an impact that does not tell the reader actual impacts as it is determined from total acres in the watershed and this varies greatly for these sites. This category would be more accurate if it reflected the number of watersheds or the acres of watershed disturbed. Under the "Water Resources – Surface Water" section, the "Percent of watersheds affected by new disturbance" category does not include North Hawk Inlet as a watershed. Please add North Hawk Inlet watershed to Alternatives C and D. 	<p>Comment ID: JS.5.011 Ancillary disturbance removed from alternative footprints.</p> <p>Comment ID: JS.5.012 Edit made per comment.</p> <p>Comment ID: JS.5.013 Edit made per comment. The Final EIS has been modified to address Mitigated Alternative B as a stand-alone alternative.</p> <p>Comment ID: JS.5.014 Edit made per comment. Total acres impacted in each watershed have been added to Table 2.7-1.</p> <p>Comment ID: JS.5.015 Edit made per comment. Percentage and acres affected by new disturbance for the North Hawk Inlet watershed have been added to Table 2.7-1.</p>

Comment

Response



JS.5.016

- Under the "Water Resources – Surface Water" section, the category "Additional water management infrastructure such as diversions, groundwater slurry walls, and water management ponds" does not accurately reflect the infrastructure needed for Alternatives C and D. Some of the additional water management infrastructure needed for Alternatives C and D includes pipeline construction and maintenance, and pumps/pump stations.

JS.5.017

- In the following three sections, "Geochemistry," "Geotechnical Stability," and "Vegetation" (pp. viii and 2-44) the tables do not accurately reflect the potential impacts between Alternatives B and C/D. In the columns for Alternatives C and D, please change the text from "Same as Alternative B" to "Similar to Alternative B, but impact will be at 2 TDF sites, including the upgrade and increased use of the A road area."

JS.5.018

- In the "Geotechnical Stability" section, please add a new row/category for the total facility height.

JS.5.019

- In the sections "Soils," "Vegetation," and "Wildlife/Deer Habitat," the acres of disturbance or lost soil productivity does not take into account post-reclamation productivity. These sections should include the following language, which reflects post-reclamation conditions: "When reclamation is initiated and final cover is placed, 90% (or similar) of the lost productivity, forest vegetation and deer habitat will be replaced."

JS.5.020

- In the "Wildlife" section, the table provides that Alternatives C and D will result in 1 or <1 acre disturbance of brown bear buffers. However, under the "Aquatic Resources" section of these tables, 34 feet of Class 1 fish habitat will be permanently lost in Alternatives C and D in Fowler Creek. The "Wildlife" section should be updated to accurately reflect the number of acres of brown bear buffer that will be disturbed in the Fowler Creek watershed under Alternatives C and D.

Comment 14

Summary, pp. xxi and xxii, List of Acronyms.

Please add the following acronyms to the List of Acronyms on pp. xxi-xxii:

JS.5.021

- FSH Forest Service Handbook
- FSM Forest Service Manual
- ROS Recreation Opportunity Spectrum

Comment 15

Section 1.1, p. 1-1, Background.

JS.5.022

As indicated in the final sentence of the first paragraph, the Greens Creek Mine produces gold in addition to lead, zinc, and silver. The first sentence of the first paragraph should be revised to read: "The Greens Creek Mine is an underground metals mine (primarily lead, zinc, silver, and gold) located near Hawk Inlet on northern Admiralty Island."

Comment ID: JS.5.016

Text modified based on suggestion: "... including construction and maintenance of pipeline and pump stations" has been added to Table ES-2 and Table 2.7-1, Alternative C. This carries over to Alternative D, because it is described as similar to Alternative C.

Comment ID: JS.5.017

Edit made per comment. Table 2.7-1 and Table ES-2 have been changed to say "similar to Alternative B" or "similar to Alternative A."

Comment ID: JS.5.018

Comment noted. Total facility height has not been added to Table 2.7-1. Geotechnical stability is based on slope stability, with a design ratio of 3:1; visual impacts of each alternative can be seen in figures 3.14-5 through 3.14-10.

Comment ID: JS.5.019

We have included language that says soil productivity would improve and vegetation would be reestablished across most of the site with time following closure under all alternatives. The time required for wildlife, and particularly deer habitat, to recover and the extent to which it would resemble pre-mining conditions is more difficult to predict. The text in the vegetation and soils sections has been revised.

Comment ID: JS.5.020

Tables ES-2 and 2.7-1 have been revised to state that 0 feet of Class 1 fish habitat would be permanently lost under alternatives C and D.

Comment ID: JS.5.021

Edit made per comment. FSH, FSM, and ROS have been added to the list of acronyms.

Comment ID: JS.5.022

Edit made per comment. Text now reads, "The Greens Creek Mine is an underground metals mine (primarily lead, zinc, silver, and gold) located near Hawk Inlet on northern Admiralty Island."

Comment	Response
	<p>Comment ID: JS.5.023 Edit made per comment.</p>
<p>Comment 16</p>	<p>Comment ID: JS.5.024 Edit made per comment.</p>
<p>Section 1.1, p. 1-1, Background.</p>	<p>Comment ID: JS.5.025 Suggestion noted; however, this information is included in Section 3.19, Monument Values, and is unnecessary in the background discussion.</p>
<p>JS.5.023</p>	
<p>This section should include a sentence to clarify the makeup of the land ownership upon which the mine operates. Add the following sentence after '(ANILCA)' near the end of the first paragraph: "The remainder of the mine's facilities (north end of the tailings disposal facility and the A Road) are located in the Juneau Ranger District or on privately held land near Hawk Inlet (cannery camp and port facilities)."</p>	
<p>Comment 17</p>	<p>Comment ID: JS.5.026 Edits made per comment. See updated figures 1.1-2 and 3.1-1.</p>
<p>Section 1.1, p. 1-1, Background.</p>	<p>Comment ID: JS.5.027 To limit confusion, the existing lease boundary will only be shown for Alternative A, Figure 2.3-1, which was permitted under the existing lease boundary. A reference to satellite image, 2009, has been added to the figure caption. The scale has been adjusted for accuracy.</p>
<p>JS.5.024</p>	
<p>The last sentence in the first paragraph should be revised to accurately reflect annual production. This sentence should read: "On an annual basis, production from the Greens Creek Mine averages approximately 7 million ounces of silver, 40,000 ounces of gold, and a total of 200,000 combined tons of zinc, lead, and bulk concentrates."</p>	
<p>Comment 18</p>	<p>Comment ID: JS.5.028 Comment noted. It is acknowledged that mining may continue through 2095 under the land exchange agreement. This has been added to Section 3.22, Cumulative Effects.</p>
<p>Section 1.1, p. 1-1, Background.</p>	
<p>JS.5.025</p>	
<p>The fourth sentence of the first paragraph should be revised as follows: "The mine and portions of the TDF are within the Admiralty Island National Monument (Monument), on lands classified as non-wilderness and affecting less than 1/100th of 1% of the total monument area; at its nearest point, the Kootznoowoo Wilderness is approximately 2 miles from the mine's mill and mine portal."</p>	
<p>Comment 19</p>	
<p>Section 1.1, p. 1-4, Figure 1.1-2.</p>	
<p>JS.5.026</p>	
<p>Consider using the base map of Figure 3.1-1 (p. 3-2) instead of the map shown on Figure 1.1-2 (p. 1-4). Figure 3.1-1 provides a better perspective of the wilderness boundary in relation to the mine's location. Cannery Creek should also be added to Figure 3.1-1.</p>	
<p>Comment 20</p>	
<p>Section 1.1, p. 1-5, Figure 1.1-3.</p>	
<p>JS.5.027</p>	
<p>This photo should be updated with the following information: (1) please add a date to the satellite photo (2009); (2) add a line to depict the existing lease boundary; and (3) please check the scale for accuracy (the distance from B Road to Pond 7 is approximately 1200').</p>	
<p>Comment 21</p>	
<p>Section 1.1, p. 1-6, Background.</p>	
<p>JS.5.028</p>	
<p>The first sentence of the second full paragraph on page 1-6 states: "With continued discovery of new ore and improved metal prices, HGCMC believes they can extend the life of the mine for another 30 to 50</p>	

Comment	Response
 <p>JS.5.028 years." The land exchange agreement provides for the rights to explore and mine from the subject lands until 2095. HGCMC believes that the mine life can be extended through systematic and sustained exploration that results in continued discovery and delineation of new ore reserves. This has been the case since the mine opened in 1989; however, a long-term tailings strategy to support continued operations will also be required to extend the mine life.</p>	<p>Comment ID: JS.5.029 Text revised per comment.</p>
<p>Comment 22</p> <p>Section 1.1, p. 1-6, Background.</p> <p>JS.5.029 The second sentence in the second full paragraph states: "Consequently, to process the known ore reserves, additional disposal capacity of approximately 15 million cubic yards is needed for tailings and waste rock material." Consider replacing this sentence with the following:</p> <p>The request of the expansion is based on the need for a long-term tailings disposal strategy to sustain mine operations for currently defined reserves, present and future waste rock disposal requirements, and potential future discovery of resources and conversion to reserve similar to the historic success of replacing reserves through sustained and systematic exploration since 1989. This will provide a comprehensive long-term plan; however, actual construction will be performed in phases that limit impacts to defined actual needs at the time of each phase.</p>	<p>Comment ID: JS.5.030 Text revised per comment.</p>
<p>Comment 23</p> <p>Section 1.1, p. 1-6, Background.</p> <p>JS.5.030 The last sentence on the bottom of page should be revised to read: "This EIS analyzes the proposed action and alternatives to the proposed action and their effects on pertinent physical, biological, and social resources."</p>	<p>Comment ID: JS.5.031 Text revised per comment.</p>
<p>Comment 24</p> <p>Section 1.3, p. 1-7, Proposed Action.</p> <p>JS.5.031 In the first paragraph of Section 1.3, please delete the word "proven" both times it appears.</p>	<p>Comment ID: JS.5.032 Comment noted. Text box removed.</p>
<p>Comment 25</p> <p>Section 1.3, p. 1-7, Proposed Action.</p> <p>JS.5.032 Please delete the text box in italics on the right of the page ("<i>Proven, Inferred, and Probable Resources</i>") as these definitions are incorrectly used.</p>	<p>Comment ID: JS.5.033 Text revised per comment.</p>
<p>Comment 26</p> <p>Section 1.3, p. 1-7, Proposed Action.</p> <p>JS.5.033 The first sentence of the third paragraph should be revised as follows to reflect the incremental development stages of the mine: "The TDF expansion would accommodate an estimated additional 15</p>	

Comment	Response
 <p>JS.5.033 million cubic yards of tailings and waste rock, with development proceeding incrementally in 10 year phases, with the Forest Service and ADEC approval required prior to phased construction."</p> <p>Comment 27</p> <p>Section 1.7, p. 1-12, Significant Issues.</p> <p>JS.5.034 Under Issue 4, the first sentence should be revised to read: "The Greens Creek Mine and portions of the proposed expansion occur within the non-wilderness portion of the Admiralty Island National Monument."</p> <p>Comment 28</p> <p>Section 1.8.3.3, p. 1-21, U.S. Environmental Protection Agency.</p> <p>The third sentence of paragraph 2 should be revised to accurately reflect the discharges provided in the APDES permit. This sentence should be revised to read:</p> <p>JS.5.035 During the effective period of the renewed APDES permit, the Permittee will be authorized to discharge from outfalls 002 and 003 to Hawk Inlet, outfall 004 to wetlands, outfall 005.2 to Zinc Creek, and outfalls 005.3, 005.4, 005.5, 006, 007, 008, and 009 to forest duff or to Greens Creek, within the limits and subject to the conditions set forth in the APDES permit.</p> <p>Comment 29</p> <p>Section 2.1, p. 2-1, Greens Creek Mine Overview.</p> <p>JS.5.036 Consider revising the last sentence of the first paragraph on page 2-2 that states: "Tailings that are not backfilled are trucked to the TDF where they are placed in a series of layers (lifts) within discrete disposal locations (cells)." This sentence is somewhat misleading because "discrete cells" may imply that boundary materials are placed to contain cells. This sentence should be revised to specify that the "discrete cells" are placement areas and do not include boundary materials.</p> <p>Comment 30</p> <p>Section 2.1, p. 2-2, Greens Creek Mine Overview.</p> <p>JS.5.037 The first sentence of the second paragraph on p. 2-2 needs to be revised to reflect that all contact water is treated prior to discharge pursuant to the APDES permit. This sentence should read: "All water coming in contact with mine-related activities is collected and either recycled back to the mill or treated and discharged into Hawk Inlet as authorized in the Alaska Pollutant Discharge Elimination System (APDES) permit."</p>	<p>Comment ID: JS.5.034 Text revised per comment.</p> <p>Comment ID: JS.5.035 Comment noted. The text in section 1.8.3.3 has been revised to reflect the current status of the APDES permit.</p> <p>Comment ID: JS.5.036 Edit made per comment. The word "discrete" has been removed.</p> <p>Comment ID: JS.5.037 The text has been revised to reflect the current status of the APDES permit.</p> <p>Comment ID: JS.5.038 The Monument boundary line as depicted in Chapter 2 is correct and is based on Forest Service mapping data.</p> <p>Comment ID: JS.5.039 Text has been added to sections 2.3, 3.5, and 3.7 to reflect a truck wash and requirement for a water withdrawal permit from Fowler Creek.</p>

Comment

Response



Comment 31

Section 2, p. 2-1, Description of Proposed Action and Other Alternatives.

JS.5.038

All figures in Chapter 2 need to be revised to correctly and consistently depict the Monument boundary line. For example, the map provided in Appendix A to this letter accurately depicts the Monument boundary.

Comment 32

Section 2.3, General Comment Regarding Alternatives C and D.

JS.5.039

The descriptions for Alternatives C and D do not identify a water source for the truck wash and other potential fresh water needs. The potential impact of developing a water source for Alternatives C and D should be presented and evaluated.

Comment 33

Section 2.3, General Comment Regarding Alternatives C, D, and Mitigated B.

JS.5.040

Alternatives C, D, and Mitigated B prevent the ability to have a single no-pump, gravity flow/discharge system following closure of the TDF. Although the DEIS states that discharge without treatment is not anticipated, eliminating the option for no-pump, gravity flow would be short-sighted. Predictions of water quality following closure of the TDF are intentionally pessimistic. If actual closure water quality ends up being better than predicted, options including gravity flow would substantially reduce impacts compared to pump-dependent options. Alternative B is the only alternative that would allow gravity flow to one discharge point.

Comment 34

Section 2.3, General Comment Regarding Alternatives C and D – Water Resources.

JS.5.041

Alternatives C and D have the potential to impact the Fowler Creek and North Hawk Inlet drainages in ways not fully discussed in the DEIS. Efforts to minimize impacts from fugitive dust would be the same for all alternatives; however, development of Alternative C or D would expand the extent of potential fugitive dust impacts to two additional watersheds.

JS.5.042

Potential impacts to groundwater in Alternatives C and D may not be fully described. Changes in reduction/oxidation conditions and water levels under lined areas may change the composition of groundwater (e.g., iron/manganese reduction) in the headwaters of Fowler Creek and the North Hawk Inlet drainage. As described, Alternatives C and D do not provide a description of how groundwater will be collected if necessary. It does not appear that there is a no-pump option to keep water from beneath the lined C/D footprints from flowing toward Fowler Creek. If there is a plan to fill beneath the liner to attain grade, this would complicate construction, reduce capacity and potentially impact Fowler Creek and North Hawk Inlet drainages and groundwater.

JS.5.043

Developing rock quarries in the Fowler Creek and North Hawk Inlet watersheds could influence groundwater by increasing pH, hardness and sulfate in water that percolates through the quarry floor. Quarrying related to development of Pond 7 and the northwest corner of the existing TDF had this type of



Comment ID: JS.5.040

Statements indicating that effluent from the TDF would be allowed to drain to Hawk Inlet in the absence of management were removed from the DEIS based on other comments received by the Forest Service.

The Forest Service has no authority over the permit reissuance process and cannot compel the USEPA or ADEC to require particular treatment technologies, dilution methods, monitoring requirements, or outfall locations. Identifying potential options discussing how effluent would be controlled, treated, and permitted in the future would be presumptive in the EIS. As such, the EIS does not consider alternative treatment methods, such as passive system or discharge scenarios.

Statements have been added to Mitigated Alternative B and alternatives C and D to the effect that active pumping would remain a requirement after closure.

Comment ID: JS.5.041

Comment noted. The text has been modified to include potential impacts to the North Hawk Inlet watershed.

Comment ID: JS.5.042

The EIS indicates that the north TDF design would be similar to the proposed action. Groundwater beneath the liner would contact the underdrain pad and flow downgradient.

Sections 2.3.3 (Alternative C) and 2.3.4 (Alternative D) indicate that the underdrain pad would be graded so that if the liner system were compromised, effluent would drain toward Hawk Inlet and avoid the Fowler Creek drainage.

Potential impacts to the north TDF are discussed in Section 3.6.3.4. Potential impacts to both groundwater flow and quality are disclosed, as well as potential impacts to flow and quality in Fowler Creek.

Comment ID: JS.5.043

A discussion regarding the potential for impacts to water quality due to quarry development has been added in Section 3.6.3.4 (Groundwater).

Comment

Response



JS.5.043

influence on groundwater and surface water. Dilute, acidic waters in the Fowler Creek and North Hawk Inlet watersheds may be sensitive to higher pH, higher hardness water. Developing quarries in the Alternative B footprint could have a similar effect on groundwater but the impacts would be confined to fewer watersheds and there is the potential for no-pump options for water management in the Tributary Creek drainage.

Comment 35

Section 2.3.1, p. 2-4, Table 2.3-1.

JS.5.044

In Table 2.3-1, it would be helpful to include the estimated disturbances that would be within the existing TDF permitted lease boundary for each alternative. It would also be helpful to show the existing permitted lease boundary on all of the figures in this chapter.

Comment 36

Section 2.3.1, p. 2-4, Alternative A: No Action Alternative.

JS.5.045

The text box on p. 2-4 incorrectly states that the existing TDF will be filled to capacity in 2014. Please correct this date to "2016" to reflect that the mine can continue to operate until late 2016 if the remaining capacity at the TDF is judiciously used to the extent practicable.

Comment 37

Section 2.3.1, p. 2-5, Alternative A: No Action Alternative.

JS.5.046

The Legend on Figure 2.3-1 incorrectly indicates that Pond 9 has not been built; it has.

Comment 38

Section 2.3.2, p. 2-6, Alternative B: Proposed Action.

JS.5.047

Footnote 1 on p. 2-6 is incorrect as diversion tubes do not function similarly to sand bags. This footnote should be revised to read: "Diversion tubes are flexible, water conveying tubes used for storm water diversion and erosion control."

Comment 39

Section 2.3.3, p. 2-8, Alternative C: New TDF Located Outside Monument, and Section 2.3.4, p. 2-16, Alternative D: Modified Proposed Action.

JS.5.048

The second sentence in paragraph 2 on p. 2-8 and the second sentence of paragraph 1 on p. 2-16 should be revised to reflect that an additional pond would be required under Alternatives C and D. For the proposed expansion of the existing TDF under Alternatives C and D, it is inaccurate to assume that a larger Pond 9 on the north end of the existing TDF is capable of handling the southern expansion. This sentence should be revised as follows:

Contact water from disturbed sites would be routed into water management ponds, including an expanded Pond 9 (see Figure 2.3-3c or 2.3-4c) and an additional pond to the south, and

Comment ID: JS.5.044

Comment noted. To limit confusion, the existing lease boundary will only be shown for Alternative A (Figure 2.3-1), which was permitted under the existing lease boundary.

Comment ID: JS.5.045

Text has been revised as suggested.

Comment ID: JS.5.046

Edit made per comment. The legend for Figure 2.3-1 has been changed to indicate that Pond 9 has been built.

Comment ID: JS.5.047

Text has been revised as suggested.

Comment ID: JS.5.048

The discussion referring to the expanded pond volumes is not intended to be a design-level description, but rather a conceptual discussion of potential management requirements. Specific pond volume and location requirements would need to be determined as a part of design.

Comment

Response



JS.5.048

then pumped to the existing Pond 7, from where it would be pumped to the water treatment plant for treatment before being discharged to Hawk Inlet.

Comment 40

Section 2.3.3, p. 2-8, Alternative C: New TDF Located Outside Monument.

JS.5.049

The first paragraph incorrectly states that the "development of the new TDF to the north would require 2 – 3 years for site preparation and construction." The development of the new north TDF will likely take longer, potentially 3 – 5 years, due to the additional infrastructure and construction requirements needed prior to any tailings placement occurring. This sentence should be revised to reflect the anticipated longer timeframe required to design and construct a new TDF prior to tailings placement at a remote location.

Comment 41

Section 2.3.3, p. 2-8, Alternative C: New TDF Located Outside Monument, and Section 2.3.4, p. 2-16, Alternative D: Modified Proposed Action.

JS.5.050

The second paragraph of Section 2.3.3 and the third paragraph of Section 2.3.4 underestimate the complexity of constructing underdrains for a new TDF. Building and grading this pad will make construction more complex, expensive and take up tailings storage volume. It is likely an impact may still occur in Fowler Creek from construction occurring in the area and also from changing the redox conditions in the ground water, which then likely flows to Fowler Creek. The following sentences should be revised to reflect the complexity associated with constructing underdrains in a TDF and controlling potential impacts to the Fowler Creek watershed: "The underdrains would be built on a pad of unreactive material. The underlying pad would be graded and the underdrain system designed so that, in the absence of active water management, contact water from the new TDF would drain toward Hawk Inlet and avoid Fowler Creek, which supports anadromous fish populations."

Comment 42

Section 2.3.3, p. 2-9, Figure 2.3-3a. Greens Creek Mine Alternative C – Final North Layout.

JS.5.051

To be consistent with the presentation of Alternative B, the start of Fowler Creek should be shown on the figure. Figure 3.5-6 shows Fowler Creek in the Alternative C and D disturbance area but Figure 2.3-3a does not. This figure should be revised to show the start of Fowler Creek.

Comment 43

Section 2.3.3, p. 2-10, Figure 2.3-3b, and Section 2.3.4, p. 2-14, Figure 2.3-4b.

JS.5.052

It is difficult to read the inset figure for the cross section of the road. For example, what is the proposed size of the pipelines under Alternatives C and D? Please include additional details regarding the infrastructure required for water management under Alternatives C and D, which may include adding a new figure under Alternatives C and D to expand the cross-section inset that is currently undecipherable in Figures 2.3-3b and 2.3-4b.

Comment ID: JS.5.049

Comment noted. The text (and analysis) has been revised to indicate that construction of a new facility would take 3–5 years.

Comment ID: JS.5.050

Please see the response to Comment JS.5.042. The text has been modified to be similar, as suggested.

Comment ID: JS.5.051

An updated stream layer has been added to figures 2.3-1 through 2.3-4c, and Fowler Creek tributaries have been added to figures 2.3-3a through 2.3-4c.

Comment ID: JS.5.052

Figures 2.3-3b and 2.3-4b have been updated; the cross-section inset has been enlarged for easier viewing.

Comment

Response



JS.5.053

HGCMC calculations indicate Alternatives C and D will need extensive water management infrastructure to get the water from the site to the water treatment plant. This would include two 18" pipelines approximately 20,000 feet long and a multi-stage (3) turbine pump system. This is to handle an estimated 21 cfs, or 9400 gpm. Please include additional details regarding the infrastructure required for water management under Alternatives C and D. For example, in the EDE proposed Stage 3 expansion project water collection and containment, the B Road tails Phase 1 expansion runoff water footprint is referenced at ~ 140.3 acres (p. 21). In Autocad, the Alternative C footprint looks to be about 101 acres; this results in a 72% ratio. The tails phase 1, 25-yr/24-hr event is referenced at ~18 cfs. Underdrains, truck wash, and pond 7 seepage return pushes this up to 29.7 cfs.

Comment 44

JS.5.054

Section 2.3.3, p. 2-11, Figure 2.3-3c, and Section 2.3.4, p. 2-15, Figure 2.3-4c.

Please add the existing lease boundary to Figures 2.3-3c and 2.3-4c.

Comment 45

Section 2.3.3, p. 2-12, Alternative C: New TDF Located Outside Monument, and Section 2.3.4, p. 2-16, Alternative D: Modified Proposed Action.

JS.5.055

A sentence should be added to the second sentence of the first paragraph on p. 2-12 and the fourth paragraph on p. 2-16 regarding rock used for road construction after the following sentence: "The A Road would be upgraded to accommodate construction traffic and haul truck use." The following sentences should be added to accurately reflect the rock used for road construction: "Rock must meet construction specification for materials including index and geochemical parameters. If geochemically stable rock materials are encountered, these may also be used for general site road maintenance outside of the TDF."

Comment 46

Section 2.3.4, p. 2-16, Alternative D: Modified Proposed Action.

JS.5.056

The fifth paragraph on p. 2-16 does not accurately reflect the issue of capacity for contact water for Alternative D. The following sentence is misleading because it does not take into account contact water surge ponds at the new TDF: "Because the expansion at the existing TDF would be less than under the proposed action, less contact water capacity would be necessary and fewer basins and ponds would be built at the site." This should clarify which "site" is referenced, and also include a sentence discussing the additional contact water pond that must be constructed under Alternative D in the new A Road TDF.

Comment 47

Section 2.4.1, p. 2-17, Mining Activities.

JS.5.057

The description of mining is incorrect; HGCMC uses cut and fill and long-hole methods. Cut and fill is the primary mining method used to extract the ore. Long-hole stoping is also utilized in select ore zones

Comment ID: JS.5.053

While the amount of detail requested in the comment was not added to the EIS, the text has been modified to show that under alternatives C and D and Mitigated Alternative B, the pumping of effluent from additional TDF collection areas to the water treatment plant would be required as long as necessary. Additional language has also been added where appropriate to further emphasize the increased infrastructure needs.

Comment ID: JS.5.054

Edit not made. The existing lease boundary is displayed in Figure 2.3-1, and adding lease boundaries in subsequent figures would add confusion.

Comment ID: JS.5.055

Text was revised based on comment. Inserted:

Rock used for road construction must meet specification for materials including index and geochemical parameters. If geochemically stable rock materials are encountered, these may also be used for general site road maintenance outside of the TDF.

Comment ID: JS.5.056

The text in Section 2.3.4 has been clarified.

Comment ID: JS.5.057

Text has been revised to accurately reflect the mining methods employed at Greens Creek.

Comment

Response



JS.5.057 conducive to this bulk mining method. Please revise this section to accurately reflect the mining methods employed at Greens Creek.

Comment 48

Section 2.4.2, p. 2-17, Mineral Processing.

JS.5.058 This section does not accurately reflect the milling process at Greens Creek. This section should be renamed "Ore Concentrate Milling" to more accurately describe the beneficiation activities conducted at Greens Creek. The second sentence of section should be revised to read: "Ore is fed into the mill where it is ground in a SAG mill and ball mill with water. A portion of the gold and silver are recovered through gravity concentration. Then very small amounts of reagents are added to cause minerals of interest to attach to air bubbles to be floated into and recovered from a froth in a series of flotation cells. The concentrates and tailings are then filter pressed to create moisture levels acceptable for transport."

Comment 49

Section 2.4.2, p. 2-17, Mining Activities.

JS.5.059 The last sentence of this section should be revised to read: "...tailings are either trucked to the TDF or used to make backfill and used underground to fill voids from mining, which provides ground support."

Comment 50

Section 2.4.3.2, p. 2-19, Waste Rock.

JS.5.060 The last sentence in this section needs to be deleted because it is not accurate. Please delete the following sentence: "HGCMC also uses waste rock or quarry rock to define disposal cells."

Comment 51

Section 2.4.3.3, p. 2-19, Co-Disposal (Tailings and Waste Rock).

JS.5.061 The last paragraph on p. 2-19 references co-disposal use for "delineating disposal cells." This is not accurate and this reference should be deleted. The sentence should be revised to read: "Sources of waste rock used or co-disposed at the TDF include rock used for erosion control, internal roads and relocated rock from inactive waste rock storage sites."

Comment 52

Section 2.4.5, p. 2-21, Rock Quarries.

JS.5.062 In the fourth sentence of this section, and within the text box, a statement should be added that permits the operator to use a local/nearby source for road rock if geochemically stable materials are located. The fourth sentence (and text box) should be revised as follows: "Given the potential for acid generation, none of this rock material would be used external to the TDF, unless the on-island rock source is determined to have a geochemically stable matrix and is found to be non-acid generating." This allows some flexibility in the event that geochemically stable rock is located for road construction.

Comment ID: JS.5.058

Text has been revised as suggested.

Comment ID: JS.5.059

The text was revised as suggested.

Comment ID: JS.5.060

The sentence was removed from the FEIS.

Comment ID: JS.5.061

The text was revised as suggested.

Comment ID: JS.5.062

The text was revised as suggested. We understand this reflects the current operating procedures at the site.

Comment

Response



Comment 53

Section 2.4.7, p. 2-22, Support and Service Roads.

JS.5.063

The last paragraph of this section should be updated to reflect the range of daily round trips from the mill to the TDF. This paragraph should be revised to read: "Currently tailings are transported from the mill to the TDF in 45-ton capacity covered tractor/trailer trucks. Approximately 20 - 40 round trips from the mill to the TDF are made daily, delivering an annual average of 1,000 tons per day to the TDF. Round trip travel time for each truck is approximately one hour. Tailings transport is usually conducted during the day shift with two to four trucks in use at any given time."

Comment 54

Section 2.4.8, p. 2-23, Reclamation and Closure.

JS.5.064

The text box on p. 2-23 should be revised to read: "The overall goal of reclamation is to stabilize the disturbed areas and return the site to vegetated conditions for long-term protection of surrounding land and water resources."

Comment 55

Section 2.4.8, p. 2-23, Reclamation and Closure.

JS.5.065

The first sentence of this section incorrectly states: "Reclamation and closure techniques would be the same for all the alternatives." This statement is only true for the cap to be installed on the TDF(s). Reclamation and closure will not be the same for water treatment; Alternative B will be able to gravity drain water at closure, while the new site on the A road (Alternatives C and D) will require pumping water to the water treatment plant. This will result in additional infrastructure, pump stations and electricity, road access, and ongoing maintenance.

Comment 56

Section 2.4.8, p. 2-23, Reclamation and Closure.

JS.5.066

In the last paragraph on p. 2-23, the bullet list should be revised as follows: "In GPO Appendix 14, Reclamation Plan (included in part as Appendix F here), HGCMC identified the following four stages of reclamation that may be applicable to the tailings facility expansion:

- Interim reclamation;
- Temporary cessation;
- Concurrent and final reclamation; and
- Post-closure care and maintenance."

Comment ID: JS.5.063

The text has been revised as suggested.

Comment ID: JS.5.064

Text revised as suggested.

Comment ID: JS.5.065

The EIS has been modified in sections 2.3.3 and 2.3.4 to show that alternatives C and D and Mitigated Alternative B would require the pumping of effluent from additional TDF collections areas to the water treatment plant, and that treatment would be required as long as necessary to meet water quality standards. Additional language has also been added to sections 3.5.3.3 and 3.5.3.4 where appropriate to further emphasize the increased infrastructure needs.

Comment ID: JS.5.066

Edit made per comment.

Comment

Response



Comment 57

Section 2.4.8.2, p. 2-25, Final Reclamation.

JS.5.067 The third sentence of paragraph two is a fragment and should be redrafted to tie into the previous or subsequent sentence. Currently, it states: "At that time, and based on information related to closure gleaned from experience at the site."

Comment 58

Section 2.4.8.3, p. 2-25, Engineered Tailings Soil Cover.

JS.5.068 The discussion of the requirement for the cover should include a statement that the proposed design *or equivalent* will be constructed. It is possible that there will be design modifications that could improve performance and/or lower costs.

The lower capillary break is not intended to function as a drain as stated in the text, rather its primary purpose is to minimize downward migration of water from the barrier layer by creating a capillary break between the barrier layer and the tailings. It is unlikely that percolation through the barrier layer will be sufficient to promote flow in the lower capillary break. Water percolating through the barrier layer will likely continue through the lower capillary break into the tailings.

Comment 59

Section 2.5, p. 2-27, Alternatives Considered but Not Carried Forward.

JS.5.069 The discussion of submarine tailings disposal is discussed twice; first on p. 2-27 in the second paragraph of Section 2.5, then on p. 2-28 in the first paragraph of Section 2.5.2. These discussions should be consolidated into one section.

Comment 60

Section 2.5.3, p. 2-29, Reduction of the Pyrite Concentration in the Tailings.

JS.5.070 The final paragraph on p. 2-29 should be redrafted as the claims in this paragraph are not substantiated by HGCMC's work. It appears that the risks related to both the use of sulfuric acid and the potential for spontaneous combustion of a pyrite concentrate may be somewhat overstated; however, logistical and footprint constraints are significant impediments to developing a pyrite concentrate. Pyrite concentrate would require care similar to the other concentrates present at Greens Creek mine. Pyrite concentrate markets and economics have not been proven even though there has been significant work to do so.

Comment 61

Section 2.5.3, p. 2-30, Reduction of the Pyrite Concentration in the Tailings.

JS.5.071 This section attempts to provide a partial feasibility analysis for reduction of pyrite concentration in tailings. There are other operational factors and cost factors not considered. The summary text indicated in the last bullet on p. 2-30 states: "The unreasonable level of risk to water quality, aquatic life, and Monument values as well as human health that would be associated with the shipping and storage of

Comment ID: JS.5.067

The fragmented sentence was replaced with the following: Prior to implementing final reclamation, HGCMC will submit a detailed reclamation plan to the Forest Service and State of Alaska that would incorporate decades of monitoring results and the most up-to-date site-specific information.

Comment ID: JS.5.068

Any design changes to the cover would need to be approved by the Forest Service and State of Alaska prior to implementation. The description of the lower capillary break was provided by HGCMC in the detailed description of the proposal *Proposed State 2 Tailings Expansion*, April 2011.

Comment ID: JS.5.069

Section 2.5 has been revised to consolidate the submarine tailings disposal discussion.

Comment ID: JS.5.070

Section 2.5.3 has been revised based on information provided by HGCMC.

Comment ID: JS.5.071

Comment noted. The language in question in Section 2.5.3 has been revised to focus on the existing operational constraints. We recognize that as technology improves and economics change, it may be appropriate to reevaluate this option in the future.

Comment	Response
 <p>JS.5.071 sulfuric acid, and the handling of pyrite concentrate because of its potential reactivity." This statement should be rewritten to consider that as technology improves and economics change, it may be appropriate to fully re-evaluate this option in the future.</p> <p>Comment 62</p> <p style="text-align: center;">Section 2.6.1, p. 2-30, Alternative B Mitigation.</p> <p>JS.5.072 In the second paragraph (and numerous other locations within the DEIS) it states: "While it is not anticipated, in the absence of active water management, the outfall from the TDF would be designed at closure to drain to Hawk Inlet, rather than to Tributary Creek." This statement needs clarification. For instance, does it mean everything will be gravity drained and discharged to Hawk Inlet through the existing outfall pipeline?</p> <p>Comment 63</p> <p style="text-align: center;">Section 2.6.1, pp. 2-30 to 2-32, Alternative B Mitigation.</p> <p>JS.5.073 The TDF reconfiguration under Mitigated Alternative B would involve extending tailings placement to the northeast of the existing facility. As indicated in this section, in the absence of active water management, the outfall from the TDF would be designed at closure to drain to Hawk Inlet. However, extending the TDF into the northeast (NE) as indicated in Figure 2.6-1 and placing a water management pond next to Cannery Creek creates several water related issues not identified in the DEIS:</p> <ul style="list-style-type: none"> • If the tails facility were to be expanded to the NE, there would no longer be gravity flow to Hawk Inlet in absence of pump operations as this new area would drain into Cannery Creek. • Cannery Creek is a permitted secondary drinking water source for the mine site. It is likely that this water source would continue to be a permitted drinking water source during the post-closure monitoring and maintenance period for the facility. Pond 9-A as indicated in the mitigation design does not have adequate separation from Cannery Creek for source water protection. The emergency over flow from this pond would be gravitationally directed towards Cannery Creek. Space/capacity for a pond may be limited in this area. The pond also appears to overlie the electrical substation. • A significant portion of the NE area indicated is considered a marsh wetland, likely in direct communication with Cannery Creek. While Cannery Creek is not an anadromous creek due to a natural barrier, it appears to be only 2000 feet from the NE proposed expansion area to Hawk Inlet. <p>Comment 64</p> <p style="text-align: center;">Section 2.6.2, p. 2-31, Contemporaneous Reclamation.</p> <p>JS.5.077 In the first paragraph of Section 2.6.2, Line 5, "note" should read "noted."</p>	<p>Comment ID: JS.5.072 Statements indicating that the TDF effluent would be allowed to drain to Hawk Inlet have been removed from the EIS based on this and other comments. The NEPA analysis assumes that leachate from the TDF would need to be controlled and treated both during operations and after closure. As previously noted, these activities would be managed through a discharge permit.</p> <p>Comment ID: JS.5.073 Please see the response to Comment JS.5.072. The text in Section 3.5.3.4 has been revised to reflect pumping and infrastructure needs and potential impacts to Cannery Creek and the water supply.</p> <p>Comment ID: JS.5.074 Comment noted. Section 3.5.3.3 has been modified to reflect potential impacts to Cannery Creek and the public water supply.</p> <p>Comment ID: JS.5.075 The Forest Service understands that space is limited in this area. Additional language has been added to Section 3.5.3.3 discussing potential impacts to Cannery Creek as well as other appropriate infrastructure needs.</p> <p>Comment ID: JS.5.076 Comment noted. These wetlands are discussed in Section 3.10.</p> <p>Comment ID: JS.5.077 Edit made per comment.</p>

Comment

Response



Comment 65

Section 2.6.3.1, p. 2-33, Table 2.6-2, Mitigation Measures by Resource.

JS.5.078

HCGMC has the following comments on Table 2.6-2:

- Please add a column to the table that indicates what items are already being done and what items are new requirements.

JS.5.079

- Please add a column that describes the source addressed by the mitigation. A number of measures in the table appear to be site-wide rather than TDF specific. The TDF is the scope of the analysis.

JS.5.080

- On p. 2-33, the text in the "Measure" column regarding "Truck wash at concentrate storage building" (row 5) should be revised. At the 920 concentrate load-out building, wheels are washed prior to leaving the facility. At the concentrate storage building at Hawk Inlet, the trucks dump the loads without entering the building, and therefore tracking issues do not exist. A truck wash does exist at the Hawk Inlet beach area for wash down of road dirt at the end of shift. The text in this section should be revised to state that washing of wheels is required only if for some reason trucks or other equipment enter the concentrate storage building.

JS.5.081

- On p. 2-34, the text in the "Measure" column in the "Water Resources/Water Quality" category (rows 3 and 4) should be revised in the first two rows as it is too prescriptive and inflexible. These measures should allow for more flexibility in what 'water detention structure' may be best used for this application. For example, the operator should have flexibility to control storm water and divert water flows back to natural surface water flows in a manner that will not erode channels or overwhelm creeks.

JS.5.082

- On p. 2-35, row 7 "Stabilization of channels," the language should be changed from "channels will be stabilized" to "channels may be stabilized." Currently, if required, channels are stabilized with degradable fiber mat to establish vegetation.

JS.5.083

- On p. 2-36, row 3, "Ensure that clean water remains clean," the third sentence should be removed regarding "Clean water intercept "B" pond." This sentence does not add clarification to the measure text provided, and B Pond no longer exists.

JS.5.084

- On p. 2-36, row 6, "Fisheries Mitigation," in the "Comment" column, the text regarding replacing lost fishery habitat should be deleted as it is confusing and is more clearly explained in Section 3.7 ("Aquatic Resources").

JS.5.085

- On p. 2-37, row 8 (Wetlands), the "Responsibility" column should include the U.S. Army Corps of Engineers as this agency is responsible for issuing the CWA § 404 Dredge and Fill Permit.

Comment 66

Section 2.6.3, pp. 2-39 to 2-42, Table 2.6-3.

HCGMC has the following comments on Table 2.6-3:

Comment ID: JS.5.078

Footnote added marking all new mitigation measures. A new column not needed to represent the new mitigation measures presented in Table 2.6-2.

Comment ID: JS.5.079

A column has been added describing the sites the mitigation measures apply to.

Comment ID: JS.5.080

The measure was revised to reflect wheel washing requirements for vehicles leaving the TDF.

Comment ID: JS.5.081

The text has been modified to emphasize flexibility in the manner and design of control and includes the objective of maintaining geomorphologic integrity of the natural channel. The purpose for the measure is to ensure that clean water discharged from detentions structures in the Tributary Creek drainage will not increase erosion within the stream channel as wetlands are lost.

Comment ID: JS.5.082

Text revised per comment.

Comment ID: JS.5.083

Text revised per comment.

Comment ID: JS.5.084

Text revised per comment.

Comment ID: JS.5.085

Text revised per comment.

Comment



- JS.5.086 | • A number of measures in the table appear to be site-wide rather than TDF specific. The TDF is the scope of this analysis.
- JS.5.087 | • On p. 2-41, row 1, (Juvenile fish sampling) – the "Responsible Party" column should be revised to the Alaska Department of Fish and Game.
- JS.5.088 | • On p. 2-41, row 1, the language regarding toxicity testing should be removed as it is no longer required.
- JS.5.089 | • On p. 2-41, row 3, the invasive species inspection should be clarified to state when this is to be included in the GPO. Should this be included in this table if not yet a requirement? HGCMC will bring Forest Service botanist to site for these inspections.

Comment 67

Section 2.6.4, p. 2-40, Table 2.6-3, Monitoring Requirements and Authority.

JS.5.090 | Under the air quality resource, monitoring (total suspended particulates, lead, zinc, and particulate matter less than 10 microns (PM10)) at the mine and Hawk Inlet marine facility is no longer required.

JS.5.091 | Under the geochemistry resource, paste pH is measured on a five-year interval and net neutralization potential is determined from monthly tailings composites from the mill. Replace the word "leach" with "leachate" or "drainage." The monitoring section may need to be updated to reflect current practices outlined in draft GPO Appendix 3.

Comment 68

Section 3.2, p. 3-3, Air Quality, General Comment.

JS.5.092 | The DEIS should conclude whether or not an air permit (Title I PSD or Title I minor or Title V revision) is triggered by the increase in fugitive emissions from each of the alternatives, pursuant to 40 CFR 52.21, 18 AAC 50, or 40 CFR 70/71.

Comment 69

Section 3.2, p. 3-4, Air Quality.

JS.5.093 | The last sentence in the first paragraph on p. 3-4 should be revised to read: "... potential to emit more than 250 tons per year (tpy) of NO_x." This incorrectly states 205 tpy as currently written.

Comment 70

Section 3.2.3, p. 3-7, Table 3.2-3, Summary of Emission Units currently Permitted at the Greens Creek Mine.

JS.5.094 | Table 3.2-3 requires revision as shown below. Edits are indicated by *red bold italics*. The changes requested reflect a more accurate description of the emission units currently permitted and their potential



Response

Comment ID: JS.5.086

Sitewide mitigation measures were included as they related to the TDF, transport of tailings, or ongoing mining and milling processes that would continue if an expansion is approved, although the list is not exhaustive.

Comment ID: JS.5.087

Text revised per comment.

Comment ID: JS.5.088

The text regarding toxicity testing has been removed.

Comment ID: JS.5.089

Table 2.6.3 indicates that this GPO requirement is "to be included."

Comment ID: JS.5.090

Edit made per comment. The reference to air quality monitoring at the site for TSP, lead, zinc, and PM_{2.5} was removed from Table 2.6-3.

Comment ID: JS.5.091

The suggested changes have been made to Table 2.6.3.

Comment ID: JS.5.092

Title I Prevention of Significant Deterioration (PSD), Title I minor, and Title V revised permits will not be impacted by the predicted fugitive dust emissions under all action alternatives. PSD determination is based on 100 tpy for the 28 source categories (Greens Creek does not fall under any of the categories) or 250 tpy for other sources. Only stationary sources (not fugitive sources) need to be reviewed to determine if the facility is subject to PSD. Refer to the excerpts from the PSD regulations (40 CFR 51.166) below:

40 CFR 51.166(b)(1)(b): Notwithstanding the stationary source size specified in paragraph (b)(1)(i)(a) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; (Note: 40 CFR 51.166(b)(1)(i)(a) defines the 28 source categories.)

Comment



emissions based on source test data, vendor data, AP-42 emission factors, and the allowable limits under the current Operating Permit No. AQ0302TVP02 Revision 1 issued on March 3, 2011.

Table 3.2-3. Summary of Emission Units (EU) Currently Permitted at the Greens Creek Mine.

EU ID No.	EU Description	Potential to Emit ¹ , Tons Per Year (TPY)					
		NO _x	CO	PM ₁₀	SO ₂	Volatile Organic Compounds	
1	Ruston Diesel Engine	535.7 ²	100.0 ²	2.4	7.6	9.1	
2	Ruston Diesel Engine			2.4	7.6	9.1	
3	Ruston Diesel Engine			2.4	7.6	9.1	
4	CAT 3516B Diesel Engine			7.8	0.5	40.0 ²	7.6
18	CAT 3516B Diesel Engine			7.8	0.5		7.6
19	Diesel Solar Taurus Turbine			1.7	0.8		8.6
6	Sullair Compressor	36.1	7.8	2.6	2.9		
5	Volcano Oil Boiler	1.6	0.4	0.1	0.02		
7	Sag Mill (Crusher)	0	0	0.0044	0	0	
8	Ball Mill (Crusher)	0	0		0	0	
9	Conveyor Drop Points	0	0		0.042	0	0
N/A	Cleaver-Brooks Boiler	2.81	0.7	0.04	3.18	0.14	
N/A	Insignificant Emission Units	0.31	0.08	0.063	1.09	0.0039	
All Units (Total)		576.5	126.3	11.8	67.1	54.2	

Notes:

1. This table includes potential emissions from the significant emission units as listed in the current Operating Permit No. AQ0302TVP02 Revision 1 issued on March 3, 2011; emission units as described in off-permit changes; and insignificant emission units that are not required to be in the permit as set out in 18 AAC 50.326(d).
2. Potential emissions based on allowable limits under the current operating permit.

Comment 71

Section 3.2.2, p. 3-6, Air Quality – Baseline Conditions.

In the first paragraph of Section 3.2.2, change "Air quality measurements" to "Ambient air quality monitoring" to distinguish between monitoring conducted on ambient air quality versus source testing conducted on emission units, which is also a measurement. Merge with the 3rd paragraph (or provide a note that details are following) since this paragraph explains the ambient air PM monitoring to greater detail.

Response

40 CFR 51.166(b)(2)(iii): The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

(Note: The categories are the 28 source categories; Greens Creek does not fall under any of them.)

Comment ID: JS.5.093

Comment noted. Edits have been made in text replacing "Air quality measurements" with "Ambient air quality monitoring" in the first and third paragraphs of Section 3.2.2.

Comment ID: JS.5.094

Edits made to Table 3.2-3. Emission units currently permitted at Greens Creek Mine were updated based on the current Operating Permit No. AQ0302TVP02, Revision 1, issued on March 3, 2011.

Comment ID: JS.5.095

The text has been revised to reflect ambient air quality monitoring was conducted and the paragraph discussing PM10 was moved up in the text.

JS.5.094

JS.5.095

Comment

Response



Comment 72

Section 3.2.2, p. 3-6, Air Quality – Baseline Conditions.

In the second paragraph, add "Revision 1" to "Title V Permit No. AQ0302TVP02." This permit has a current Revision 1 issued on March 3, 2011.

Comment 73

Section 3.2.2, p. 3-7, Air Quality – Baseline Conditions.

Under the heading "Dust Control Improvement Methods," this section states that "current dust control methodologies are not required under permit terms and conditions..." Condition 33 of Title V Permit No. AQ0302TVP02 Revision 1 addresses prevention of fugitive emissions. It requires the Permittee to take reasonable precautions to prevent particulate matter from being emitted into the ambient air. In addition, the source is subject to the NSPS Subpart LL under Condition 14, which addresses process fugitive emissions and requires monthly dust inspections from access and operating ports of EU IDs 7 – 9 (crusher and conveyor points).

Comment 74

Section 3.2.3.1, p. 3-10, Figure 3.2-3.

The data presented in Figure 3.2-3 for the PM 2.5 emissions needs to be clarified. Data presented in Figure 3.2-2 for the PM 10 emissions shows that Alternatives C and D have higher emissions than Alternatives A and B. It appears inconsistent that for PM 2.5, lower emissions are expected from Alternatives C and D than Alternatives A and B.

Comment 75

Section 3.2.3.1, p. 3-10, Mitigation and Monitoring.

The second paragraph indicates a data gap exists for fugitive dust. HGCMC does not agree that there is a data gap. HGCMC has a monitoring program in place to characterize the extent and source of metals around the TDF. This program includes snow sampling as well as passive collection methods.

Comment 76

Section 3.2.3.1, p. 3-11, Table 3.2-5.

Table 3.2-5 presents optional and general dust control measures. Numerical specifics should be removed from this table as they are inapplicable and cause confusion. For instance, in the last row on p. 3-11 for Unpaved Roads, the "Threshold" column states that "unpaved road must be more than 50 feet wide at all points." This does not apply and causes confusion. It may be more appropriate to revise this table into a bullet list of potential control measures, such as:

- Operational controls may be implemented including temporary speed reduction, fencing, and/or ceasing operations on high wind days.

Comment ID: JS.5.096

Edit made: (Revision 1) added to the Title V permit.

Comment ID: JS.5.097

Edit made per comment. In section 3.2.2, under Dust Control Improvement, a sentence has been added discussing reasonable precautions to prevent fugitive dust as listed in the current Title V Permit No. AQ0302TVP02, Revision 1.

Comment ID: JS.5.098

Edits were made to figures 3.2-2 and 3.2-3, and PM₁₀ and PM_{2.5} emissions were recalculated and corrected in the above-noted tables. Thank you for the correction.

Comment ID: JS.5.099

The text has been revised to indicate that snow monitoring, load analysis, and passive systems are currently in place.

Comment ID: JS.5.100

Edit made per comment. Table 3.2-5 has been simplified to recommend control measures that are applicable to the Greens Creek Mine.

Comment

Response



JS.5.100

- Natural controls including watering, hydroseed application for vegetative cover growth, or biodegradable matting.

Comment 77

Section 3.2.3.2, p. 3-14, Mitigated Alternative B.

JS.5.101

The first paragraph states that enlarging the quarry rather than developing a new one is a possibility; however, this has not yet been explored and is likely not possible. Enlarging the quarry would increase the difficulty to collect water from the quarry and would further complicate closure and reclamation. The discussion regarding enlarging the quarry under Mitigated B should clarify that it is unclear whether this is technically feasible, or delete this discussion altogether.

Comment 78

Section 3.3.2, p. 3-20, Geotechnical Stability – Baseline Conditions.

JS.5.102

The last sentence of paragraph four should be revised to read: "They determined that the phreatic surface would need to be much higher than the current groundwater levels to reduce the factor of safety from 1.3 to 1.1 to potentially affect TDF stability."

Comment 79

Section 3.4.2, p. 3-24, Table 3.4-1, Tailings Mineral Composition by Weight.

JS.5.103

Many of the values found in column 3 (Percent by Weight) have too many decimals and need to be corrected.

Comment 80

Section 3.4.2, p. 3-24, Geochemistry – Existing Conditions.

JS.5.104

Regarding the 14 XRD samples referred to in the fourth paragraph in Section 3.4.2, the ten samples collected from the test cells were likely of tailings placed in the early 2000s rather than 1990s. Two of the other four samples were from the early to mid 1990s and the other two were fresh samples from the mill in 2004.

Comment 81

Section 3.4.2, p. 3-29, Geochemistry – Existing Conditions.

JS.5.105

In the first paragraph on p. 3-29, the comment regarding the delay time for the onset of ARD from tailings may be misleading. Comparing the delay time of waste rock to that of tailings is problematic because milling makes the carbonate minerals more available to neutralize acidity in tailings than in waste rock. No examples of acidification of Greens Creek tailings have been found to date. "Products of pyrite oxidation" do not necessarily indicate depletion of neutralization capacity. The few cases of acidic drainage near the tailings facility were due to acidification of rock fill (in addition to Fe and Mn reduction/oxidation in muskeg soils), not tailings. While it may be difficult to argue definitively that tailings exposed to optimal weathering conditions will not acidify in less than 30 years, the field results

Comment ID: JS.5.101

Comment noted. If preconstruction geotechnical and engineering review indicates that an enlarged quarry is not feasible, then the quarry considered under Alternative C, along the A road, could be used.

Comment ID: JS.5.102

Edit made per comment.

Comment ID: JS.5.103

Values in Table 3.4-1 have been edited.

Comment ID: JS.5.104

Text has been edited as follows: "Ten of these samples were taken from several depths (0.5–2.5 meters) within test cells studied by Lindsay (2009) and are estimated to have been produced in the early 2000s. Two of the remaining four samples were from the mid-1990s and two were fresh from the mill in 2004."

Comment ID: JS.5.105

Standard procedure for conducting humidity cell tests provides for substantial crushing of material, relative to waste rock, to be tested. While not crushed as fine as tailings, the substantial size reduction should produce test results that are appropriate for use in estimating potential lag times for the onset of ARD in tailings. Field observation of acidic seeps associated with the tailings pile are noted as being consistent with previous estimates based on lab tests and nothing more.

Comment	Response
 <p>JS.5.105 really do not support the concept that tailings are projected to acidify in 10 to 33 years under those conditions.</p>	<p>Comment ID: JS.5.106 Comment noted. The reference was changed to Petros and updated to November 2011.</p>
<p>Comment 82</p> <p>Section 3.4.2.1, p. 3-29, Solutions Associated with Tailings.</p> <p>JS.5.106 Here and throughout the DEIS the document referenced as "Condon (2011)" might more appropriately be referenced as "Petros (2011)," "Petros GeoConsulting (2011)" or "PGI (2011)." Also, the reference list appears not to refer to the version that was revised November 18, 2011.</p>	<p>Comment ID: JS.5.107 Reference has been corrected.</p>
<p>JS.5.107 The document referenced as "Condon (2012)" is actually titled "Statistical calculations for representative water types at the Greens Creek tailings facility." The reference list has the title, "Geochemical Composition of Observed Solutions in the Greens Creek Mine TDF."</p>	<p>Comment ID: JS.5.108 Although it affects only a couple of table values, highest detection limits have been replaced with lowest for cases where a constituent was always undetected. The footnote has been changed to reflect this.</p>
<p>Comment 83</p> <p>Section 3.4.2.1, p. 3-30, Table 3.4-4, Chemical Composition of Solutions Associated with Greens Creek Tailings.</p> <p>JS.5.108 The highest detection limit is shown for elements with non-detect results; however, the lowest detection limit value more closely indicates the actual concentration in the water. Therefore, for non-detects, the lower detection limit should be indicated in the table and update the footnote. In many cases a high detection limit was reported if the sample was in a batch of other samples that contained samples with higher concentrations.</p>	<p>Comment ID: JS.5.109 The text has been corrected.</p>
<p>Comment 84</p> <p>Section 3.4.2.2, p. 3-30, Sulfate Reduction Monitoring Program.</p> <p>JS.5.109 The SRMP test plots were constructed in 2004, not 2006.</p>	<p>Comment ID: JS.5.110 The reference to co-disposal of waste rock in test cells has been deleted and the conclusion of Lindsay and Blowes to not establish sulfate reduction in weathered tailings has been noted.</p>
<p>JS.5.110 The second paragraph on p. 3-31 discusses weathered waste rock (co-disposal) in the SRMP field trials. The field cells did not contain weathered waste rock, and Lindsay and Blowes do not recommend carbon amendment to weathered tailings (and by extension, co-disposed weathered waste rock).</p>	<p>Comment ID: JS.5.111 The text has been revised per comment.</p>
<p>Comment 85</p> <p>Section 3.5.1.2, p. 3-35, Surface Water.</p> <p>JS.5.111 The last sentence in paragraph 2 should be revised to read: "The primary withdrawal point is located immediately east of the B Road crossing near the existing TDF site." Following this revised sentence, add new sentences that read: "There is an alternative withdrawal point near the Hawk Inlet camp buildings. Source water protection for the Cannery Creek water system must be maintained."</p>	

Comment

Response



Comment 86

Section 3.5.1.2, p. 3-39, Surface Water.

JS.5.112 Please provide a description regarding why "Further Seep" is a "seep of interest." The last sentence of paragraph 3 on p. 3-39 states: "One particular seep of interest is called Further Seep, an intermittent seep with a flow of approximately one gpm." Why is this a "seep of interest?"

Comment 87

Section 3.5.2, p. 3-39, Water Resources – Surface Water – Baseline Conditions.

JS.5.113 The first sentence of paragraph 1 needs to clarify that the Hawk Inlet drainage area in question is the "south" area; this sentence should be revised to read: "The TDF occupies a gently sloping terrace that straddles the drainage divide between the Tributary Creek drainage basin, the Canary Creek drainage basin, and the South Hawk Inlet drainage area."

Comment 88

Section 3.5.1.2, p. 3-39, Surface Water.

JS.5.114 The streams discussed in the third paragraph on p. 3-39 (e.g., Proffett Creek, Franklin's Creek, CC Creek and Further Creek) are very small ephemeral drainages, which were given colloquial names for reference by site personnel. They in fact are not streams. Please add this information to the text. Also, delete Althea Creek and Further Creek/seep from p. 3-60, Figure 3.5-5, which shows watersheds.

Comment 89

Section 3.5.2, p. 3-41, Table 3.5-2, Applicable Water Quality Standards for Area Streams.

JS.5.115 It appears the footnote references in the table are not correct. For example, only manganese should have note "c," and arsenic should have note "d."

Comment 90

Section 3.5.2, p. 3-43, Table 3.5-3.

JS.5.116 Table 3.5-3 should be revised to include the reference monitoring location site IDs in Figure 3.5-2 on p. 3-42.

Comment 91

Section 3.5.2, p. 3-44, Table 3.5-3, Summary of Surface Water Quality Monitoring Stations.

JS.5.117 The table provides site names but not site numbers as shown on Figure 3.5-2 (Surface Water Quality Monitoring Sites). Table 3.5-3 should be revised accordingly.

JS.5.118 Gilbert Creek is a small spring-fed drainage near the mine site above Site 23. Herman's Gulch (east) is a small drainage that flows from under the rock fill at the truck pad at the Hawk Inlet marine terminal.

Comment ID: JS.5.112

The text has been modified and the term "of interest" was removed.

Comment ID: JS.5.113

Edit made per comment.

Comment ID: JS.5.114

These drainages were referred to as creeks in the 2003 EIS and are named creeks in the Water Quality Data Base. The names were left unchanged for consistency.

Comment ID: JS.5.115

The footnotes have been corrected.

Comment ID: JS.5.116

Edit made per comment. Site ID numbers have been added to the site location name in Table 3.5-3 in relation to the monitoring sites shown in Figure 3.5-2.

Comment ID: JS.5.117

Edit made per comment. Site ID numbers have been added to the site location name in Table 3.5-3 in relation to the monitoring sites shown in Figure 3.5-2.

Comment ID: JS.5.118

Edit made per comment. Gilbert Creek, Herman's Gulch (east), and Herman's Gulch (south) have been removed from Table 3.5-3.

Comment	Response
 <p>JS.5.118 Herman's Gulch (south) is a foundation drain from the shift housing building at the Hawk Inlet camp. These drainages are not associated with the tailings facility and should be removed from the table and the text on p. 3-46, Paragraph 2, Line 1.</p>	<p>Comment ID: JS.5.119 Comment noted. Text has been added.</p>
<p>Comment 92</p> <p>Section 3.5.2, p. 3-46, Water Resources – Surface Water – Baseline Conditions.</p> <p>JS.5.119 A sentence should be added to the end of this section that reads: "HGCMC has initiated a study to determine natural background concentrations for surface water and ground water in the area." This comment also applies to paragraph 2 of Section 3.6.1.3 (Groundwater Quality) on p. 3-67.</p>	<p>Comment ID: JS.5.120 Comment noted. The text has been modified. The phrase concerning non-contact water outfalls in the permit is consistent with the discharge permit and the rest of the document.</p>
<p>Comment 93</p> <p>Section 3.5.2.1, p. 3-47, Wastewater Management.</p> <p>JS.5.120 In the first paragraph on p. 3-47, waters from quarries are not addressed via ambient groundwater monitoring as specified by the FWMP. Quarries are monitored under GPO Appendix 11 or the stormwater monitoring program. In the second paragraph, water treatment relies on precipitation of calcium carbonate, iron hydroxide and other metal hydroxide phases. In the third paragraph the reference to <i>non-contact</i> storm water discharges may be in conflict with the definition given for contact water in the first paragraph, particularly as it relates to quarries.</p>	<p>Comment ID: JS.5.121 The text was changed for clarity.</p>
<p>Comment 94</p> <p>Section 3.5.2.1, p. 3-47, Wastewater Management.</p> <p>JS.5.121 The first sentence of the second paragraph on p. 3-47 should be revised to read: "The four primary wastewater management areas at the site are the Hawk Inlet camp/loadout facilities area, the waste rock storage areas (Pond C, Pond D, Site 23), 920 mine and mill area, and the tailings facility area, consisting of the TDF, water containment and storage, and the Pond 7 wastewater treatment plant (WWTP)."</p>	<p>Comment ID: JS.5.122 The manganese standard has been deleted from the table.</p>
<p>Comment 95</p> <p>Section 3.5.2.3, p. 3-51, Table 3.5-4.</p> <p>JS.5.122 Delete manganese from Table 3.5-4; manganese is not an analyte that is required to be analyzed in the APDES permit, and therefore there is no manganese data to compare to the standard in Table 3.5-5. Also, the title of Table 3.5-4 should be changed to: "Alaska Chronic Marine Water Quality Standards."</p>	<p>Comment ID: JS.5.123 The table has been changed to show dissolved phases for cadmium, copper, lead, and zinc. The table values are an average of 2005 through and including 2009.</p>
<p>Comment 96</p> <p>Section 3.5.2.3, p. 3-51, Table 3.5-5.</p> <p>JS.5.123 The permit requires dissolved metals analyses, not "total" for all metals except mercury. The values in HGCMC 2009 (cited for this table) are dissolved metals, and do not match this table.</p>	

Comment

Response



Comment 97

Section 3.5.3.1, p. 3-52, Table 3.5-6.

JS.5.124 The flow values in Table 3.5-6 are proposed values under the pending APDES permit renewal and have not yet been approved. Also, all metals are measured as total recoverable, except mercury, which is measured as total.

Comment 98

Section 3.5.3.1, p. 3-53, Surface Water – Environmental Consequences.

JS.5.125 On p. 3-53, the last sentence of first paragraph should be revised to read: "This EIS analysis can only predict with a water quality model that the TDF discharge will exceed current Alaska WQS and require a permit at closure, but it cannot predict the requirements of a permit in the future."

Comment 99

Section 3.5.3.1, p. 3-54, Table 3.5-7.

JS.5.126 Footnote (b) in Tables 3.5-7 (p.3-54), 3.5-8 (p.3-55), 3.5-9 (p.3-56), and 3.5-10 (p.3-57) references that Alaska chronic fresh Water Quality Standard (WQS) are based on a long-term average hardness of 37 mg/L as CaCO₃. A clarification statement should be provided regarding how this differs from the hardness of 46 mg/L CaCO₃ in Tributary Creek used to set the WQS for discharge to area streams referenced in Tables 3.5-2 and 3.5-3 (pp. 3-41 and 3-43).

Comment 100

Section 3.5.3.1, p. 3-57, Effects Common to All Alternatives.

JS.5.127 The closure facility boundary zinc concentration for Alternative B in Table 3.5-8 states 210 ug/l, but the text in Paragraph 1 states 220 ug/l. The 100 year post closure wet well sulfate concentration for Alternative B in Table 3.5-8 states 824 mg/l, but the text states 810 mg/l. The 100 year post closure wet well sulfate concentration for Alternative D in Table 3.5-10 states 870 mg/l, but the text states 335 mg/l. It appears that the table values are correct, and the text should be updated to correct this inconsistency.

Comment 101

Section 3.5.3.1, p. 3-58, Effects Common to All Alternatives.

JS.5.128 Paragraph 2 on p. 3-58 discusses the rationale for stating that water treatment would be required for more than 100 years, perhaps in perpetuity. This rationale should be stated or summarized clearly when this topic is first mentioned in Section 2, p. 2-4 and elsewhere. Previous EIS documents (1983 and 2003) assumed some level of mixing with receiving waters, which would alleviate the need for long term water treatment. The following text from the 2003 EIS Appendix A (p. 18) shows the variety of acceptable discharge options considered:

Post-closure, water flowing out of the underdrains will either be discharged without dilution under gravity to the surface or subsurface (discharge scenario 1(a), SEIS Section 2.2); diluted

Comment ID: JS.5.124

Please see the response to Comment JS.5.001.

Comment ID: JS.5.125

Comment noted. The term "requirements" has replaced "conditions" in the statement noted in the comment.

Comment ID: JS.5.126

The footnotes have been made consistent.

Comment ID: JS.5.127

The text has been corrected.

Comment ID: JS.5.128

Please see the response to Comment JS.5.040. The Forest Service does not view the evaluation of water treatment and discharge scenarios as consequential to this analysis since both currently are and will continue to be conducted within regulatory standards (i.e., protective of beneficial uses) as managed by ADEC and the USEPA. Identifying passive treatment as a potential mechanism would be presumptive without treatability studies being conducted to evaluate feasibility and potential effectiveness and to determine a design for a system.

Comment	Response
 <p>JS.5.128</p> <p>with surface runoff from the pile and downgradient groundwater prior to discharge to the surface or subsurface (discharge scenario 1(b); discharged to marine waters with the potential for dilution from a marine mixing zone (discharge scenario 2); or discharged to marine waters using a diffuser (discharge scenario 3). It is possible that discharge scenarios 1(a) and 1(b) may involve the use of a low maintenance biological treatment system (a.k.a. treatment works) constructed at the land surface or subsurface. Underdrain water will continue to be collected and treated using a conventional chemical precipitation water treatment facility until such time the water quality meets the standards applicable to one of the selected discharge scenarios described above.</p> <p>The 2003 EIS used a mixing ratio of 50:1 for marine discharge when comparing alternatives. A discussion of the change in approach for addressing the need for long term treatment relative to previous NEPA analyses is warranted.</p> <p>Comment 102</p> <p>Section 3.5.3.2, p. 3-58, Effects of Alternative A, No Action, and Section 3.5.3.3, p. 3-59, Effects of Alternative B, Proposed Action.</p> <p>JS.5.129</p> <p>Under both Sections 3.5.3.2 and 3.5.3.3, the first paragraph contains a sentence regarding non-contact water runoff that should be revised to read as follows: "Additionally, non-contact surface runoff from upgradient of the TDF is captured and routed in diversions to the Cannery Creek and Tributary Creek watersheds."</p> <p>Comment 103</p> <p>Section 3.5.3.3, p. 3-59, Effects of Alternative B, Proposed Action.</p> <p>JS.5.130</p> <p>The third paragraph of Section 3.5.3.3 should be revised to read: "The current treatment capacity and permitted maximum daily discharge of the Pond 7 WWTP to the outfall in Hawk Inlet is 3.6 mgd. Under the full expansion of the TDF, the existing WWTP would be upgraded or a new WWTP would be constructed. The additional treatment capacity is needed in order to accommodate the additional volume of tailings wastewater collected. At full build out of Alternative B to accommodate the additional 30 – 50 years of operation, EDE (2010) estimated the need for a 4.6 mgd permitted discharge rate."</p> <p>Comment 104</p> <p>Section 3.5.3.3, p. 3-60, Figure 3.5-5.</p> <p>JS.5.131</p> <p>The exact facility locations/footprints for all alternatives are difficult to see on this map, and they are not the color indicated in the legend (grey). Please provide a revised map that accurately depicts the facility footprints for all alternatives.</p> <p>Comment 105</p> <p>Section 3.5.3.3, p. 3-61, Mitigated Alternative B.</p> <p>JS.5.132</p> <p>Paragraph 1 should be revised to clarify that Mitigated Alternative B may result in an impact to the Cannery Creek watershed. Following the second to last sentence in paragraph 1 ("The slight difference in wetlands impacted may produce a very minor improvement in flow attenuation and groundwater</p>	<p>Comment ID: JS.5.129</p> <p>The term "non-contact" has been added to the text.</p> <p>Comment ID: JS.5.130</p> <p>The text has been modified.</p> <p>Comment ID: JS.5.131</p> <p>Edit made per comment. Figure 3.5-5 has been revised to match the legend and appear more visible.</p> <p>Comment ID: JS.5.132</p> <p>Potential impacts to Cannery Creek have been added to the text for Mitigated Alternative B.</p>

Comment

Response



JS.5.132 discharge to Tributary Creek compared to Alternative B.”), insert a new sentence that reads: “Also, this alternative may impact Cannery Creek.”

Comment 106

Section 3.5.3.3, p. 3-61, Mitigated Alternative B.

JS.5.133 Paragraph 1 states: “About 2 million cubic yards of tailings and waste rock being placed in the northeast corner of the existing TDF.” Please elaborate on why “approximately half of the material would be placed in the initial phase of the expansion with the remaining volume being placed in the final phase.” This mitigation would preclude concurrent reclamation of the north side of the pile if concurrent reclamation is warranted. JS.5.134 It also prevents gravity flow of contact water and below-liner drainage back to the southwest. Gravity flow to the southwest of the existing TDF is a desirable option for post-closure water management. JS.5.135 Expansion of the quarry northwest of the TDF and expansion of the TDF to the northeast may impact Cannery Creek. JS.5.136 The reclamation material stockpile near the junction of the A and B roads could also require additional water management infrastructure if treatment of drainage is necessary.

Comment 107

Section 3.5.4, p. 3-64, Surface Water - Summary.

JS.5.137 The last sentence in Section 3.5.4 should be revised to reflect the reality that captured TDF effluent under Alternatives C and D will be required to be pumped to the wastewater treatment facility indefinitely. This sentence should read: “For alternatives C and D, captured TDF effluent from the northern facility will be required to be pumped to the wastewater treatment facility during operations and closure until water quality standards are met.”

Comment 108

Section 3.6.1.3, p. 3-68, Table 3.6-1, and p. 3-69, Table 3.6-2.

JS.5.138 The footnotes to Tables 3.6-1 and 3.6-2 state that averages are calculated using half detection limit. This does not seem appropriate to average minimum and maximum method detection limits. For example, for lead, how does the average of <2 and <10 equal <10? Would it be more accurate to list n/a? Does (<) sign indicate less than method detection limit or some other value?

Comment 109

Section 3.6.2.3, p. 3-71, Groundwater Quality.

JS.5.139 The first paragraph cites an EDE 2007a report for groundwater data. Why does this section cite to the EDE 2007a report when there is an EDE 2011 report? Similarly, why does the last paragraph of this section use 2009 data for the FWMP and not the 2010 data? This section should be revised and cite more recent reports and data or provide a reason why the most current data is not being used.

Comment ID: JS.5.133

The placement of material in the northeast corner first would buttress the existing tailings and serve as a base for the material that would be placed later in the process of expanding the TDF. It is noted that this approach would preclude concurrent reclamation.

Comment ID: JS.5.134

The impact was noted in the text along with the fact that additional effluent collection areas would be required in this area and effluent would have to be pumped to water treatment, perhaps in perpetuity.

Comment ID: JS.5.135

The potential impact to Cannery Creek was noted in the text.

Comment ID: JS.5.136

Comment noted. The text has been modified to reflect that additional water management, control, and potential treatment would be required.

Comment ID: JS.5.137

Comment noted. The text has been modified for alternatives C and D and Mitigated Alternative B, and further discussion was added to the Summary concerning additional effluent collection area requirements, pumping of effluent, and infrastructure needs.

Comment ID: JS.5.138

Comment noted. The table values have not been changed. The treatment of non-detects in summary statistics is always arguable, but the method of calculation is noted in the footnote.

Comment ID: JS.5.139

The 2011 groundwater report was not available until after the preliminary agency draft of the EIS was prepared. Similarly, the 2009 FWMP report was the most recent that was made available at the time of the agency draft. The inclusion of the most recent data that is now available will not change the overall analysis and conclusions of this section.

Comment	Response
 <p>Comment 110</p> <p style="text-align: center;">Section 3.6.2.3, pp. 3-72 and 3-73, Tables 3.6-3 and 3.6-4.</p> <p>JS.5.140 Please add footnotes to the Tables that indicate: 1) if the data is based on hardness; and 2) if the values listed as < (less than) are less than the MDL.</p> <p>Comment 111</p> <p style="text-align: center;">Section 3.6.2.3, p. 3-73, Groundwater Quality.</p> <p>JS.5.141 The sixth sentence in paragraph one on p. 3-73 states: "Currently, sulfate concentrations are still elevated above background levels but are decreasing in all but two wells measured." What is considered "background" in this sentence?</p> <p>Comment 112</p> <p style="text-align: center;">Section 3.6.2.3, p. 3-73, Groundwater Quality.</p> <p>JS.5.142 It is unlikely that the small increase in sulfate observed in MW-2S is derived from seepage of contact water into bedrock from the unlined portion of the TDF. If that were the case one would expect similar concentrations in the aquifer between the bedrock and the MW-2S. Sulfate is in fact lower in MW-2D (deep) than MW-2S (shallow). Quarrying of rock can increase sulfate concentrations in the absence of contact water from the TDF, because the rock in the quarries contains pyrite. Influences from surface sources (e.g., dust, placement of pyritic quarry rock and perhaps quarrying activities in the area) may account for the increase in sulfate in shallow wells like MW-2S.</p> <p>Comment 113</p> <p style="text-align: center;">Section 3.6.3.2, p. 3-75, Effects of Alternative A, No Action.</p> <p>JS.5.143 The second paragraph of Section 3.6.3.2 states: "Decreases of elevated sulfate concentrations in bedrock aquifer monitoring wells would continue to be monitored, and the effectiveness of excavating and relining sections of the originally unlined TDF determined." Does this refer to the previously excavated and lined northwest corner of the pile, or does it refer to potential new excavations? Excavation of additional unlined area would not be feasible without moving nearly the entire existing TDF.</p> <p>Comment 114</p> <p style="text-align: center;">Section 3.6.3.5, p. 3-77, Effects of Alternative D, Modified Proposed Action.</p> <p>JS.5.144 Change "line" to "liner" in the fifth sentence in the first paragraph.</p>	<p>Comment ID: JS.5.140 Appropriate footnotes have been added.</p> <p>Comment ID: JS.5.141 The word "background" has been changed to "pre-mining."</p> <p>Comment ID: JS.5.142 Comment noted. The text is based on HGCMC reports that are part of the administrative record.</p> <p>Comment ID: JS.5.143 The text refers to the effectiveness of the previous excavation.</p> <p>Comment ID: JS.5.144 Edit made per comment.</p>