



# United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
1689 C Street, Room 119  
Anchorage, Alaska 99501-5126



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May 30, 2012

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

Dear Ms. Samuelson:

The U.S. Department of the Interior (DOI) has reviewed the April 2012 Hecla Greens Creek Mine Tailings Disposal Facility Expansion Draft Environmental Impact Statement (EIS). We offer the following comments under provisions of the Fish and Wildlife Coordination Act, the National Environmental Policy Act, and Executive Order 11990 (Protection of Wetlands). Our primary interests for this project include migratory birds and their habitats, anadromous fish, and wetlands affected by the proposed tailings expansion.

## **PROJECT DESCRIPTION**

Hecla Greens Creek Mining Company (HGCMC) proposes to expand the Greens Creek Mine tailings disposal facility (TDF) to accommodate approximately 10 million cubic yards of additional tailings and waste rock over a 30- to 50-year period. The mine is located on Admiralty Island, approximately 18 miles southwest of Juneau, Alaska. Major portions of the mine are located on Tongass National Forest lands and most of the TDF is located in the Admiralty Island National Monument (Monument). The mine produces lead and zinc concentrates that also contain silver.

## **GENERAL COMMENTS**

The Draft EIS presents one no-action and three action alternatives. The major differences among the alternatives are the location and configuration of the TDFs, and the types and amounts of wetlands and fish streams that would be lost.

The proposed alternative (Alternative B) would extend the footprint of the existing TDF south into the Monument. Approximately 4,000 linear feet of fish habitat in Tributary

Creek would be lost under this proposal, including 1,646 feet of anadromous fish stream and 2,400 feet of resident fish stream. A total of 98.4 acres of wetlands would be filled.

Alternative C would expand the existing TDF to hold an additional 3 million cubic yards of tailings and establish a new TDF outside the Monument that would hold an additional 7 million cubic yards of tailings and waste rock. Approximately 1,044 feet of Class II stream and 114.2 acres of wetlands would be lost. No anadromous reaches would be filled.

Alternative D would implement a smaller expansion of the existing TDF to hold an additional 1 million cubic yards of tailings with a larger TDF outside of the Monument that would hold an additional 9 million cubic yards of tailings and waste rock. Approximately 1,044 feet of resident fish stream and 124.9 acres of wetlands would be disturbed.

#### Minimization of Fish Habitat Loss

We recommend selection of Alternative C because it would have less impacts to fish habitat than the proposed Alternative B. We believe the selected alternative would help minimize impacts to fish and wildlife habitat through maintenance of fish-bearing streams, minimization of wetland loss, and minimization of disturbance to migratory bird habitats. Under Alternative B, the proposed TDF expansion would result in a loss of 1,600 feet of anadromous fish spawning and rearing habitat and an additional 2,400 feet of resident fish stream habitat in Tributary Creek, representing a 50 percent loss of fish habitat by stream length. Although Alternative C would impact over 1,000 feet of a resident fish stream and would include substantial wetland loss, overall stream loss would be reduced.

#### Mitigation for Impacts to Fish-bearing Streams

Fish-bearing streams are considered high-quality aquatic features (USACE 2009) and need to be avoided where possible. Where impacts are unavoidable, we recommend that the Final EIS state that fish-bearing streams will be mitigated at a ratio of at least 3:1. If repair of the failed fish passage structure on Greens Creek is selected as mitigation, we believe an adequate monitoring plan with adaptive management should be required by the U.S. Forest Service.

The joint Environmental Protection Agency and U.S. Army Corps of Engineers Final Rule *Compensatory Mitigation for Losses of Aquatic Resources* (Final Rule) (2008) specifies that because streams are difficult to replace, emphasis should be on preservation, rehabilitation, or enhancement. According to the Final Rule, a monitoring schedule is required, and reports must be submitted to assess development and condition of the compensation project. In addition, mitigation plans must contain performance standards that will be used to assess whether the project is achieving its objectives. These components (none of which are included in the Draft EIS) need to be specified in the Final EIS.

The Draft EIS (page 3-97) includes discussion of a failed fish passage project that was developed as mitigation in 1989. There is a proposal for repair of that fish passage system as new mitigation for loss of 4,000 feet of Tributary Creek that would occur in Alternative B. The fish passage system would allow anadromous fish access to an additional 18,400 feet of stream in Greens Creek. Given the failure of the previously attempted fish pass, if this proposed mitigation is selected, the Final EIS needs to include a monitoring plan that identifies alternative mitigation plans. We recommend adaptive management be incorporated so that if the proposed mitigation project fails to meet objectives, suitable alternative mitigation will be provided. Any fish passage mitigation project will need to be monitored for the full lifetime of the water treatment that will be required, as both water quality and physical access to habitat are necessary to sustain fish populations.

#### Minimization of Wetland Loss

Forested wetlands, bogs, marshes, and high-functioning fens would be lost under all action alternatives evaluated. Fens are hydrologically supported primarily by groundwater, which is typically high in mineral nutrients. Compared to other wetland types in the project area, and across the Southeast Alaska in general, fens provide particularly high functions for streamflow support, streamwater cooling, aquatic invertebrate habitat, amphibian habitat, and native plant habitat (Draft EIS, pages 3-127 to 3-128). Great volumes of groundwater typically flow through fen wetlands, increasing the potential for transport of contaminants, if toxic materials are deposited upon them. Because these fens flow into fish-bearing streams, avoiding contamination of the fens will provide a measure of protection for the health of the streams and their associated biota. Alternative C avoids further impacts to the fen located to the south of the existing TDF, and impacts the smallest area of fens (25 acres) of any of the action alternatives. As currently configured, however, Alternative C would impact a substantial fen, plus forested wetlands and bogs at the proposed alternative TDF. We recommend that, in the Final EIS, water quality and wildlife habitat be protected by modifying the TDF to avoid fen wetlands entirely.

#### Stream habitat and aquatic resources monitoring

Although a storm water detention structure is proposed to catch surface runoff from the TDF, additional sediment is likely to be delivered to Tributary Creek and/or Fowler Creek, as typically occurs with these structures. Suspended solids are a primary carrier for metals and other contaminants, which can affect stream productivity. Sediment can also adversely affect aquatic macro-invertebrates and fish by covering stream-bottom gravel, which is used by invertebrates and fish for reproduction/spawning and rearing.

State law requires that water quality standards for total suspended solids be met. Degradation of salmon stream habitat is not allowed. Therefore, water quality monitoring in Tributary Creek would be required if Alternative B is selected. For monitoring programs to detect significant change, baseline and project operational data sets for

periphyton, invertebrates, and fish should use statistical comparisons of standardized, quantitative metrics to characterize stream health. This needs to be described in the Final EIS.

Aquatic resource monitoring as described in the Draft EIS (Table 2.6-3) includes: (1) juvenile fish sampled for abundance and distribution; (2) fish subsamples analyzed for chemistry; (3) water samples taken for temperature and toxicity testing; (4) periphyton samples collected for biomass; and (5) invertebrates sampled for abundance and community structure. Details on sample schemes, chemical analyses, and statistical techniques are not included in the Draft EIS; nor does the Draft EIS refer the reader to documentation of such information. As a result, it is difficult to evaluate the adequacy of these monitoring programs. We believe standardized macro-invertebrate metrics, which have been developed for Southeast Alaska, need to be used to characterize stream health (Rinella et al. 2005). Moreover, statistical evaluations, in addition to qualitative review of these metrics, need to be used to detect changes over the life of the project. Furthermore, similar quantitative measures need to be adopted for the other parameters included in the monitoring plans. This information needs to be included in the Final EIS.

If monitoring detects changes potentially attributable to mine operation, remedial actions will need to be evaluated and implemented as appropriate. Specific triggers for such evaluations need to be included in the operation plans for the mine and described in the Final EIS. We believe monitoring is only meaningful if it provides data and analyses sufficient to initiate and inform adaptive management.

### Water Quality Monitoring

A plan for monitoring water treatment and water quality needs to be evaluated in the Final EIS. Contamination of water and biota from tailings leachate is one of the greatest potential impacts likely to result from the proposed project. Without a robust monitoring plan that includes specific triggers for initiation of remedial action, it will not be possible for the U.S. Forest Service or the public to evaluate any significant potential impacts associated with the project.

Treatment of tailings contact water from any of the TDF alternatives will be required for at least 100 years and likely longer, based on modeling information included in the Draft EIS. Because treated water goes to marine discharge, any breakdown of the treatment system could adversely affect water quality in Hawk Inlet and affect fish, wildlife, and invertebrates, including many invertebrate species fed upon by migratory birds.

HGCMC is currently operating under a 2005 Alaska Pollutant Discharge Elimination System (APDES) permit that allows continued discharge to Hawk Inlet. The permit allows a mixing zone in Hawk Inlet for dilution of cadmium, copper, lead, mercury, zinc and pH. Water quality sample sites are over 1,600 feet from the edge of the mixing zone in Hawk Inlet. Various maps in the Draft EIS show the sampling sites at different locations. However, details of the sampling scheme are lacking and need to be included in the Final EIS.

We recommend that monitoring samples be taken at the edges of the mixing zone rather than far from the mixing zone. We further recommend that the model used to evaluate the subtidal mixing zone in the monitoring plan account for tidal action that is likely to repeatedly expose biota to toxins. In addition, monitoring samples will need to be taken during tidal periods that put the outfall plume upstream of the sampling sites rather than the reverse. This detailed information on monitoring needs to be included in the Final EIS.

The selected alternative needs to allow adaptive management to implement improved water treatment methods as they are identified in the future, and to require evaluation of remedial actions, if water quality monitoring detects declines in water quality. This information also needs to be included in the Final EIS.

## **SPECIFIC COMMENTS**

### **2.3.2 Alternative B: Proposed Action**

**Page 2-6:** The Draft EIS states that “Similar to Alternative A, it is anticipated that drainage from the TDF would require treatment for hundreds of years after closure.” However, the document does not quantify the time periods, and does not describe the processes that might minimize the period to less than “hundreds of years”. The Final EIS needs to include quantitative estimates of treatment times and descriptions of possible processes that might reduce the need for treatment.

### **2.3.3 Alternative C: New TDF Located Outside Monument**

**Page 2-8:** The Draft EIS states that “The expansion of the existing TDF and the construction of the new TDF would make use of the existing water treatment plant for approximately 30 years, after which a replacement to the water treatment plant would be necessary (due to normal operational lifetime of the water treatment plant). There would be no water treatment plant at the new TDF site.” The document does not quantify how long the water treatment will be necessary, and does address the issue of post-mining water treatment. The Final EIS needs to quantify the water treatment periods, and if water treatment continues beyond the lifetime of the mine, provide an estimation of the number of treatment plants that will be necessary.

**Page 2-12:** The Draft EIS states that: “Under this alternative, portions of the new TDF would be reclaimed in the interim as conditions allowed, until final reclamation occurred. Final reclamation would be conducted at the end of tailings disposal and would include covering, revegetation, and ongoing water management.” The Final EIS needs to describe the scope and duration of the “ongoing water management requirements”.

### **2.3.4 Alternative D: Modified Proposed Action**

**Page 2-16:** The Draft EIS states that: “The expansion of the existing TDF and the construction of the new TDF would make use of the existing water treatment plant for approximately 30 years, after which a replacement to the water treatment plant would be necessary (due to normal operational lifetime of the water treatment plant).” The Final EIS needs to describe the scope and duration of the ongoing and future water management requirements.

### **2.4.8 Reclamation and Closure**

**Page 2-23:** The Draft EIS states that: “Reclamation growth medium material (consisting of soil and peat) would be removed from the areas disturbed by enlargement or construction of any of the TDF structures and placed into stockpiles. This material would be used for reclamation and site closure.” Organic material stored for 30 years will be subject to diagenesis and will be reduced in volume. The Final EIS needs to include a description of the estimated diagenesis and reduction in volume, and an estimate of how much additional soil material would be needed to bring the volume up to the amount that was originally removed.

**Page 2-23:** The Draft EIS states that one of the goals is: “Return the disturbed areas to near-natural conditions to the extent practical;” however, the document does not include a thorough description of the present natural conditions. The Final EIS needs to include a description of the present environment sufficient to provide reviewers and decision makers with an adequate baseline understanding of the present natural environment.

### **3.5.2 Water Resources-Surface Water-Baseline Conditions**

**Page 3-40:** The Draft EIS discusses results and trends based on data from the Fresh Water Monitoring Program (FWMP) and FWMP annual report, however, the reference information is not provided. The Final EIS needs to provide all references and necessary information so that reviewers can check and document the presented results and trends.

### **3.10.3 Wetlands - Environmental Consequences**

**Page 3-127/8:** Table 3.10-3, “Wetland Functions and Values,” contains relevant and useful data for those familiar with the WESPAK-SE functional assessment methodology. Its usefulness for most readers would be improved by the addition in the Final EIS of a description of what the values in each column represent. Additionally, the heading for the second major column (“Forested Bog”) appears to be incorrect. We believe the heading should read “Forested Alternative B.”

## **Section 3**

Throughout Section 3 there are inconsistencies between the reference citations and the list of references, and the data presented in several tables are not referenced. For example, a quick cross check identified the following errors.

Page 3-40: The document Alaska Department of Environmental Conservation (ADEC) 2009 is not included in the list of references.

Page 3-46: The documents Hecla Greens Creek Mining Company (HGCMC) 2009a, Kennecott Greens Creek Mining Company (KGCMC) 2003, and HGCMC 2009 are not included in the list of references.

The document references needs to be checked and corrected in the Final EIS; and all data presented in tables need to be referenced in the Final EIS.

If you have any questions concerning our general comments, please contact Deborah Rudis at [deborah\\_rudis@fws.gov](mailto:deborah_rudis@fws.gov) or at 907-780-1183 in the Juneau Field Office of the U.S. Fish and Wildlife Service. If you have any questions about our specific comments, please contact Gary LeCain, U.S. Geological Survey Coordinator for Environmental Document Reviews, at 303-236-1475 or at [gdleca@usgs.gov](mailto:gdleca@usgs.gov).

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

Sincerely,

A handwritten signature in black ink that reads "Pamela Bergmann". The signature is written in a cursive, flowing style.

Pamela Bergmann  
Regional Environmental Officer – Alaska

## 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.
- USACE (U.S. Army Corps of Engineers). 2009. Alaska District Regulatory Guidance Letter. RGL ID No. 09-01.
- EPA (Environmental Protection Agency). April 10, 2008. Environmental Protection Agency and Corps of Engineers Final Rule Compensatory Mitigation for Losses of Aquatic Resources. Federal Register. Volume 73. Number 70.