

# **Response to Public Comments on Draft Authorizations for the Niblack Project**

June 28, 2007

## **INTRODUCTION**

On April 23, 2007 the U.S. Army Corps of Engineers (ACOE) and the State of Alaska made available to the public applications, draft permits, public notice and preliminary decisions relating to the Niblack Underground Exploration Project for a 30-day public review and comment period. On the evening of May 9, 2007, in Ketchikan, the State of Alaska held a public meeting and public hearing on the project. The meeting provided an opportunity for the public to ask questions of the company and state agencies regarding the project and the hearing provided opportunity for the public to provide official comments on it. The public comment period closed on May 23, 2007.

This document is a synopsis of the public comments on the Niblack Project that were received in writing during the public notice period and orally at the public hearing along with responses to those comments. Similar comments from different people on the same subject are addressed together and comments on related subjects are grouped together for easy reference.

The responses in this document were used to formulate and finalize the decisions and permits of State agencies. This document is a joint response from the following agencies:

- Alaska Dept. of Natural Resources, Office of Project Management & Permitting
- Alaska Dept. of Natural Resources, Office of Habitat Management & Permitting
- Alaska Dept. of Natural Resources, Division of Mining, Land, and Water
- Alaska Dept. of Environmental Conservation, Division of Water
- Alaska Dept. of Environmental Conservation, Division of Environmental Health

## **PROJECT DESCRIPTION**

The Niblack property is located off Moira Sound on southeastern Prince of Wales Island, approximately 30 miles southwest of the town of Ketchikan. The underground exploration project is expected to last two years. The applicant, Niblack Mining Corporation (NMC), proposes to develop an initial 6,000 feet of underground workings from a single adit entry. The main purpose of the underground work is to provide access for exploration drilling to test deep zones of mineralization. The project will require development of a marine access and camp barge facility on the adjacent State-owned tide and submerged lands. All other surface disturbances including an access road, portal, and waste rock storage and disposal areas will be confined to private property. Total surface disturbance requiring post-closure reclamation is approximately 5.5 acres. The proposed underground access will generate about 60,900 cubic yards of waste rock, most of which is benign and will be permanently disposed down-gradient of the portal. Approximately 14,300 cubic yards is potentially acid-generating (PAG) material

which will be temporarily placed in an engineered, lined storage facility. At the end of the exploration period, all PAG waste rock will be picked up and transferred back underground and the adit will be sealed.

## **NOTICE OF CLOSURE COST ESTIMATE REVISION**

During the review and comment on a Draft Closure Cost Estimate, ADNR recommended that the hourly wage rate be increased to account for anticipated overtime. Additional review after public notice revealed that the adjustment factor suggested by ADNR mistakenly calculated the 'adjusted wage' by incorrectly applying the '1.5 overtime factor' to the 'total wage' (i.e. the sum of the base wage plus benefits). The correct methodology should have been to apply the '1.5 overtime factor' to simply the 'base wage rate' and then add the benefits cost. The correct wage adjustment results in a total reduction to the closure cost estimate of \$15,909.

The revised bond amount approved by the agencies is \$1,221,408.

## **SUMMARY OF PUBLIC COMMENTS**

Six letters were received in support of the project. A letter from the Ketchikan Coastal District stated that they found the project to be consistent with their district policies and the state ACMP standards. NMC submitted a letter suggesting changes to the Draft Waste Management Permit.

Three letters were submitted by agencies in accordance with their jurisdictional reviews. Three letters were received expressing questions or concern about specific issues related to the Niblack Project.

During oral testimony taken during the public hearing in Ketchikan, Alaska on May 9, 2007, two people testified, one in favor of the project and the other offering questions or comments regarding certain aspects of the project.

For ease of reference, the following acronyms are used in this document:

- ACOE = Army Corps of Engineers
- ADEC = Alaska Department of Environmental Conservation
- ADNR = Alaska Department of Natural Resources
- amsl = above mean sea level
- ARD = acid rock drainage
- EA = environmental assessment
- EIS = environmental impact statement
- HDPE = high-density polyethylene (commonly used in reference to pipe or liner material)
- LMPT = Large Mine Permitting team
- NAG = non acid-generating material

- NEPA = National Environmental Protection Act
- NMC = Niblack Mining Corporation
- OBE = operating basis earthquake
- OHMP = Office of Habitat Management & Permitting
- OPMP = Office of Project Management & Permitting
- PAG = potentially acid-generating material
- QAPP = Quality Assurance Project Plan
- RPA = Reclamation Plan Approval
- WAD = weak acid dissociable (commonly used in reference to cyanide, always less than or equal to total cyanide)
  - WMP = Waste Management Permit (issued by ADEC)
  - XRD = X-ray diffraction
  - XRF = X-ray fluorescence

The sections below, organized by topic, summarize the written and oral comments and then provide the joint State response to those comments. For reference, copies of all of the written comments that were received are attached.

## **SOCIO-ECONOMICS**

1. **Socio-economic growth and stability.** Jobs, long term economic benefit, and economic diversification are important issues in Southeast Alaska.

**Response.** Resource development is important to the State of Alaska. Article 8 Section 1 of the Alaska Constitution states, “It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.”

## **ALASKA COASTAL MANAGEMENT PROGRAM**

2. **ACMP Standards.** The project is consistent with Ketchikan Coastal District policies and State ACMP standards.

**Response.** The project is permissible since it is consistent with the Alaska Coastal Management Plan and all applicable district standards. The project is not located within a local coastal district, yet it is consistent with the standards of the nearest district, the Ketchikan Coastal District.

## **PUBLIC PROCESS AND PROCEDURES**

- 3. EIS required.** An environmental impact statement (EIS), pursuant to the National Environmental Policy Act (NEPA), should be prepared on the Niblack mine exploration activities.

**Response.** The decision as to whether or not a formal NEPA environmental review should be conducted rests with the federal agencies. However, the state does not believe that this project involves significant federal action that would require an Environmental Impact Statement. For clarification, this project is not a mine but rather an advanced underground exploration project.

- 4. Public review of the agency's technical analyses.** Although the technical work submitted by the applicant is good, as far as it goes, the agencies should conduct their own analysis and allow the public to be involved in that process.

**Response.** The baseline environmental data collected by the company to support their proposed project were thoroughly reviewed and analyzed by the agencies. As a result, the company was required to collect additional water quality data and conduct additional geochemical characterization of waste rock lithologies prior to construction of the adit.

The agencies reviewed the complete project for potential environmental impacts. For a relatively small exploration project, there has been a very thorough review by the LMPT members of the geochemical characteristics of the rock including acid generating and metals leaching potential. The public had an opportunity to review these data and the draft permits and plan approvals during the public comment period.

Public comments were sought during the public notice period. The comments were solicited in local newspapers and a public meeting was held in Ketchikan on May 9th during which all aspects of the project were presented and discussed, and public comment was expressed. The public had an opportunity to see all the documents related to the project, and all correspondence related to the review of this project during the 30-day public comment period.

- 5. Section 106 process.** The applicant must complete the Section 106 process between the State Historic Preservation Office and the U.S. Army Corps of Engineers.

**Response.** The applicant agreed to and did complete the Section 106 process between the State Historic Preservation Office and the U.S. Army Corps of Engineers.

- 6. Changes in use under the Tideland Lease.** The lease will last for ten years. If the mine moves from its exploration plan to a development phase, does the lease allow

the company to use the area for movement of construction materials and/or concentrate? Was that potential change in activity considered when it was determined the activities would have no impact on the eelgrass?

**Response.** The tideland lease will be issued subject to the approved development plan dated March 2007. If future changes to the development plan are required, and those changes are minor and remain within the boundary and surveyed area of the lease, the lease holder will have to request an amendment which will require review and approval; this may or may not also require additional public notice. If, however, changes to the development plan are substantial and/or require an additional area outside the existing surveyed lease boundary, the lease holder will be required to apply for a new lease. It is presumed that if the Niblack Project goes into production, a larger tideland facility will be required. In this case a new lease will be adjudicated and through that process potential impacts from the new use and development will be evaluated.

**7. Solid Waste Permit.** The State of Alaska is obligated to issue a Solid Waste Permit.

**Response.** The ADEC is issuing a solid waste permit and a wastewater discharge permit. These two permits are being issued together as one integrated Waste Management Permit in accordance with AS 46.03.100(d) and 18 AAC 60.207.

## **ROCK CHARACTERIZATION & HANDLING**

**8. Waste rock characterization.** The Greens Creek Mine and US Forest Service failed to predict that the Greens Creek Mine's tailings and waste rock were acid generating. At the Niblack project, we suggest that a more precautionary approach be taken for the handling of the potentially acid generating (PAG) rock and the rock assumed to be non-acid generating (NAG).

**Response.** The science and understanding of acid rock drainage (ARD) has seen significant advancement since the Greens Creek Mine was originally authorized in 1984. There has been extensive whole rock analysis, multi-element analysis and acid-base accounting for the various lithologies (rock types) present at the Niblack Project. This work has allowed the development of the Operational Characterization Plan which includes the characterization, segregation, handling and tracking of every blast round during the development of the exploration adit. The company has also committed to additional pre-development testing of waste rock lithologies to confirm the appropriateness of the waste rock segregation criterion. This test program includes: acid base accounting (standard Sobek method); acid base accounting (modified Sobek with peroxide addition); static net acid generation (NAG Tests); carbonate neutralization potential; X-ray diffraction (XRD) with Rietveld Analysis; total sulfur by Leco Furnace method; and, total sulfur, copper and zinc by X-ray fluorescence (XRF). The agencies

believe that the geochemical characterization and waste rock segregation and handling plans to be state-of-the-art and appropriate for this project.

Rock that is representative of every blast round; which corresponds to each 10-foot advance of the exploration adit; will be sampled and analyzed to determine whether it is NAG or PAG. Furthermore, the muck pile from every blast round will be examined by a geologist who will record observations regarding rock type, alteration, sulfide mineralogy, and carbonate mineralogy. Waste rock blast rounds containing copper or zinc sulfide minerals will be routed to the PAG storage facility. A detailed waste rock segregation tracking plan has been established to ensure that blast rounds are routed to the correct location. At the termination of exploration activities, the PAG material will be backfilled underground and flooded behind an adit plug.

**9. Reclamation of NAG waste rock dump.** It is proposed that the NAG rock would be dumped over a hillside. Please explain how this rock will be re-collected and dealt with in the future if it is later found to be acid generating. If monitoring reveals that runoff from NAG stockpiles does not meet water quality standards, that material should be transferred to a lined PAG rock storage pad and eventually backfilled. NAG rock should be treated as PAG rock until it is proven unequivocally to be NAG rock. At the completion of the exploration plan, as much waste rock material as possible should be backfilled, including material that is presumed to be NAG rock.

**Response.** The project authorizations provide adequate flexibility for the agencies to respond to unanticipated conditions in the NAG waste rock dump; however, at this time the geochemical characterization done to date, the proposed waste rock segregation and handling plans, and the reclamation plan all indicate that the backfilling of NAG rock is unnecessary for the protection of the down-gradient environment. Exceedances of water quality standards from the NAG waste rock dump are not expected; however, if seepage or runoff from the NAG waste rock dump exceeds water quality standards, ADNR may require the reclamation of this facility. Prior to initiating reclamation of the NAG waste rock dump, NMC must submit to ADNR a final facility closure plan for review and approval. This plan must consider water quality data and waste rock geochemical monitoring results. ADNR will coordinate with ADEC to ensure that the final facility closure plans are appropriate to protect the down-gradient environment. Please refer to the response to Comment 8 regarding NMC's waste rock characterization plan.

## **WATER QUALITY & MONITORING**

**10. Character of run-off from NAG waste rock dump.** The water management plan for the NAG rock pile is based on the assumption that sediment is the only contaminant of concern. Typically, the only difference between PAG rock and NAG rock is the concentration of sulfide ore and heavy metals in the rock. Often rock considered NAG will still contain some acid producing ore and heavy metals. Runoff

should be collected from the NAG rock piles via a liner and monitored to ensure that water quality standards are being met. The chemical characteristics of waste rock left on the surface and associated long-term runoff needs further investigation. There is only post-closure monitoring for several surface water stations. An additional monitoring station should be added to ensure no long-term seepage problems from the waste rock.

**Response.** The ADEC Waste Management Permit (2006-DB0037) contains requirements for operational and post-closure monitoring, including metals, of surface and shallow-groundwater down-gradient of the NAG waste rock dump. The Niblack Project Operational Characterization Plan contains commitments to conduct additional static acid-base accounting tests, laboratory kinetic testing (humidity cell tests), and field kinetic testing (crib or barrel tests) for the major lithologies encountered at the project. The analyses done to date on the waste rock indicate that the NAG material is anticipated to be low in sulfide and metal content with an excess neutralization potential. The geochemical characterization of the waste rock, the proposed waste rock segregation and handling plan, and the reclamation plan for the NAG waste rock dump will minimize the potential for impacts to short and long-term run-off and seepage; this combined with the ADEC monitoring requirements make the placement of the NAG waste rock on a liner unnecessary.

The ADNR Reclamation Plan Approval requires NMC to submit final facility closure plans for review and approval. The final facility closure plans must include consideration of water quality monitoring data and waste rock geochemical monitoring results. Exceedances of water quality standards in runoff from the NAG waste rock dump are not expected; however, if seepage or runoff from the NAG waste rock dump exceeds water quality standards, the company may be required to reclaim this facility.

One long-term monitoring well (MW1) is located in the wetlands down-gradient of the waste rock pile.

**11. Seepage from the adit.** After closure, will groundwater seep into areas that have potentially acid generating (PAG) rock and then seep out of the tunnels or into the groundwater?

**Response.** The Niblack Project Operational Characterization Plan contains commitments to conduct additional static acid-base accounting tests, laboratory kinetic testing (humidity cell tests), and field kinetic testing (crib or barrel tests) for the major lithologies encountered at the project. The configuration of the exploration adit will allow for the backfilling of the potentially acid generating waste in the back of the adit where it will be submerged by installing a watertight adit plug. The submergence of this waste rock will minimize the future oxidation of this material. Prior to construction of the adit plug, a closure plan for the underground adit must be submitted to the Alaska Department of Natural Resources for review and approval. The plan must describe the hydrogeology and geotechnical conditions of the adit. The final adit plug design must

include consideration of the chemical stability of the concrete, grout, and surrounding rock in the anticipated “groundwater environment”. The plan must also consider the effects of any remaining ‘un-grouted’ exploration drill holes located between the proposed plug location and the portal; grouting of these drill holes may be required depending upon groundwater quantity and quality discharging from the drill holes. Movement of groundwater after the adit is sealed is expected to resume whatever general direction and rate of movement it may have had prior to adit development. The agencies believe that these plan approval requirements provide for adequate protection of the water quality at the site.

**12. Water quality testing.** “On the ground” testing will need to be done to ensure water meets the water quality standards.

**Response.** Testing will be conducted on surface and ground waters to ensure either that the water quality does not change in surface waters, or that background water quality is met.

**13. Kuipers report.** NMC and state agencies should read and implement recommendations from the Kuipers report.

**Response.** Agency staff members have reviewed this document. The report raises issues which the agencies have considered and the permit contains conditions that the agencies believe will protect water quality both in the short and long term. A copy of the report was sent to NMC.

**14. Cadmium, selenium, nitrogen.** Cadmium is listed twice in Tables B & C. Selenium should be added. TKN nitrogen and nitrate/nitrite nitrogen should be monitored. A limit for nitrates/nitrites should be specified in the permit.

**Response.** Cadmium and selenium are corrected in the final permit. Nitrogen monitoring has been added to the permit. A nitrate limit of 10 mg/l, the state drinking water standard, has been specified as a permit limit.

**15. Waste Rock Classification Criteria.** This is a good monitoring and segregation scheme. One suggested change is that the determination of the amount of lime to be added to the backfilled PAG waste rock should be based on a calculation of the potential acidity in the waste and in the mine walls (based on the samples taken during mining), not on the amount needed to neutralize the pore water, as proposed in Section 2.3 Waste Rock Classification Criteria.

**Response.** The addition of lime to the PAG waste rock is to reduce the potential for the short-term degradation of the groundwater that enters the drift. The submergence of

this material and the PAG wall rock behind the adit plug will minimize the long-term oxidation of this material. This is protective of the short and long-term groundwater environment and the addition of more lime is not considered necessary.

**16. Reference to regulations.** The current regulations should be referenced in the cover letter.

**Response.** Language amended.

**17. Bypass of storm flow.** Language should be included in the permit to allow bypass of the treatment system in the event of a storm flow in excess of the design flood flow.

**Response.** Language added.

**18. Water quality compliance point.** NMC objects to having a water quality compliance point before land application.

**Response.** During the public comment period, ADEC proposed modifying the compliance method associated with the wastewater treatment and dispersal systems from what was proposed in the draft permit to a concurrent monitoring approach. That resulted in the requirement to install two up-gradient monitoring wells that would be used to establish numerical effluent limits. This approach was discussed at the public informational meeting in Ketchikan on May 9, 2007 but was subsequently rejected as unworkable by the Department. Accordingly, the compliance monitoring approach used in the final permit is the same as that which was proposed in the public notice, except that two new monitoring wells (MW8 and MW9), have been added up-gradient of the land application system. The net result is that additional ground water quality data will be gathered. Compliance with respect to the land application/dispersal area will be measured in two shallow monitoring wells located in wetlands immediately down-gradient, as originally proposed.

Many of the comments that NMC submitted are directly associated with the modified compliance method proposed by ADEC during the comment period. Because this approach is not in the final permit, comments associated with the modified approach are moot, and do not require additional response.

**19. Flow limit.** The permit should allow for the discharge of water from the adit to the storm water system that meets permit limitations. NMC objects to reporting flows whenever they exceed 150 gpm. NMC proposes that reporting should only be necessary if the flow exceeds 150 gpm for a period of 6 hours. Section 1.5.3 refers

to a maximum flow rate specified in Section 1.4.2. There is no flow rate in Section 1.4.2.

**Response.** The intent of reporting when a flow goes over 150 gpm is to determine when the system is likely to be out of compliance because the design capacity has been exceeded. Extended flows of greater than design flows could result in metals and sludge being transported out of the system to the drip emitters. It may be better to divert the cleaner water around the treatment system in an “emergency bypass” than to have settled solids and suspended metals carried out of the treatment system. The maximum flow rate of 150 gpm has been added to Section 1.4.2.

**20. QAPP wording.** Section 1.6.2 of the permit, related to the QAPP, should contain the following language: “The QAPP will include procedures for data collection and compilation, calculation of site-specific natural-condition based water quality criteria, data evaluation, evaluation and comparison of monitoring locations, and specific methods for determination of exceedance of site-specific water quality standards.”

**Response.** Language included.

**21. Concurrent monitoring timeline.** NMC requests four hours between sampling for any two samples required to monitor for concurrent monitoring. The draft permit requires one hour in Section 1.6.3 of the permit.

**Response.** The allowable time to take samples between the two monitoring locations has been changed to two hours.

**22. Ambiguities.** Sections 1.6.3, 1.6.4, 1.6.8, 1.6.12, 1.13.2 are ambiguous; they are qualitative rather than quantitative when it comes to compliance with language such as “worse than”, “greater than”, “not exceed”, and “better than”. Permit language should comport with that in the state’s “Guidance for the Implementation of Natural Condition-Based Water Quality Standards.”

**Response.** In order to implement the Natural Conditions guidance, twenty samples are required to conduct statistical analyses. The number of samples at the Niblack sites is limited; therefore the permit has been written to allow continued analysis as more data become available.

**23. Inconsistencies in permit language.** Sections 1.6.4, 1.6.7, and 1.13 are inconsistent with respect to compliance.

**Response.** Language was added to 1.6.7 stating: “that can be used for compliance purposes”.

**24. Table A.** Table A should be modified as shown in the Niblack edited permit.

**Response.** The format of the table was accepted as well as most suggestions for the content. Also, see response to Comment 18.

**25. Section 1.6.11.** Section 1.6.11 is inconsistent with Table D.

**Response.** The department does not find any inconsistency.

**26. Water quality standards versus natural conditions.** Table E compares water quality standards to the natural conditions standards at the site; however, water quality standards are not applicable if natural conditions have been determined for compliance purposes.

**Response.** Text was modified to add clarity that the standard to be met at the lower sampling point is that of the natural conditions which exist upstream of that point at the time of sampling.

**27. Up-gradient versus down-gradient wells.** The proposal is to compare the down-gradient wetland groundwater with up-gradient shallow bedrock wells.

**Response.** This is incorrect. Wetland wells will be monitored to ensure there are no deviations from that quality normally expected to occur in those wells. Up-gradient wells will be monitored for comparison purposes only.

**28. Ambiguous sections in natural conditions guidance manual.** Sections 3.1 and 3.3 of the Guidance for the Implementation of Natural Condition-Based Water Quality Standards (ADEC, 2006) are ambiguous as to whether one or multiple sites should be used as reference sites.

**Response.** One reference station is acceptable.

**29. “Duplicate” versus “replicate”.** Section 3.3 of the guidance does not make it clear whether “duplicate” or “replicate” analyses refer to field replicates, laboratory replicates, or both.

**Response.** Field replicates are intended; permit clarified.

**30. Appropriate statistical procedures should be specified.** Section 3.3 of the guidance has the interpretation approach for concurrent monitoring not including any statistical procedures.

**Response.** This is not a correct statement. The Tolerance value in the concurrent measurement depends on the t-test and the Coefficient of Variation (CV) to determine if the Natural Conditions Water Quality Standard has been exceeded.

**31. Methods described in Helsel (2005) should be used for non-detect measurements.** Section 3.2.2 of the guidance says keep valid high value data points, Section 3.4.4.1 says remove them along with an equal number of non-detect points. A better approach is described in Helsel for undetected measurements.

**Response.** The Helsel approach will not be used in the Natural Conditions Water Quality Standards calculation. Since the reason there is a potential for setting a standard which is greater than the existing published standard is that the parameter is elevated, a data set with a high number of non-detect values is not a good candidate for a Natural Conditions Standard. If 'less than values' make up more than 20 percent of the data set, then Natural Conditions cannot be used.

The main purpose of the trimming procedure is to eliminate non-detect values in the data set and this goal is not inconsistent with also using accepted procedures for removing obviously outlying values at the high end.

**32. Statistical methods for concurrent conditions.** Statistical methods required under Section 3.3 of the guidance are inappropriate for concurrent measurement; it will lead to non-compliance 50 percent of the time based on the requirement that the 50<sup>th</sup> percentile value be used for compliance purposes.

**Response.** Compliance is achieved by not exceeding the actual up-gradient background value for surface water at the time of concurrent sampling.

## **TECHNICAL DESIGN**

**33. Will land application work?** There are no requirements or guidelines in the permit for waste water that is to be applied up-gradient of forested wetland. Will land application work? The steep terrain and saturated soils of Southeast Alaska affect the capacity of the soils to absorb the waste water; rainfall and snow melt often cause surface flow of water in forested areas. Is the dispersal system near any permanent, ephemeral, or temporary streams? Has the area been surveyed for groundwater seeps? How deep is the ground water near the dispersal system and where does it flow? Monitoring must be done to ensure that all wastewater applied to land via the dispersal system meets water quality standards.

**Response.** The proposal for the drip emitter system is described in Section 3.6 of the “Niblack Wastewater Treatment and Disposal Application under the Waste Management Permit” dated April 2007. Calculations from limited test holes indicated that the rate of infiltration varied from 3.2” to 24” per day. An infiltration rate of no greater than 6” per day was used for project design. However, because of the variable nature of the forest land it is not possible to know just how effective the infiltration will be. Observations will be made on site by mine and agency staff to determine the effectiveness of the system, and adjustments made as necessary. There will be submittals of forms to provide information on the operation and effectiveness of the land application system. Protection of the water quality in down-gradient wetlands will be by monitoring the water quality in the shallow wells. The forested land is a rocky scree slope at the base of an eroding mountain. If the system does not work as designed, the shallow wells in the wetlands will indicate this and appropriate adjustments made to infiltration or treatment will be made.

Waste water has been applied to the land before, but not as proposed at Niblack (i.e. a drip emitter system). Application submittals show that this should be a viable method of disposal at this site. The land application area is a woodland area underlain by scree material; it is expected that the water will percolate into the shallow upper ground water. Test pits were dug and drip rates based on these percolation test results. Berms can also be constructed to aid infiltration by ponding. The dispersal area boundary is 50 feet or more from perennial surface streams. These streams will be monitored to ensure no adverse effects occur from the disposal system. The depth of groundwater varies over the site, depending on the nature of the soil and hydraulic passages through the scree slope. The draft permit also requires the monitoring of shallow wells in the wetlands to ensure the wetlands are protected from adverse impacts from the land application of the effluent.

**34. Pond overflow needed.** There should be an overflow to the treatment pond that minimizes impacts to water quality in the event of an overflow.

**Response.** There should be no great variation in flows during high rainfall storm events; the flow from within the mine would remain much the same, with any increase being subject to a lag in time as the water flows through the mountain. The flow from the PAG site will be minimized by the use of an impervious cover on all but the exposed working face and area. There will be a surge pond for increased temporary flow from the PAG area, which should have the capacity to retain unexpectedly high flows. Additionally, the PAG facility is designed so that storm water that does not come into contact with PAG waste is allowed to be diverted from the facility without entering the water treatment system.

**35. Piling versus tideland fill.** The use of piling or floating structures should be encouraged over those designs requiring tideland fill.

**Response.** The only fill associated with the proposed tideland lease is approximately 500 cubic yards for the barge landing ramp. The fill area is minimized through the use of a 10-foot high bulkhead constructed from cement blocks placed at the toe of the facility and backfilled with quarry rock at a 5 percent grade to adjoin the access road. The camp barge is floating and the walkway, ramp, and float are all supported by and constructed with piling.

## **SAFETY & RISK**

**36. NAG and PAG concerns.** The NAG waste rock site is located on the site of an historical land slide and at an angle of repose of 1.3:1. The PAG waste pile has only been analyzed for static stability, not dynamic stability during an earthquake.

**Response.** ADEC determined that the NAG pile does not pose a public health, safety, or welfare threat or environmental problem associated with the management of the waste or material, therefore it is exempt from the requirements of the State solid waste regulations as per 18 AAC 60.005(c).

The volume of PAG waste that will be temporarily placed on the lined pad for approximately two years and then be returned underground is small enough that should movement of the pile occur during an earthquake, it would be a relatively simple matter to remedy the situation and re-place the rock on the liner. However, the PAG rock pile is coarse material that is not subject to liquefaction, it is on a prepared flat sub-grade, and it is surrounded by a berm and is not expected to shift in an earthquake such that PAG material would move outside the lined storage area.

## **BONDING & FINANCIAL ASSURANCE**

**37. Agency Oversight Costs.** Agency oversight costs need to be based on oversight that would be required if the agency had to supervise mine closure, not just inspection of company-conducted closure, so this cost should be increased appropriately.

**Response.** Frequencies of inspections for a reclamation project are dependent upon the nature of the closure activities and not whether the actions are being taken by the company or a contractor. The closure of the planned exploration project is relatively straight forward and is expected to be accomplished in approximately 11 weeks of reclamation activity. The amount included for agency oversight is adequate to allow for two joint ADNR / ADEC inspections and three additional ADEC inspections; or in other words, an inspection about every other week. If additional inspections are required during the active reclamation phase, contingency funds would be available. These contingency funds should also cover the costs for future follow-up site inspections.

ADNR may require revisions to the financial responsibility cost estimate based upon monitoring results at the Niblack Project.

## **RECLAMATION & REVEGETATION**

**38. Revegetation Success Criteria.** What vegetation criteria will be used to judge revegetation success?

**Response.** Undisturbed reference sites will be used to evaluate revegetation requirements. Representative sites must be approved by ADNR. The revegetation cover criterion has been defined in the Reclamation Plan Approval as: "A vegetative cover criteria of 70 percent, compared to approved representative reference sites, shall be determined a minimum of three years after the last application of topsoil, seed or fertilizer before financial assurance will be released for reclaimed areas".

## **BIRDS, FISH, & WILDLIFE**

**39. Evaluation of alternative sites for barge camp to avoid crucial habitat.** No alternative locations for the floating camp/barge outside of the Crucial Habitat Area were evaluated to assure that adverse impacts were avoided to the maximum extent practicable. Such analysis is necessary to comply with the requirements of 11 AAC 112.300. Are there sites outside of the Crucial Habitat Area that are more appropriate for the barge camp?

**Response.** An eelgrass survey indicated that no degradation of habitat will occur despite the fact that some eelgrass is close to the proposed location of the barge facility. HDR Alaska Inc., the company that conducted the eelgrass survey, noted that a winter survey can potentially underestimate the overall coverage of the plant. However, additional indicators such as substrate type, water depth, wave scour, detritus cover, ice cover and proximity to freshwater streams were also evaluated in that study. The study concluded that based on these factors the likelihood of extensive eelgrass beds in the area of the proposed development is low.

That same survey indicated that the proposed activity does not affect crucial habitat; therefore the proposed activity is considered to be appropriately designed and sited and thus compatible with the crucial habitat designation. Because it has been determined that the marine access facility avoids crucial habitat, the requirement in the Southwest Prince of Wales Island Area Plan to demonstrate that there are no feasible alternatives is unnecessary.

NMFS recommended the following essential fish habitat conservation measures:

1. No in-water work should be permitted from April 1 through June 15 of any year to protect out-migrating salmon.

2. No docks, ramps or other structures that block sunlight should be placed in or over eelgrass beds.
3. Barges and floating docks should not ground during any tidal stage.
4. The use of any wood that has been treated with Pentachlorophenol should be prohibited.
5. Piles should be driven with vibratory hammers.
6. Piles located in intertidal areas should be driven during low tide.

These six measures will be adopted as conditions of the early entry permit and tideland lease.