STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF PROJECT MANAGEMENT AND PERMITTING

■ *SOUTHCENTRAL REGIONAL OFFICE*
550 W 7th AVENUE SUITE 900D
ANCHORAGE, ALASKA 99501
PH: (907) 269-8629 FAX: (907) 269-8930

☐ *CENTRAL OFFICE*
302 GOLD STREET, SUITE 202
P.O. Box 110030
JUNEAU, ALASKA 99801
PH: (907) 465-3562 FAX: (907) 465-3075

☐ *PIPELINE COORDINATOR'S OFFICE*
411 WEST 4th AVENUE, SUITE 2C
ANCHORAGE, ALASKA 99501
PH: (907) 257-1351 FAX: (907) 272-3829

Dr. Carol Ann Woody
Fisheries Research and Consulting
6601 Chevigny Street
Anchorage, Alaska 99502

July 3, 2008

RE: April 2, 2008 Letter of Concern about Pebble Project Exploration

Dear Carol Ann,

This letter responds to your April 2, 2008 letter regarding exploration activities at the Pebble Project (Pebble) near Iliamna. It explains how and why state agencies are confident that water quality and quantity are being protected and why they believe there are no significant impacts to fisheries resources due to the on-going exploration drilling. Because the text of your letter raised multiple other issues pertinent to the Pebble project, this response doesn't follow the numbering of you questions. Also, please note that this response has been coordinated with state agency representatives working on the Pebble project.

Firstly, we want to respond to, and strongly disagree with, your opening comment about a "lack of transparency around drilling at the Pebble prospect…" To us, the phrase "lack of transparency" implies an attempt to conceal something. As far as state agencies are concerned, this is absolutely not the case. In recent years, there has been an increased level of minerals activity in the state that has heightened public interest about mining and minerals exploration. Much of this attention has been focused on Pebble due to its scale and location. We have responded to this increased public interest in multiple ways:

- In early March, 2008, the Mining Section in the Department of Natural Resources (DNR), Division of Mining Land and Water (DMLW) began noticing Alaska Hard Rock Exploration (AHEA) applications on the web. These applications are accessible from the Public Notices On-Line link at www.state.ak.us; then, in succession, clicking on "By Department"; "Natural Resources"; "Public Notices"; and "Multi Agency Mining Application – APMA". Because the submittal of the 2008 Pebble AHEA preceded the web posting of AHEAs, we are including a copy of the 2008 Pebble AHEA as **Attachment A.** An explanation of the AHEA permitting process is also included within the body of this letter. It's appropriate

to point out here that the AHEA approval process involves multi-agency state and federal notice and review.

- In August, 2007, state agencies increased the frequency of inspections for the Pebble exploration program. Inspections have been on an approximately monthly basis, and some even occurred on a weekly basis. Inspections are conducted by 2-person interagency teams of professionals from the Departments of Environmental Conservation, Fish & Game, and Natural Resources. Please see http://www.dnr.state.ak.us/mlw/mining/largemine/pebble/reports.htm for copies of the inspection reports.
- State and federal interagency presentations about mining and mine permitting have been made at numerous forums. The latest version of that presentation is available on-line at http://www.dnr.state.ak.us/mlw/mining/largemine/index.htm. Thus far, full presentations (approximately 2 hours in length) have been made at Anchorage, Juneau, Fairbanks, Nome, Homer and Dillingham. An even lengthier set of interagency presentations was made at the Alaska Forum on the Environment and others are in the planning stage. Numerous shorter presentations more specific to the Pebble Project have also been made.

With regards to drilling water at Pebble, the water is derived from various sources, including potholes, drillholes, and streams. Please see the attached DNR response letters which addressed questions regarding water use at Pebble (**Attachment B,** February 22, 2007 letter to Brian Kraft of the Renewable Resources Coalition (RRC), and **Attachment C,** February 9, 2007 letter to Geoffrey Parker, Counsel to RRC, Trout Unlimited, Nondalton Tribal Council, Nunamta Aulukestai & Robert Gillam).

Our files, including the Pebble Alaska Hardrock Exploration Application (AHEA) and Temporary Water Use Permits (TWUPs) are available for public review and scrutiny. Contact me or the Mining Section Chief, Rick Fredericksen (907-269-8621, rick.fredericksen@alaska.gov) about AHEA's and Patricia Bettis (907-269-8620, patricia.bettis@alaska.gov) about TWUPs.

In order to respond to your questions, which fall into three categories – Water Quantity; Water Quality; and Monitoring and Reporting – we think it's important to understand the nature of the ongoing exploration drilling at Pebble, the process for permitting those activities, and the monitoring and reporting that accompanies those activities. Your questions are addressed within the context of those discussions.

Drilling

The current exploration at Pebble involves the drilling of, by minerals exploration standards, very deep drillholes (as deep as ~6,500 feet) on the eastern Pebble ore deposit. The extreme depth of these drillholes is due to an eastward thickening wedge of post mineral

volcanic rocks deposited on top of the partially eroded Pebble East deposit, which is hosted in granitic-like intrusive rocks. The post mineral volcanic rocks are on the order of 1,500 to 2,000 ft. thick (see x-section at http://www.northerndynastyminerals.com/i/ndm/NDM_Feb07_XsecAA.jpg).

It should be noted that the reference you cite, Woodward et al, 1988[1], focused on impacts from oil and gas (O&G) drilling on the North Slope. While superficially similar, minerals exploration drilling and oil & gas (O&G) drilling are very different from one another. Also, please note that the +20 year old drilling technology Woodward et al, 1988 were evaluating, which at that time typically involved the use of mud pits multiple acres in size, has now been largely replaced by the downhole injection of cuttings. Some discussion of the differences between minerals exploration and O&G drilling is in order.

O&G exploration involves the drilling of relatively large diameter holes, typically > 12 inches in diameter, whereas the exploration drillholes at Pebble are 6 inches or less in diameter. As a consequence, minerals exploration drill rigs are smaller, lighter, have a smaller footprint, and involve the movement of much less equipment, personnel and supplies. All of the drilling at Pebble has thus far been helicopter supported, i.e., no roads or trails have been constructed to support the drilling. Negative surface water quality impacts from sedimentation arise primarily from disturbed acreage, like roads, where the vegetative mat has been removed or disturbed. The avoidance of road construction, and the use of drill platforms atop the vegetative mat, minimize surface disturbance and sedimentation. Due to its size, an O&G exploration drill rig cannot be supported solely via helicopter and typically requires road construction (winter ice roads on the North Slope) and a substantially larger footprint of disturbance.

As deep as the drillholes at Pebble are, O&G drilling is commonly to even greater depths, often 2 or more times greater. The heat and pressure that can exist at such depth, in combination with the hydrocarbon-bearing formations, potentially caustic in-situ brines and the high gas pressures that may be encountered, mean that a combination of additives are required to manage the chemistry, density and rheologic properties of the drill mud. O&G drill muds may include a variety of compounds, like soda ash, bicarbonate of soda, potassium chloride, caustic soda, etc. and drilling mud engineers are employed to monitor, manage and optimize the mixture and amounts of those additives. Finely ground barite (barium sulfate or $BaSO_4$) is commonly employed in O&G drilling because it's soft (won't abrade the drill string), highly insoluble in water and dense (specific gravity of ~4.3). Its high density increases the density of the drill mud, which is used to counteract the gas pressures which might otherwise result in blowouts, i.e., the uncontrolled release of high pressure natural gas. Because the conditions that mandate the use of barite in O&G drilling muds are not encountered in minerals exploration drilling, barite is not employed in minerals exploration drilling. (Note: the barium in barite is a mixture of 7 stable

[1] Woodward, Daniel F., Snyder-Conn, Elaine, Riley, Robert G., and Garland, Thomas R.; Drilling fluids and the arctic tundra of Alaska; Assessing contamination of wetlands habitat and the toxicity to aquatic invertebrates and fish; *in* Archives of Environmental Contamination and Toxicology, p. 683-697

(i.e., non-radioactive) isotopes [http://en.wikipedia.org/wiki/Isotopes_of_barium] and is not a radionuclide.)

Bentonite, a naturally occurring clay mineral that swells in the presence of water, may be used to help prevent loss of circulation if porous or fractured zones are encountered. It is also the major component in benseal, a product used to seal the drillholes after completion.

The current deep exploration drilling at Pebble is all core drilling with holes at typical spacings of 600 feet or greater. Core drilling is commonly referred to as diamond drilling because diamonds are used in the face of the drill bits. Core drilling returns an essentially continuous cylinder of rock that represents ~40-50% of the volume of the drillhole. The drill core from the Pebble drillholes is removed from the drillsites and is logged, photographed, sampled, analyzed and archived off site. Because diamond drillholes are much smaller in diameter than O&G drillholes and much of the volume of the drillhole is contained in the core, diamond drilling produces a far smaller volume of cuttings than does O&G drilling. (Coring is relatively uncommon in O&G drilling.). Information about diamond drilling is available on-line at http://en.wikipedia.org/wiki/Exploration_diamond_drilling and http://www.dmtcalaska.org/course_dev/explogeo/class16/notes16.html

In diamond (core) drilling, the major functions of the drill fluid are to lubricate and cool the drillbit and rods, and to remove the cuttings. Pre-approved polymer additives are typically added to water to thicken the water and better enable it to transport the cuttings. The polymer/water drill fluid is pumped down the drillhole inside the rods. The drill fluid exits the rods at the drill bit, flushes the cuttings from the face of the bit and returns to the surface on the outside of the drill rods along with the entrained cuttings. The drill fluid is captured and the coarser cuttings are settled out in a tub or pit. Much of the drill fluid is re-circulated, but excess fluid is discharged to upland areas, often into depressions with no surface water connection to drainages, where it seeps into the ground. This prevents the fine cuttings in the drill fluid from reaching hyporheic zones or flowing surface waters. Water treatment and water quality monitoring are not required and such discharge is not a permit violation.

Geology/Geochemistry

Your letter raises a number of concerns about reactivity of Pebble ore, acid mine drainage, metals leaching and potential contamination from various metals in relation to the number, depth and location of drillholes. While these geochemical issues are valid concerns that must be addressed if and when Pebble proceeds to development permitting, they are really not issues of concern for the on-going drilling exploration program at Pebble.

The potential for an ore or rock to generate acid is tied not only to the amount and type of sulfide minerals present, but to the exposure of those sulfide minerals to both water and oxygen (and also to certain bacteria). It is the oxidation (weathering) of the sulfide minerals, predominately pyrite (FeS_2), that leads to the formation of sulfuric acid. Remove any one of the

3 essential components – water, oxygen, or sulfides – and acid generation is effectively prohibited. So, the concept of rock "reactivity" is tied not only to the rock geochemistry, but to the availability of oxygen and water. This is the premise behind submarine disposal of sulfidic tailings. The layer of water atop the tailings prevents the access of oxygen to the sulfide minerals, thereby preventing oxidation and the generation of acid.

Where rock reactivity and acid generation is an issue is at the surface of the earth and within the vadose zone. The vadose zone is, essentially, the water-unsaturated zone between the surface of the earth and the top of the water table. Little dissolved oxygen is present in groundwater below the vadose zone, especially in deep groundwater. Therefore, sulfidic rock at depth is not reactive and acidic conditions are not generated from in situ weathering. As mentioned above in the **Drilling** section, the current diamond drilling at Pebble is targeting mineralization underneath something like 1,500 to 2,000 feet of unmineralized volcanic rocks and extending to depths of ~6,500 feet or greater. Confirmation of the non-reactivity of deep in-situ mineralization at Pebble East is evident in the drill core. The sulfide minerals in the drill core are shiny, bright and unoxidized.

Not only is there ample evidence that oxidation and acidification are not issues in relation to the deep drilling at Pebble East, but it's worth noting that nearly all of the drillholes are being plugged (sealed) with either cement or bentonite slurry after completion. The few holes that aren't plugged are ones that are converted to monitoring wells or temporarily used as water sources for subsequent drilling.

We believe it's appropriate to comment on the reference on your page 2 to the "drastic disruptions of the natural water flow system" (quote from Alpers & Nordstrom, 1999[2]) which you contend can result from "Drilling and sampling in fractured rock aquifers, like Pebble." Firstly, the characterization of Pebble as a "fractured rock aquifer" is inaccurate. Although Northern Dynasty Mines, Inc's. 2005 report on its 2004 Ground Water Hydrogeology references fractured rock at the top of the bedrock surface, it is a near surface feature that is unrelated to, and not characteristic of, Pebble mineralization. Rather, this veneer of fractured rock at the bedrock surface is a common geologic feature and is due primarily to freeze-thaw action. Note also, that the 2004 exploration was confined to the relatively shallow Pebble West orebody. The deep Pebble East mineralization, site of the on-going exploration drilling, is more than a thousand feet below the surface, far below the zone of fracturing near the top of bedrock.

Secondly, Alpers & Nordstrom, 1999, are not asserting that exploration drilling and *core sampling* drastically disrupt the groundwater regime. Rather, they are saying *water sampling*

---

[2] Alpers, C. N. and Nordstrom, D. Kirk, 1999, Geochemical Modeling of Water-Rock Interaction in Mining Environments, *in* The Environmental Geochemistry of Mineral Deposits, Part A, Processes, Techniques, and Health Issues, Plumlee, G. S. and Logsdon, M. J., eds., Reviews in Economic Geology, Vol 6A, p. 289-323

from drillholes in areas of high hydraulic conductivity (like fractured rock aquifers) may not be representative of the naturally resident water if the drillholes (wells) are purged at substantially higher than natural flow rates. They are making the point because, before collecting water samples from a well, it is standard practice to purge the well (pump it down) in order to remove water that may have been influenced by the well and its casing. In areas of high hydraulic connectivity, water sampled after a high flow rate purge may have rapidly flowed from far away and, therefore, would not be chemically representative of the local ground water that the sample is intended to represent. Alpers & Nordstrom, 1999 are advising researchers to be careful about their sampling methodology. They are not commenting about negative impacts of drilling.

Acidic rock drainage/metal leaching (ARD/ML) is a serious negative potential consequence of mining. It is a major issue of concern at Pebble and any development proposals must address in extreme detail how ARD/ML will be mitigated/prevented. However, because of the depth of the Pebble East orebody and the methodology and scale of the on-going exploration drilling program, ARD/ML is a virtual impossibility at present and is not currently an issue of concern.

Hardrock Mineral Exploration Permitting

Reconnaissance level mineral exploration activities such as mapping, geochemical and geophysical surveys, and drilling to depths less than 300 feet are considered generally allowed activities on State land, and do not require permitting. (See Generally Allowed Uses on State Land Fact Sheet at http://www.dnr.state.ak.us/mlw/factsht/.) Drilling in excess of 300 feet, trenching with heavy machinery, taking bulk samples, establishing long term camps for more than 14 days, and certain other activities require permitting. If permitting is required, an operator begins the process by submitting an Alaska Hardrock Exploration Application (AHEA) to the DNR-DMLW, Mining Section. Some operators also submit applications for work on non-state land because the DNR distributes the application to other government agencies and an application through the state allows use of the state bond pool.

The AHEA serves two basic functions. First, the Mining Section uses it to issue a Miscellaneous Land Use Permit (MLUP). The MLUP is the DNR permit approving the applicant's plans of operation and reclamation for exploration on State lands. It is also the means for the applicant to specify the means and, if appropriate, obtain surface access rights to the project over State lands (excluding water body crossings). If the operator needs to deviate significantly from the approved plan of operations, they must submit an amendment to their application, and have it approved before proceeding.

After examining the application for completeness, the Mining Section distributes it to other state and federal government agencies. This is the second function of the application. That distribution list is extensive and includes, as appropriate:

- Environmental Protection Agency (EPA)
- Army Corps of Engineers (ACE)
- Bureau of land Management (BLM)
- U. S. Forest Service (USFS)
- United States Park Service (NPS)
- Mine Safety and Health Administration (MSHA)
- DNR, DMLW, Water Section
- DNR Office of Habitat Management and Permitting (beginning July 1, 2008, the Department of Fish & Game, Habitat Division)
- Division of Ocean and Coastal Management, DNR
- Parks Division, DNR
    - Office of History and Archaeology (OHA)
    - Alaska State Historic Preservation Office (SHPO)
- DNR, Forestry Division
- Department of Revenue, Tax Division
- Alaska Department of Environmental Conservation

The foregoing agencies may comment and recommend conditions or stipulations for inclusion in exploration permits. The application also serves as a Notice of Intent to operate for the Environmental Protection Agency (EPA), the Bureau of Land Management (BLM) and the Army Corps of Engineers (ACE). It satisfies many agencies' information needs for processing applications for permits issued by those agencies. The information in the AHEA is often sufficient for some government agencies to permit the project under a general permit, but if the project involves activities that go beyond a general permit, the agency will contact the applicant for further information. The applicant may have to modify their operation in order to obtain the required permits.

The Mining Section evaluates the AHEA for the following:

- Completeness
- Access route(s) outside claim block
- Fuel transport
- Fuel storage
- Proposed surface disturbances, such as drill pads, trenches, and road building
- Structures and other infrastructure (such as landing strips) to be placed or used – only those structures needed for the exploration project are approved.
- Appropriate reclamation plan (if required), otherwise notice of intent to do reclamation

AS 27.19 requires a plan of reclamation for operations that will disturb 5 acres or more. Operators disturbing less than 5 acres are required to sign a letter of intent to do reclamation. The DNR has standard stipulations for reclamation that are sufficient for many exploration

projects. However, the Department may impose additional stipulations as needed to ensure adequate reclamation. The Mining Section evaluates the appropriateness of proposed methods for reclaiming disturbances from road construction, drill pads, trenches, sample locations, etc., and imposes further reclamation measures when necessary. When an application is complete, the Mining Section distributes it to the appropriate state and federal agencies listed above.

An Environmental Risk Assessment (ERA) is not performed prior to approving exploration programs, but the previously described process for multi-agency review, comment, and recommendation effectively serves much the same purpose as an ERA.

Water Quantity

Temporary Water Use for Exploratory Activities

The Department of Natural Resources, Division of Mining, Land and Water on July 19, 2007 issued nine amended temporary water use authorizations (TWUP A2006-142 through TWUP A2006-150) to support drilling activities associated with the Pebble Exploration Program. These authorizations allow Pebble Limited Partnership (PLP) to withdraw up to a combined total of 129,900 gallons of water per day (subject to a combined total annual limit of 32,475,000 gallons of water) for TWUP A2006-142 through TWUP A2006-150. Water sources include five drilled water wells, eighteen unnamed ponds and twenty-one stream reaches from the Upper Talarik Creek or South Fork Koktuli River drainages.

Pebble exploration drilling has been on a 1,200 foot step-out pattern or well spacing. Infield drilling has been on a 600 foot spacing. The large spacing between rigs effectively prevents all eight rigs from withdrawing water from the same water source at the same time.

The PLP estimates that the average volume of water used by a single drill rig per day is 16,500 gallons. Currently, there are eight exploratory drill rigs on site that may or may not all be operating at one time. (Case in point, on April 4, 2008, rigs no. 5, 7 and 8 were not drilling or utilizing water.)

PLP employs pumps with a pump output of 15 gallons per minute or less. Therefore, maximum amount of water capable of being withdrawn by one pump is 21,600 gallons per day or 0.033 cubic foot per second (cfs). If all eight drill rigs were pulling water from Upper Talarik Creek (they aren't), the maximum daily volume that could be withdrawn would be 172,800 gallons of water per day or an equivalent of 0.267 cfs. This represents approximately 8.5 percent of the calculated minimum mean daily flow of 3.14 cfs recorded for the period of July 12, 2004 through March 31, 2008 for which data is available at gauge station UT100E at the upstream end of the Upper Talarik Creek tributary reach identified as S21. As of April 4, 2008, rig no. 2 was the only drill rig withdrawing water from a tributary of the Upper Talarik Creek. Therefore, the maximum amount of water possibly withdrawn from that stream reach by a pump with an output

of 15 gallons per minute is 0.033 cfs or 1.1 percent of the calculated minimum mean daily flow. Furthermore, the average mean daily flow calculated for the period of October 1, 2003 through September 30, 2006 for data available for the Upper Talarik Creek at USGS gauge station no. 15300250, located nine miles to the south on the main channel, is 236.73 cfs. Thus, water extracted by rig no. 2 would represent .014 percent of the overall water available in this watershed. (Drainage area for the Upper Talarik Creek at USGS gauge station no. 15300250 is 86.6 square miles.)

Water Use Reporting

Water use reporting under the temporary water use authorizations is not required for the following reasons. First, maximum possible pump output used for water extraction is 15 gallons of water per minute or less per pump. Second, available water sources are numerous ranging from non-fish bearing ponds, to streams, to water wells. Third, drill water is returned to the watershed.

PLP provides to the Department on a monthly basis during the annual drilling season a location map of the active drill sites and the associated water sources. These maps are used to monitor what water sources are used and the period(s) of use, to determine appropriate field inspections and to decide if a particular surface water source warrants further scrutiny by an agency or agencies, e.g. recharge study of a pond.

Effects on Hydrologic System

This insignificant volume of water usage would not affect the baseline data being collected as the amount is well with the five percent margin of error that USGS frequently uses for flow discharge calculations. Put quite simply, the water withdrawal for exploration drilling will have little or no measureable effect on the water resources or on the hydrology of either the South Fork Koktuli River or Upper Talarik Creek watersheds.

It is the standard practice for PLP to plug all holes upon completion and abandonment.

Artesian intervals are cased to prevent groundwater flow into the well bore on those wells not developed as water wells.

Water Quality

As explained previously, concerns about water quality due to rock reactivity and drilling methodology are largely inapplicable. Considering the depth of the Pebble East mineralization, ARD/ML is not an issue at this time. The environmental issues associated with the on-going minerals exploration drilling are vastly dissimilar to those associated with the O&G drilling. This is especially the case at Pebble where negative effects from sedimentation, which arise almost entirely from stormwater effects on disturbed acreage, have been avoided because 1) no roads have been constructed, 2) drilling is conducted on platforms that minimize disturbance to the tundra, 3) drillsites are reclaimed upon completion of drilling, and 4) permit conditions require a minimum 200 foot setback from streams.

Monitoring and Reporting

As mentioned near the beginning of this letter, teams of state agency representatives from DNR, DEC, and DF&G have been inspecting the Pebble site on an approximately monthly basis since July, 2007. No inspections were conducted from November through January, but during most of this time, exploration drilling was suspended. These inspections do not include water quality monitoring, but are designed to assess compliance with the permit conditions put in place to assure water and environmental quality. They include on-site inspections of active and reclaimed drillsites, water intakes and fuel storage areas, as well as observations of water levels in local lakes and ponds and overflights of the exploration area. Please see http://www.dnr.state.ak.us/mlw/mining/largemine/pebble/reports.htm to view the inspection reports.

In addition to the on-line inspection reports, the Mining Section's Pebble files contain textual and photographic documentation of prior exploration and reclamation. It's relevant to note that it's difficult to locate most of the drillsites after more than a year has passed. Please contact myself (907-269-8629) or Rick Fredericksen (907-269-8621) if you'd like to view these files. Also included in DNR's files are 1991, -92, & -93 water quality data collected in the Pebble area by Cominco, prior to Northern Dynasty Mines, Inc's. involvement with the project.

The PLP not only continuing exploration drilling at Pebble, but is also conducting many baseline environmental studies. Since these studies are intended to support future permit applications and impact analysis that will be required under the National Environmental Policy Act (NEPA), state and federal agencies don't have a regulatory mechanism to require submittal of the baseline study data. We have, however, expressed our desire to see that data, as have other individuals and organizations in the public sector. Recently, the PLP has issued a schedule for release of baseline data (see http://www.pebblepartnership.com/files/PEB-0103_release_050108.pdf). Meteorology, Surface Hydrology and Surficial Geology have already been released (see reports at http://www.pebblepartnership.com/pages/environment/environment-pre-permitting.php). Ground Water Hydrology is scheduled for release in the near future.

Baseline environmental studies collected in support of future permit applications and NEPA analyses for potential development projects by the project proponent are not duplicated by state or federal agencies. During the permitting process, these data are subject to extensive and thorough state & federal multi-agency review. The burden is on the applicant to defend all aspects of their baseline studies, including but not limited to study plans and methodologies, analytical techniques, timing and distribution of samples, quality control and assurance, statistical validity, etc. The cost and required duration of these studies, which can exceed 10's of millions of dollars and 5 or more years, is a powerful incentive for the applicant to collect the right data in the most professional manner possible. The state and federal agencies participating in the NEPA and permitting processes will have to determine if the data is appropriate and acceptable. If the agencies don't accept specific data sets, the applicant may have to redo field work.

Because of the expense and lengthy lead time required for environmental baseline studies, there is typically pre-permitting consultation with the agencies. This has been the case with Pebble, where Technical Working Groups (TWGs) have been established to provide objective input from agency experts on the appropriate science to be employed. Information about the TWGs is available at http://www.dnr.state.ak.us/mlw/mining/largemine/pebble/twg.htm. Agencies represented on these TWGs include:

State Departments of Environmental Conservation, Fish and Game, and Natural Resources (Note: this summer at least one Fish and Game biologist is planning to spend several weeks on site accompanying PLP consultants during their baseline studies)

Federal U. S. Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency, Army Corps of Engineers, and National Park Service. (We are also hoping that the U.S. Geological Survey will also be able to participate.)

We hope the preceding discussion adequately addresses the questions and concerns expressed in your April 2, 2008, letter.

Sincerely,

Tom Crafford
Mining Coordinator

Cc:

Joe Balash, Governor's Office	Tom Irwin, Commissioner, DNR
Denby Lloyd, Commissioner, DFG	Larry Hartig, Commissioner, DEC
Ed Fogels, DNR-OPMP	Richard Mylius, DNR-DMLW
Kerry Howard, DFG-Habitat	Al Ott, DFG-Habitat
Scott Maclean, DFG-Habitat	Lynn Kent, DEC-Water
Sharmon Stambaugh, DEC-Water	David Johnson, DEC-Water
Senator Ted Stevens	Senator Lisa Murkowski
Representative Don Young	Steve Klein, Fed. Subsistence Management
Rick Fredericksen, DNR-DMLW	Dan O'Hara, Mayor, King Salmon
Glen Alsworth, Mayor, L&P Borough	Bob Tracy, Mayor, Nondalton
Bobby Andrew, Nunamta Aulukestai	Norm Johnson, BBNA
Mark Vinsel, UFA	Robin Samuelson, BBEDC
Janis Harsila, AIFMA	Hans Nicholson, DFG Advis. Counc.
Vic Scheibert, Trident Seafoods	Eike Smith, Kvichak Setnetters
Marcia Blaszak, Reg'l Dir., NPS	Joel Hard, NPS (Lake Clark)
Page Spencer, NPS (Lake Clark)	Tom Melius, Reg'l Dir., USFWS
Ann Rappoport, USFWS	Phil Brna, USFWS
Brian Allee, UAF	Gus Rassam, Am. Fisheries Soc.
Bert Lewis, Am. Fisheries Soc.	Ray Hilborn, U of WA
Jack Stanford, U of MT	Chris Wood, DFO, Canada