STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER
MINING SECTION -- MEMORANDUM

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From: Rick S. Fredericksen, CPG, PG Alaska RSF
Date: August 23, 2007
Subject: Site Visit to Pebble Project on August 21, 2007

I visited to the Pebble Project on August 21, 2007. Others on the trip included:

Tom Brookover – Regional Supervisor ADF&G Sport Fish
Matt Millar – Regional Management Biologist ADF&G Sport Fish
Dianne Soderland – EPS's Pebble Project Team Leader
Patricia Bettis – ADNR DMLW Water Appropriation Manager
Sharmon Stambaugh – ADEC Wastewater Discharge Manger

At the time of my visit, there was heavy cloud cover, intermittent rain, a cloud ceiling of approximately 1,700 feet, and a temperature of 54° F. Wind was out of the east at 15 to 20 mph. We were transported to the site of drilling operations in a Bell 205A-1 owned by Prism Helicopters.

Upon arriving at Iliamna at 9:00 am we were given short briefings on site safety and provided a project update by Lena Brommeland, Iliamna Site Manager for Northern Dynasty. The current project's technical focus is on infill drilling in order to define the resources as measured, indicated, and inferred. Variography (a geostatistical methodology that among other things can be used to measure continuity of mineralization) indicates that a spacing of 300-600-1200 feet is required to meet the three classifications. The program is designed to move the inferred resources into indicated and measured categories for the purposes of conducting an economic feasibility study. Exploration drilling has not yet closed off the deposit. At the time of my visit, seven drills were operating – all in the Pebble East deposit. So far this year, twenty-one holes have been drilled. Most drilling is to vertical depths of approximately 4,000 to 4,500 feet. This years drilling is behind schedule, primarily as a result of the late arrival of two of the heavy duty drill rigs. No artesian waters have been intercepted in this years drilling. All drill holes in the Pebble East deposit are plugged with cement, from bottom to top, upon completion. The company plans to drill this year until December 15 then take a break from drilling until February. In general, next years drilling will again focus on infill drilling of the deposit.

I inspected Rig #2 and looked at the sumps, water supply pump setup, drill decking, and sump oversupply discharge. The sump oversupply discharge was being periodically pumped to a small depression that was adequate for infiltration. This depression was being used by a least four of the drills in the area and was serving well. I discussed reclamation options for the depression with Lena Brommeland. The project has adopted an innovative color scheme for the water handling system whereby yellow hose is used for water supply and white hose for water discharge or recycling. No discharges to waters of the State were observed and the operation

was operating satisfactorily and within conditions of the permit. The drill platforms are utilizing wooded decking for setup of the drills and rod handling thus minimizing impacts to the ground and vegetation. Sumps are being reclaimed by filling with growth media and replacement of the vegetative matt.

Drill water is supplied using a method whereby a generator and fuel supply is setup at some distance from the water being used. An electric screened sump pump is then used to pump water from the supply source to the drill. This technique keeps fuel and lubricants away from the water sources. The water supply pumps are enclosed in a screened box if the water source contains anadromous fish. These screens prevent even small smolt or fry from being pulled in to the pumps.

All trash from around the drill sites is sorted by type and placed into enclosed barrels. The trash barrels are periodically flown to Iliamna and disposed of either in the landfill, or if metal, recycled and taken to Anchorage. The company has plans to put a permitted incinerator at the Iliamna landfill to reduce the volume of material going into the dump.

In excess of four hundred drill holes have been drilled in the Pebble copper-gold-molybdenum deposit. Virtually none of the sites older than a year or two are easily discernable. We examined a drill site on the hillside in the Pebble West deposit and unless the short stand pipe and lath were seen, the site was indistinguishable from the surrounding terrain.

While flying to and from the Pebble project drill sites, an opportunity was taken to look at a number of ponds and lakes in the immediate vicinity of the project and beyond. A citizen has recently expressed concern that water use at the project site was drying up various water bodies. It was clear that a significant number of ponds and kettles are at lower levels, low levels, and some nearly dry but these appear mostly related to the hydrologic configuration of the bodies and not related to project activities. Low levels of water were observed in ponds and kettles significantly beyond the area affected by drilling; most of these appear to be those that have no inlets and low water levels have resulted from recharge by precipitation being less than that of evaporation and infiltration.

A visit was paid to the core handling, logging, and sampling facility in Iliamna. Core typical of east zone mineralization was laid out on the tables. The logging is complex due to the varying and intermixed lithologies, a multitude of overlapping veining events, as well as disparate and telescoped hydrothermal alteration assemblages. The sulfide mineralogy is relatively simple; the hole that I observed contains pyrite veinlets, chalcopyrite on factures, quartz-molydenite veinlets, and possibly some chalcocite. Geotechnical logging is also being completed to assess rock strength and competency with the aim of investigating if block caving can be utilized to mine the Pebble East deposit.

Three core saws (masonry configuration) are being utilized to split the mineralized core for assay – half being retained for storage. An approximately one eighth sawed split of the Tertiary volcanics is also being collected for analysis. The samples for assaying and geochemical analysis are being shipped to Fairbanks for preparation, crushing, and splitting then shipped onward to

Vancouver for analysis. The totes containing the shipped samples are banded with steel and a chain of custody is established.

Drill Site – note use of decking to reduce impacts on tundra.

Sump at drill site to collect rock cuttings.

Pebble West – site of old Cominco Drill Hole (flagged)

Water supply generator and pump

Drill sites overview

Water supply generator and submersible pump

Overview of Pebble depsit from edge of Pebble West towards Pebble East

Core from Pebble East showing multiple vein sets and secondary biotite alteration.