MEMORANDUM

State of Alaska

TO: File/Distribution List DATE: March 1, 2008

SUBJECT: Niblack Exploration project site inspection February 14, 2008

FROM: Kenwyn George, ADEC, Water Quality Section

Attendees:

Kenwyn George, ADEC-AWQ Honor Carpenter, ADEC – Enforcement Henry Bogert, Mine Manager, Niblack mine Barry Hogarty (taking samples)

Purpose of visit: to inspect the area where a mine dewatering pipe joint failed and up to 17,000 gallons of mine dewatering water was released.

<u>Site conditions</u>: Snow on the ground; up to 24" near the portal. Light rain in the morning, heavier rain in the afternoon.

There are approximately 32 people on site. Upon arrival at 9:00 AM we were met by Greg Duso, Senior Project Geologist, then had tours of the site with Henry Bogert and accompanied Barry Hogarty to observe sampling. We left the site at 3:00 PM.

Mine dewatering pipe: This is a 4" HDPE pipe that descends a steep slope. When crossing the mine access road the pipe passes through an 18" culvert. At the uphill side of the crossing a 45 degree bend was installed. The pipe was not fully inserted into the 45 degree elbow prior to heat-fusion, so failed and discharged for approximately 1 hour at 150 gpm (for around 9,000 gallons discharged). The ditch into which the discharge occurred was full of snow, however any sediment behind the three sediment trap bales had been removed. No other potential failure points were noted.

<u>Sedimentation Ponds</u>. The two sedimentation ponds for the mine dewatering water were full and operating. Water was being pumped from the second pond to the old mine shaft. Water entering the first pond was turbid, but with the low inflow and relatively large settling tanks water was clear at the pump. The land application pipes were still frozen, but were thawing. Items are on site for the water treatment plant, but not yet installed.

<u>Potentially Acid Generating (PAG) Rock site</u>. The liner has been laid on 6" sand, then a geotextile, then an additional 6" sand. Approximately 1000 cubic yards of PAG material had been deposited and covered with a tarp to keep water off it.

Storm water. Sedimentation ponds were installed and operating. They are constructed by using two logs, one on top of the other, and geotextile to prevent water from discharging between the logs. Flows through the ponds is considerable. At the time of the visit rain had fallen on snow and turbid water was flowing through some of the ponds.

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This water flows directly to the marine inlet. It would be difficult to construct additional settling ponds on the steep mountainside. Also, because of the steep mountainside and limited working room, the construction of additional BMP's would be challenging. An hydraulic leak of approximately 40 gallons occurred in December. Most of the fluid was captured in buckets, more was caught at the site of the leak. Some was carried into the storm water system and oliophyllic floating barriers had been installed in two of the sedimentation traps. One barrier needed to be re-connected at one end in order to operate correctly. Also, it was suggested that the barriers be replaced if it was not known whether their capturing capacity was depleted. Because of ice beside the roads, storm water on the roads was not able to leave the tire tracks until it had descended most of the road length. This resulted in turbid streams of water running down the road. Turbid flows down the road that led to the barge landing facility and camp barge also resulted in a turbid plume in the bay. It was suggested that the ice berms be breached to reduce the build-up of flows down the road. Water bars could also be installed to direct flows off the road.

<u>Underground tunnel</u>: The tunnel was walked to the far end (approximately 1000 feet) where rock anchors were being installed. The sump was observed operational. Mr. Bogert pointed out where a walkway was to be installed to allow access to the pumps and to enable the sump to be larger and deeper. Presently it is about 6 feet deep at the back of the sump. As flows increase in the mine the larger sump will help capture larger sediment within the mine. Drill holes with faucets could be seen to freely discharge water. This water is used by the drills underground.

Monitoring: Barry Hogarty was at the site as a contractor to the Niblack Mining Company to collect water samples. We accompanied her while she sampled the off site monitoring well MW7, and observed those practices required in the QAPP. Sampling this well took approximately one hour. Barry is at the site once a month for 2 or 2 ½ days to complete the sampling.

Follow-up information in an email from Henry Bogert 3/1/08:

- (1) Discharge from the Lower Sediment Pond to some of the thawed zones of the LAD site recommenced on 15 February 2008.
- (2) Critical sections of the road were resurfaced with 3-inch minus road base and crowned so that water runs off the road. This has eliminated the channeling problem in the tire tracks very well.

Photos from the site inspection:



Barge accommodation at the barge landing



Sedimentation pond beside road

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Sedimentation pond beside road with turbid water and oliophyllic sausage



Sedimentation pond beside road

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Sedimentation pond beside road with turbid water and oliophyllic sausage



Road storm water trapped in wheel tracks



Sediment plume from road runoff



Water treatment system sedimentation basins

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Water treatment system sedimentation basin – inlet pipe at left (~ 20 gpm)



Water treatment system sedimentation basin outlet pipes

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Water treatment system sedimentation basin – clear water to mine shaft



PAG line (to go on top of embankment) and pipe from upper to lower basin.

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Land application lines



PAG site – PAG material covered by blue tarp

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PAG site runoff collection pond



PAG site liner

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Portal entrance / Honor Carpenter, ADEC

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NAG site at the base of the pile