

### KENSINGTON GOLD MINE INSPECTION REPORT

**Inspection Date:** June 5, 2012  
**Weather:** Overcast, approximately 60°F, light wind, no precipitation  
**Time of Inspection:** 8:30 am to 2:30 pm  
**Operator Contact:** Kevin Eppers – Coeur Alaska  
**Agency Personnel:** David Wilfong – ADNR, Joe Manning – USFS, Kenwyn George  
ADEC  
**Inspection Objectives:** General Inspection

Alaska Department of Natural Resources (ADNR) personnel arrived at Ward Air at 7:30 AM and met Alaska Department of Environmental Conservation (ADEC) and United States Forest Service (USFS) personnel soon after. Personnel were flown from the Juneau International Airport seaplane base and arrived at Slate Creek Cove at about 8:20 AM. The Environmental Superintendent for the Kensington Gold Mine, Kevin Eppers, met and shuttled us to the main camp. We were escorted by Mr. Eppers for the duration of the mine inspection. Mr. Eppers is very knowledgeable of the mine site and day-to-day operations, and answered all of our questions candidly.

The first site visited was the “North Mud Dump” (Figure 1). Construction of this engineered site was to begin shortly and will include a liner to contain the graphitic phyllite that will be excavated from the dam abutments during the Stage 2 dam raise. Contact water from the facility will be contained and treated until an engineered cover is installed.

The next site to be visited was a storage area for material needed for the Stage 2 dam raise (Figure 2). The area contained approximately 35,000 yds<sup>3</sup> of an expected 66,000 yds<sup>3</sup>, and material continued to be added to the site. Iron pyrite was visible in the waste rock, but had been found to be non-acid generating.

After a brief stop to examine a windfall area of trees, we continued on to the Tailings Treatment Facility (TTF). During the construction phase of the Stage 2 dam raise, the existing Emergency Spillway will be filled in and remain non-functional. Diversion tubes are in place to divert the major inflows into the TTF, but two of the diversion pipes at the northern end of the facility were found to have obstructions at the head gates (Figure 3). During a high flow precipitation event, the obstructions would lessen the ability of the tubes to divert clean water around the TTF, and could cause an unnecessary rise in the water level in the facility. Kenwyn George recommended that the obstructions be cleared before construction begins. Kevin Eppers agreed and said that the cleaning would be done.

The inspection moved on to the northern end of the TTF at the waters surface. A floating dock that will access the reclaim barge is under construction. The new dock will facilitate year-round access to the barge for maintenance and repairs. Current access is by boat, but the vessel is too small if the pump was to need replacement, and access is very difficult in the fall and spring during thin ice conditions. The staff gauge at the north end of the Tailings Treatment Facility was leaning at an angle that was not perpendicular to the surface of the water. This leads to inaccurate readings of the water elevation in the TTF. The damage to the staff gauge was most likely caused by

ice forming on the surface of the TTF during the winter months. When ice forms around the staff, any vertical or horizontal movement of the ice due to changes in water elevation or wind direction can cause the gauge to displace.

The next stop was the TTF Dam. Construction of the Stage 2 dam raise is planned to begin this summer. The planned 25 foot raise of the dam will accommodate the placement of more tailings in the TTF. The new spillway is required to be installed in solid bedrock, and it will be necessary to excavate a substantial amount of acid producing graphitic phyllite from the western dam abutment. The acid producing material will be placed in the yet-to-be constructed site that was visited earlier in the inspection. The graphitic phyllite material was exposed during the initial dam construction. Shotcrete was sprayed onto the exposed surface of the graphitic phyllite to lessen its exposure to oxygen and water infiltration. After several attempts to stop water from passing through the Shotcrete, staining which can signify metals leaching can be seen on the Shotcrete surface (Figure 4). Water that has come into contact with the graphitic phyllite is routed to a pool where it is pumped to the water treatment plant, then treated and discharged. Joe Manning tested the pH of the water in the pool, and the results came back neutral (about 7), but precipitate in the pool signifies that metals leaching is still occurring.

Some slope instability and erosion can be seen above the eastern dam abutment (Figure 5). The instability is not endangering any facilities at this time. Before leaving the TTF, the inspection team stopped at the TTF Water Treatment Plant (WTP). According to Mr. Eppers, the water in the TTF generally meets Water Quality Standards (WQS) except for sulfate concentrations. Outside the WTP, we visited the filter cake storage area (Figure 6). Filter cakes are a byproduct of the water treatment process. When the TTF water is treated, a flocculent is added to help settle out suspended solids. The settled solids are run through a filter press to remove excess water. The end product is a densely pressed “cake”, containing very fine silty material that is high in metals content and low in moisture. The cakes are removed from the WTP building and temporarily placed in a lined storage area. It is a small lay down area lined with HDPE to prohibit infiltration of contact water. It is planned to mix the filter cakes in with tailings material at the underground paste plant and store it in mined out stopes as part of a concrete mixture for underground support.

As seen in Figure 6, the top of the filter cakes are partially exposed. There is some slight discoloration around the front of the storage area that suggests that water overflowed from it during a precipitation event. Joe Manning (USFS) tested a puddle of contact water within the storage area for pH, and the results came back neutral (about 7). Kenwyn George (ADEC) suggested that a structure with a rigid roof be built over the filter cake storage area to prevent precipitation from contacting the material.

After the WTP, the inspection team stopped at pit 4; aka pit 3 (Figure 7). This pit was a borrow site from which material was used to build a road on the mine site. The borrow material was later found to be acid generating. Steve McGroarty with the ADNR Mining Section had asked Coeur to dig some test pits in the borrow pit and have the material Humidity Cell Tested (HCT) for Acid Generating Potential. Mr. Eppers had stated that the site would be extremely difficult to access with the equipment needed to dig the test pits. During this inspection, Pit 3 was free of snow, and we confirmed that it would indeed be difficult to access the site with equipment. However we determined that the face of the pit wall has not yet significantly weathered, and that a variety of samples from just behind the face would be satisfactory. A test plan is expected to be forthcoming.

After a quick trip through the main tunnel that runs between the Jualin portal, and the Comet Portal, we stopped briefly at the Comet Waste Rock Pile, and Water Treatment Plant where mine dewater is treated. Figure 8 shows the Comet Portal waste rock pile. The top of the boom on the Grove crane is approximately 25 feet tall for scale. Non-acid generating waste rock is dumped by underground haul trucks at the top of the pile and is pushed over the side by a bulldozer. A partial stick of unexploded emulsion type explosive was found protruding from a drill hole in a boulder at the bottom of the pile. Mr. Eppers was alerted to the situation, and it was properly disposed of.

After a short delay on the return trip through the tunnel between portals due to mine work, the inspection team returned their safety gear, and was driven back to the marine terminal where we were picked up by the Ward Air float plane and flown back to the Juneau Airport seaplane base.



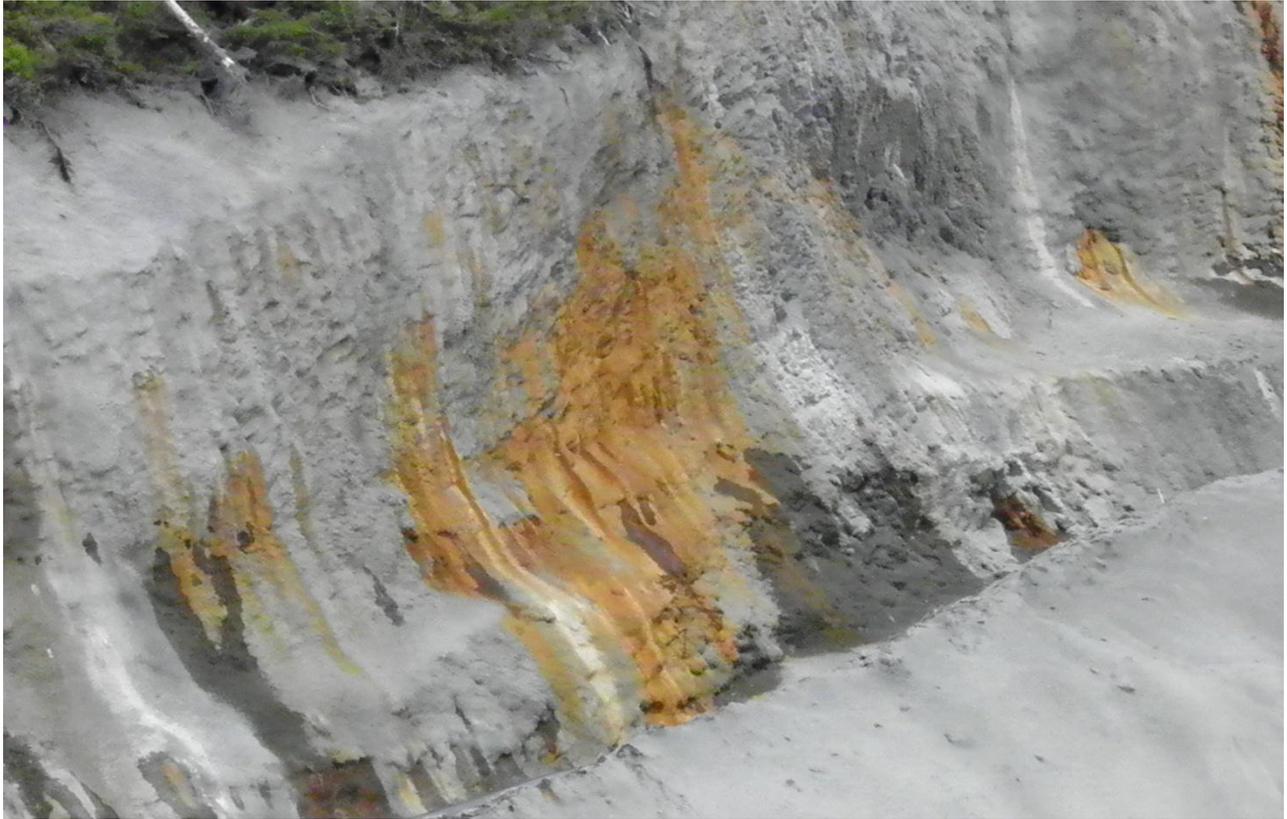
**Figure 1 North Mud Dump**



**Figure 2 Stage 2 Dam Raise Material**



**Figure 3 Diversion Head Gate**



**Figure 4 Staining on Shotcrete**



**Figure 5 Erosion Near the Eastern Side of the Dam**



**Figure 6 Filter Cake Storage Area**



**Figure 7 Pit 4, Also Known as Pit 3**



**Figure 8 Waste Rock Pile Near the Comet Portal**

Report written by David Wilfong—Alaska Department of Natural Resources.  
Division of Mining, Lands and Water—Mining Section

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