INSPECTION REPORT: KENSINGTON GOLD MINE

Tongass National Forest Minerals Group
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Date of Inspection: Thursday, December 29, 2016
Date of Report: Thursday, January 5, 2017
USDA Forest Service Inspector: Edward Gazzetti

Ranger District: Juneau Ranger District
Weather Conditions: Light snow. Temperature: Low 30's (◦F).

Exploration in accordance with operating plan	Not Applicable
Timber removal following timber sale contract	Not Applicable
BMP for erosion control	Satisfactory
Water Quality BMP	Satisfactory
Public safety & fire prevention	Satisfactory
Reclamation work adequate and timely	Satisfactory
Roads maintenance adequate and current	Satisfactory
Tails placement in accordance with plan	Satisfactory
Waste Rock placement in compliance	Satisfactory
Company supervision of operation	Satisfactory
Operating in a clean and orderly manner	Satisfactory

Any conditions noted as UNSATISFACTORY will require follow up action by the Mine Inspector and a written memorandum to the operator, outlining the necessary work.

NEW REMARKS

Ward Air Cessna provided transport.

Kevin Eppers (Environmental Manager, Coeur Alaska) and Peter Strow (Environmental Coordinator, Coeur Alaska) accompanied Edward Gazzetti (Hydrogeologist, US Forest Service), Richard Dudek (Geologist, US Forest Service) and Allison Natcher (Environmental Program Specialist, Alaska Department of Environmental Conservation) during the inspection.

Site inspection included access roads, Mill Facility, Comet Development Pile and Mine Water Treatment Plant, and the Tailings Treatment Facility (TTF).

ACTION ITEMS

- **Develop written procedure for day tank filter maintenance**
- **Develop written schedule for OWS maintenance**
- **Defrost OWS and keep it free of ice**
- **Remove diesel from OWS, lift station, and associated pipes**

GENERAL COMMENTS

This inspection focused primarily on a diesel spill first reported by Coeur on December 26.

Timeline: On December 22, Coeur Alaska crews noticed a sheen on the tailings thickener tank. Mine personnel initially believed the source of the sheen was a diesel spill in the underground mine. On December 24, Coeur personnel discovered the source of the sheen was a leaking valve on the filter

system of the 30,000-gallon "day tank" near the Mill. On December 25, Coeur Alaska determined that an excess of 55 gallons of diesel leaked from the valve, which triggered the reporting requirements stated in 18 AAC 75.300 and the Final Plan of Operations for the Kensington Gold Project (4.12.6). Coeur Alaska reported the spill to the Alaska Department of Environmental Conservation on December 26.

ACCESS ROADS

The mine has received a fair amount of snow recently; as a result, crews were plowing roads during the inspection. All access roads appear to be in good condition.

MILL FACILITY

Day tank: The dual-walled 30,000-gallon "day tank" is located approximately 30 meters south of the Mill. Mobile equipment and various machinery at the Mill get their fuel from the day tank. Twice a day, crews haul diesel isotainers from the fuel laydown yard to the Mill and place them onto a rack before refueling the tank (Photo 1). Fuel pumped from the isotainer into the day tank passes through a filter located at the back of the tank. The filter has a ball valve used to release diesel from the filter during maintenance (Photos 2 & 3). At some point, the ball valve turned to the "open" position, which allowed diesel to flow out of the filter during the refueling process. A check valve located between the filter and the day tank allows diesel to flow in one direction only (towards the day tank). Consequently, the check valve prevents diesel in the day tank from discharging through the filter and ball valve. Moreover, the ball valve can only discharge diesel during the refueling process (and possibly immediately after as the filter drains). The day tank has containment (concrete floor and short walls) meant to divert spills during the refueling process. This containment utilizes a gravity drain to transport diesel and water to an oil/water separator (OWS).

Problem: Ball valve turned to the "open" position.

Resolution: To prevent a repeat of this spill, Coeur Alaska has inserted a plug into the ball valve and has changed its orientation to prevent falling objects (like snow and ice) from opening it.

Action Item: Coeur Alaska will develop a written procedure for the filter's maintenance to highlight the plug's purpose and to ensure it stays in place.

OWS and lift station: The OWS's function is to separate spilled diesel and stormwater collected by the day tank's concrete containment area. When functioning properly, the OWS isolates oil (diesel) and an adjacent lift station pumps recycled water into the Mill for use in the tailings thickening process. It appears the OWS was filled with ice and, therefore, not functioning during the spill event. Consequently, the spilled diesel flowed into the lift station, which pumped it into the Mill. On December 26, Coeur Alaska reported collecting an estimated 860 gallons of diesel from the lift station (Photo 4). On December 29, Coeur Alaska revised that estimate to 160 gallons, stating that the 860 gallons was mostly water.

Coeur Alaska personnel have since turned off the lift station to prevent additional diesel from entering the Mill and are defrosting the OWS (Photos 5 & 6). Once defrosted, crews will remove all remaining diesel and water from the OWS and lift station.

Problem: OWS not properly maintained. Water within the OWS tank froze, rendering it inoperable.

Resolution: Coeur Alaska is defrosting and cleaning the OWS and lift station.

Action Items: Create a written schedule for OWS maintenance. Defrost OWS and keep it free of ice. Remove diesel from OWS, lift station, and associated pipes.

Tailings thickener tank: Coeur Alaska personnel noticed a sheen on the tailings thickener tank on December 22 and immediately placed containment booms on the surface to prevent the spread of diesel to the TTF and underground paste plant (Photo 7).

Follow-up: Continue to check thickener tank and its containment boom for signs of diesel

TAILINGS TREATMENT FACILITY (TTF)

Coeur Alaska never shut down the Mill during the spill investigation. Diesel from the tailings thickener tank could have potentially made its way through the tailings pipeline and into the TTF before Coeur Alaska personnel placed containment booms on the thickener tank.

Tailings discharge to the TTF at the tailings barge, which is currently located towards the northern end of the facility (Photo 8). Surface agitation caused by the movement and placement of relatively warm tailings keeps a small area around the barge and pipeline free of ice. A water reclaim barge located on the southern end of the TTF (near the dam) pumps water to the TTF Water Treatment Plant, which is not equipped to treat hydrocarbons (Photo 9). Agitators on the reclaim barge keep a small area around it ice-free. These two locations (the small areas around the barges) are the only places on the TTF without ice cover and are, therefore, the most likely places within the TTF to observe potential diesel contamination. As of December 29, no sign of diesel contamination has been noticed anywhere at the TTF. Coeur Alaska has equipped the TTF with oil containment booms as a precaution.

Coeur Alaska personnel regularly check the clarifier tank within the TTF Water Treatment Plant and have placed a containment boom at its outlet as a precautionary measure (Photos 10 & 11). The open top of the clarifier tank provides a good point within the treatment process to observe potential diesel contamination. As of December 29, operators have observed no signs of diesel in the clarifier tank or on the boom. Crews will replace the boom regularly and check it for diesel.

Several factors reduce and/or complicate the likelihood of observing a slug of diesel contamination at the TTF or the treatment plant during winter months. First, most of the TTF surface has ice cover. Second, the distance between the barges (~100 meters) creates a time lag between discharge into and out of the TTF. Finally, internal currents in the TTF and dilution caused by the sheer volume of the facility may mute and/or smear the contamination “signal”.

Follow-up: Regularly check clarifier tank and containment boom for signs of diesel until TTF ice cover thaws and its surface inspected. Inspect TTF and shore at first reasonable opportunity. If diesel is present, contain and collect it immediately.

A pipe that collects seepage from the TTF Plunge Pool was frozen during the inspection. Crews are transporting totes of seepage to the Seep plant for treatment via truck until the line thaws.

COMET DEVELOPMENT PILE AND MINE WATER TREATMENT PLANT

Coeur Alaska crews continue to deposit waste rock onto the southern edge of the pile.

Recent snowfall prevented us from inspecting Sherman Creek Outfall 001 for the presence of "white material" on the streambed. However, a barrel used to indicate the occurrence of "white material" flowing through the Comet Water Treatment Plant suggests the material is still present (Photo 12). While this inspection did not determine whether there was more or less "white material" on the streambed compared to previous inspections, it is clear that "white material" continues to discharge into Sherman Creek.

FOLLOW UP ITEMS

- Continue to check thickener tank and its containment boom for signs of diesel
- Continue to check TTF Water Treatment Plant clarifier tank and containment boom for signs of diesel until TTF ice cover thaws and its surface inspected. Inspect TTF and shore at first reasonable opportunity. If diesel is present, contain and collect it immediately.

PHOTOS
(More photos available upon request)

Photo 1. 30,000-gallon "day tank". Isotainers are placed on the rack (trailer) located on the right side of this photo during refueling. Fuel flows through a filter before entering the day tank.

Photo 2. During refueling, diesel from the isotainer flows through this filter, located on the back of the day tank.

Photo 3. Ball valve on the filter was in the "open" position, allowing diesel to escape from the filter during refueling. The valve has since been plugged and the orientation of its handle has been changed to prevent falling snow/ice from opening it.

Photo 4. Eight totes filled with a water/diesel mixture captured and removed from the lift station. As the mixture separated, mine personnel adjusted their spill estimate from ~860 gallons to ~160 gallons. Coeur Alaska expects to capture more diesel from the OWS and lift station.

Photo 5. Defrosting the oil/water separator (OWS). The OWS is a metal tank in a concrete container located beneath the recently exposed cover on the ground. Ice filled the OWS, rendering it inoperable.

Photo 6. Defrosting the OWS. Crews assembled a tent around the OWS to speed up the defrosting process. During the spill, the OWS was frozen and multiple feet of snow covered the ground.

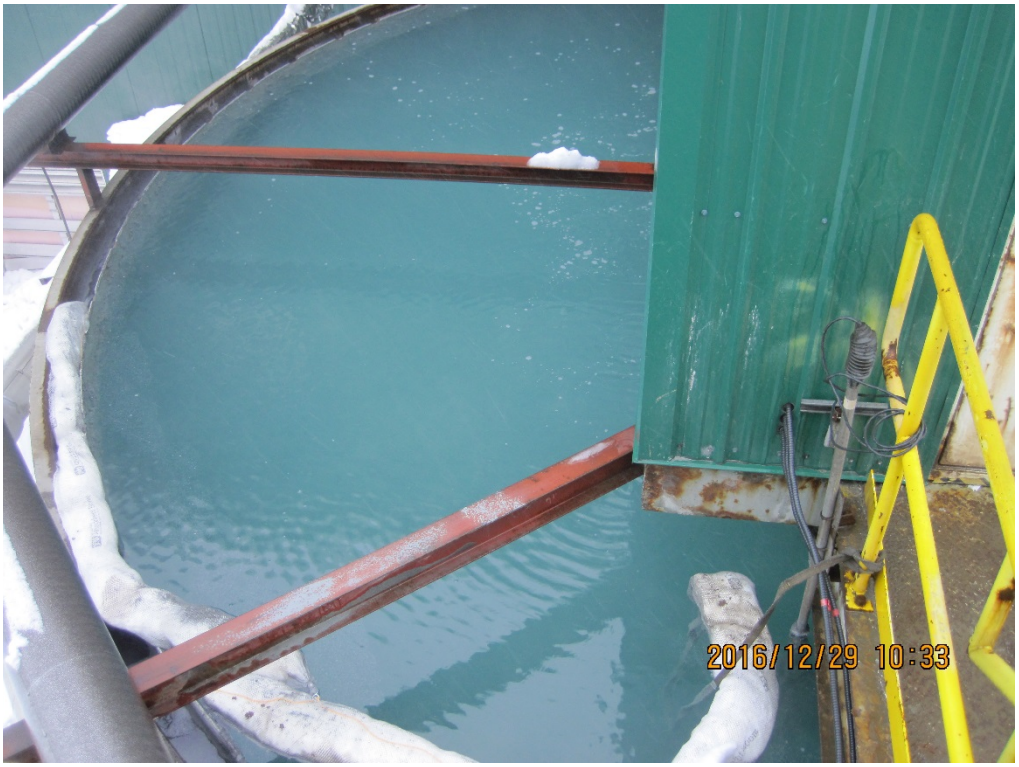

Photo 7. Tailings thickener tank. Coeur Alaska crews placed oil containment booms on the surface of the tank to contain and capture diesel. Crews originally spotted a sheen on the tank on December 22.

Photo 8. TTF tails barge. Agitation caused by the movement and placement of relatively warm tailings keeps a small area around the barge free of ice, thus providing a window to observe a sheen if diesel discharges into the TTF.

Photo 9. TTF water reclaim barge. Located about 100 meters south of the tailings barge, the reclaim barge pumps water to the TTF Water Treatment Plant. Agitators on the barge keep the surrounding area ice-free and provide another window to observe potential sheens.

Photo 10. Looking down into the TTF Water Treatment Plant clarifier tank. Operators frequently check the tank for signs of diesel contamination.

Photo 11. Although no sign of diesel has been observed at the TTF, Coeur Alaska crews placed an oil containment boom at the clarifier tank outlet to catch potential contamination. Crews will change the boom regularly and checked it for diesel.

Photo 12. Indicator barrel inside the Comet Mine Water Treatment Plant suggests “white material” moves through the plant and discharges into Sherman Creek at Outfall 001.

Thanks to Coeur Alaska for a safe visit.
U.S. Forest Service Officer: /s/ Edward Gazzetti