INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group
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Date of Inspection: Wednesday, December 16, 2015
Date of Report: Tuesday, December 22, 2015
USDA Forest Service Inspector: Edward Gazzetti

Ranger District: Admiralty National Monument, Juneau Ranger District
Weather Conditions: Overcast. Temperatures: 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 De Havilland Cessna/Beaver provided transport.

Mitch Brooks (Environmental Engineer, Hecla Greens Creek Mining Company) accompanied Edward Gazzetti (Hydrogeologist, US Forest Service), Curtis Caton (Geologist, US Forest Service), and Richard Dudek (Geologist, US Forest Service) on this inspection. Christopher Wallace (Environmental Manager, Hecla Greens Creek Mining Company) was present for Tailings Disposal Facility (TDF) inspection.

The site inspection included the A and B access roads, Tailings Disposal Facility (TDF), Young Bay, Pit 7, A Road Sandpit, 920, Site 23, Site E, and Zinc Creek bridge.

ACTION ITEMS

- **Zinc Creek bridge sump maintenance, BMPs**
- **Site E pond needs to be relined or repaired before active excavation resumes**

TAILINGS DISPOSAL FACILITY

Water has been drained from the tailings expansion area since the last inspection (Photo 1). A drill crew is actively placing inclinometers (4) along the edge of the area as part of a geotechnical investigation (Photo 2). A corduroy road constructed of timbers provides the crew access to areas where the water table is too close to the surface to allow safe passage of heavy equipment (Photo 3). The road will be reclaimed and allowed to revegetate naturally upon completion of the investigation.

YOUNG BAY

No recent activity to report at Young Bay. The area is well maintained and orderly.

PIT 7

Site complies with BMP plan strategies listed for Pit 7 in Appendix 5, Figure 6.

SAND PIT

Excavation has ceased for the season and all heavy equipment removed (Photo 4).

920 PORTAL

The site is active and tidy. A truck hauling ore from the mine is shown in Photo 5. Haul trucks observed during the inspection had a safe amount of material in each load (i.e. there was no spillage). The road to 1350 was covered in snow/ice so we could not reach the portal for an update on the adit drains mentioned in October's report (Photo 6).

SITE 23

No recent activity to report. The area is well maintained and orderly.

SITE E

Site E settling pond is in disrepair and does not comply with the BMP plan strategies listed for Site E in Appendix 5, Figure 8 (Photo 7). The pond needs to be relined or repaired before active excavation resumes to prevent site runoff from discharging into the watershed.

ZINC CREEK BRIDGE

A sump located near the South abutment is currently overflowing into the forest via channelized flow (Photos 8-13). The sump, which does not appear in the BMP plan strategies found in Appendix 5, Figure 7, collects runoff from the nearby roadway. The sump needs regular maintenance to prevent channelized flow from entering the forest. Straw wattles downstream of the sump are ineffective in controlling sediment runoff due to their placement and overall poor condition. Wattles need replacement and readjustment to control sediment runoff.

> *Note: Greens Creek responded to this issue on December 17 and 18, stating they plan to investigate the source and signature of the sediment and conduct future maintenance/BMPs at the sump as needed. They suspect a majority of the tan sediment shown in Photos 12 and 13 is recently exposed sediment that was originally deposited years ago.*

A drainage hose beneath the South abutment is freely discharging sediment and water onto the ground. The ground beneath the hose is saturated with milky, tan colored water (Photos 14-16). The hose may require a filter sock at its outlet and/or regular inspections, as there is a large hole about two feet from its end (possibly caused by wildlife).

Note: Greens Creek responded to this issue on December 17 and 21, stating the yellow hose was added in November 2014 to the South abutment drain to move water away from under the bridge.

A bright red discharge seeps out of the ground near the South abutment (Photos 17 and 18).

Sediment accumulates beneath the bridge, both on the ground and on silt fencing (Photo 19). Sediment covering the entire height of the silt fencing suggests dripping from the bridge may still be occurring (Photo 20). Cleaning and regular monitoring of the fencing will determine whether the HDPE bridge liner is working properly (without cleaning the fences, it is difficult to say whether the sediment on them was deposited before or after insertion of HDPE bridge liner).

FOLLOW UP ITEMS

- **Zinc Creek sump maintenance and BMPs**
- **Zinc Creek monitoring to determine if bridge liner is working**
- **Site E pond**

PHOTOS
(Images available upon request)

Photo 1. Tailings expansion area completely drained of ponded water.

Photo 2. Drill crew preparing to install an inclinometer near the edge of tailings expansion area.

Photo 3. Corduroy road leading to a completed inclinometer.

Photo 4. Sand pit excavation has ceased for the season.

Photo 5. Haul truck carrying ore from the 920 portal.

Photo 6. Road to 1350 portal covered in snow.

Photo 7. Torn liner at Site E needs to be repaired or replaced before active excavation resumes.

Photo 8. Sump near the Zinc Creek bridge filled with fine-grained, tan colored sediment.

Photo 9. Looking “upstream” to the sump area. Straw wattle is ineffective in containing sediment.

Photo 10. Looking downstream. Water and sediment discharge from the sump travel downstream into the forest.

Photo 11. Looking upstream from forest edge. Torn and improperly placed straw wattle is ineffective in containing sediment.

Photo 12. Sediment deposited along the channelized flow path.

Photo 13. A pool of water and sediment on the forest floor. There are at least two other similar pools that exist downstream in the forest.

Photo 14. Bright red seep near the Zinc Creek bridge.

Photo 15. Close-up of seep.

Photo 16. Yellow hose slowly discharges a milky substance below the Zinc Creek bridge.

Photo 17. Sediment and water discharge from the hose below the Zinc Creek bridge.

Photo 18. The ground near the yellow hose's discharge point is saturated with the milky substance.

Photo 19. Silt fencing does a good job of blocking sediment as it moves downhill. However, sediment covering the entire height of the fence suggests dripping from the bridge above.

Photo 20. Sediment from the bridge trapped behind silt fencing. Note the sediment covering the height of the fence.

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