



INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group
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Date of Inspection: Monday October 30, 2017
Date of Report: Thursday November 16, 2017
USDA Forest Service Inspector: Richard Dudek

Ranger District: Admiralty National Monument, Juneau Ranger District
Weather Conditions: Cloudy with rain Temperature: low 40'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 provided a Beaver floatplane to site, and Hecla Greens Creek Mining Company (HGCMC) provided transportation (Crew ferry) from site.

Dave Landes (Environmental engineer (HGCMC)) accompanied Chad VanOrmer (Admiralty Island National Monument Ranger, US Forest Service (USFS)), Richard Dudek (Geologist, USFS), Dylan Krull (Habitat biologist, Alaska Department of Fish and Game (ADF&G)), and Evan Fritz (Habitat biologist (ADF&G)).

The site inspection included the B-road system, 1350 area, 920 area, Site 23, 7.4 mile B-road Bridge (Killer Creek Bridge), 5.0 mile B-road Greens Creek fish pass (approximately 600 feet from the B-road), 3.4 mile B-road Bridge (Falls Creek Bridge), 3.2 mile B-road culvert, 3.0 mile B-road Bridge (Zinc Creek Bridge), and the Tailings Disposal Facility (TDF).

ACTION ITEMS

- Turbid water was observed flowing beyond the 3.2 mile B-road culvert's rock check dams and into the forest duff and vegetation. Additional mitigations and/or modifications to the existing BMP's need to be implemented at this site.
- Sedimentation removal is required at the 3.4 mile B-road bridge ends.
- The 3.4 mile B-road culvert requires cleaning. Sediment accumulation has exceeded the allowable limits.





NOTE WORTHY ITEMS

HGCMC continues to use the temporary batch plant staged at the Hawk Inlet facilities to generate concrete for the new wheel wash facility at the TDF.

ACCESS ROAD B

Due to recent precipitation, sections along the B-road have developed erosional features (potholes and ruts), which require maintenance. Surface operations will conduct routine maintenance on the access roads when drier conditions persist (Appendix 8 Road Operations and Maintenance; Table 8.1).

1350 AREA

The 1350 adit and trench/pump (Photo 1) is being maintained by Environmental operations. The trench and pump (Photo 2) are working as intended to convey runoff in the reclaimed area. As the winter season approaches, HGCMC will remove the pump to prevent ice damage.

920 AREA

The recorded flow rate for Greens Creek (Photo 3) on 10/30/2017 was 61.5 cfs and the water withdrawal for the 920 system remains at 1.5 cfs.

The 920 bridge maintenance complies with the Plan of Operations and the sediment accumulation at the bridge ends was minimal (Photo 4).

Good housekeeping practices (Appendix 5 BMP plan; page 39) were observed inside the warehouse and the storage vans (Photos 5-6).

SITE 23

To maximize storage capacity, HGCMC is staging Class 1 waste rock along the site's perimeter (Photos 7-8).

7.4-MILE B-ROAD BRIDGE (KILLER CREEK BRIDGE)

The bridge decking is being maintained and the splashguards are effectively preventing vehicular sediment splash over (Photos 9-10). Below the bridge, sediment accumulation was minimal at both bridge abutments (Photos 11-12).

5.0 MILE B-ROAD FISH PASS (GREENS CREEK)

Reconstructing the Greens Creek fish pass (Photo 13) was a mitigation requirement in the 2013 TDF Expansion Final Environmental Impact Statement and Record of Decision. The reconstruction included installation of three concrete steel-capped weirs and plunge pools. Additionally, HGCMC was issued a fish habitat permit (FH11-I-0123) from ADF&G. This permit requires HGCMC to monitor and maintain the Greens Creek fish pass in perpetuity. Under the State of Alaska Waste Management Permit 2014DB0003, HGCMC is required to measure the abundance and condition of juvenile fish upstream of the fish pass. HGCMC plans to continue contracting this work with the ADF&G Habitat division.

3.4-MILE B-ROAD BRIDGE (FALLS CREEK BRIDGE)

The bridge decking is being maintained and the splashguards are preventing vehicular sediment splash over (Photos 14-15). However, sediment buildup was observed at the bridge ends (Photos 16-18) and will require removal. To minimize the sediment loading below the bridge, a BMP structure should be installed at or near the uphill/downstream side of the bridge. Below the bridge, HGCMC personnel did remove some sediments prior to this inspection. The amount sediment accumulation just below the





bridge (Photo 19) was less than compared to what was observed and documented in the previous inspection report (HGCMC 388).

The culvert (Photo 20) will require cleaning due to sediment buildup. HGCMC's Appendix 8 Road Operations and Maintenance plan page 8-6 states that culverts with more than four inches of accumulation will be scheduled for prompt cleaning.

3.2-MILE B-ROAD CULVERT

Turbid water was observed flowing beyond the final settling pond/rock check dam (Photos 21-22) and into the vegetation. Although the forest duff is an acceptable place to allow finer sediments to settle out. Additional mitigations or improvements to the BMP's in place should be implemented to help minimize fine materials in the surface water flowing beyond the BMP's.

3.0-MILE B-ROAD BRIDGE (ZINC CREEK BRIDGE)

The bridge is being maintained and the structural BMP's are working as intended (Photos 23-24). Turbid water was exiting the standpipes outlet. Mostly clear water was observed flowing beyond the discharge point (Photo 25-26). This area should be frequently inspected by HGCMC personnel and perform the necessary maintenance when sedimentation levels exceed the allowable limits. The uphill side abutment drain was cleaned as stated in Inspection Report 388, and mostly clear water was exiting the drain (Photos 27-28).

TDF AREA

Clarification to Inspection Report (IR) HGCMC 388 – stated in IR HGCMC 388, the rock that was being placed on the southern abutments was Class 1 waste rock. The rock that is being utilized along the abutments is from the 0.9 mile B-road stockpile (Photo 29).

Contractors continue with the construction of the new TDF wheel wash station (Photo 30).

HGCMC TDF personnel continue to deposit tailings in the S3P1 area (Photos 31-32).

The recorded flow rate for the water treatment plant was 2,150 gallons per minute (gpm), with 1,970 gpm being discharged through Outfall 002. The monthly average discharge rate for October through Outfall 002 was 1,439 gpm. All water discharged through Outfall 002 is limited and monitored per APDES permit requirements.

FOLLOW UP ITEMS

Conduct a site inspection of the TDF area and facilities.

Improvements made at the 3.2 mile B-road culvert.

Inspect the B-road bridges for sedimentation at the bridge ends.

PHOTOS (Images available upon request)





Photo 1. The 1350 adit.



Photo 2. The 1350 trench and pump.



Photo 3. The 920 Bridge.



Photo 4. The 920 Greens Creek weir.



Photo 5. The 920 warehouse expansion.



Photo 6. Petroleum products stored within secondary containment.



Photo 7. HGCMC personnel recently began stockpiling Class 1 waste rock along the edge of the site.



Photo 8. Additional Class 1 waste rock has been stockpiled near the burn pile at Site 23.



Photo 9. 7.4 mile B-road Bridge (Killer Creek Bridge).



Photo 10. 7.4 mile B-road Bridge splashguard.



Photo 11. The uphill side bridge abutment (Killer Creek Bridge).



Photo 12. The downhill side bridge abutment (Killer Creek Bridge).



Photo 13. The Greens Creek fish pass.



Photo 14. 3.4 mile B-road Bridge (Falls Creek Bridge).



Photo 15. No sediments were observed on the pipes.



Photo 16. Sediment accumulation at the bridge ends for 3.4 mile B-road Bridge (Falls Creek Bridge).



Photo 17. Sediment accumulation at the bridge end.



Photo 18. Some of the sediments have been removed. However, residual sediments still remain underneath the bridge.



Photo 19. Sediments covering rocks below the bridge.



Photo 20. Sediment accumulation has exceeded the allowable amount at the 3.4 mile B-road culverts intake.



Photo 21. 3.2 mile B-road culvert with structural BMP's



Photo 22. Turbid water observed exiting and into vegetation.



Photo 23. 3.0 mile B-road Bridge (Zinc Creek Bridge).



Photo 24. Structural BMP's near Zinc Creek Bridge.



Photo 25. The standpipe outlet drain.



Photo 26. Mostly clear water was exiting beyond the standpipes discharge point and onto the forest duff.



Photo 27. Zinc Creek abutment drain had mostly clear water flowing out.



Photo 28. Mostly clear water from the Zinc Creek abutment drain.



Photo 29. The rock placed at the toe of the tailings pile is from the 0.9 mile B-road rock stockpile.



Photo 30. Contractors continue with the construction of the TDF wheel wash station.



Photo 31. HGCMC continues placing tailings in the S3P1 area.



Photo 32. A bulldozer was in the process of compacting and contouring a tailings pile in the S3P1 area.

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