



INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group
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Date of Inspection: Thursday, April 20, 2017
Date of Report: Monday, May 1, 2017
USDA Forest Service Inspector: Curtis Caton

Ranger District: Admiralty National Monument, Juneau Ranger District
Weather Conditions: Overcast. Temperature: 40-50'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 floatplane provided transport.

David Landes (Environmental Engineer, Hecla Greens Creek Mining Company) accompanied Eddie Gazzetti (Hydrogeologist, US Forest Service), Richard Dudek (Geologist, US Forest Service), and Curtis Caton (Geologist, US Forest Service) on this inspection.

The site inspection included the A and B access roads, 920, 7.4-mile (Killer Creek Bridge), 3.0-mile (Zinc Creek Bridge), Tailings Disposal Facility (TDF), A Road Sandpit, Young Bay, and Pit 7.

ACTION ITEMS

No action items noted.

ACCESS ROADS A /B

Access roads are in adequate condition considering the recent spring freeze/thaw cycle and they comply with the HGCMC, Appendix 8, Road Operation and Maintenance Plan. Once snow and ice-free conditions persist, scheduled BMP maintenance on the access roads will include culverts, ditches, silt fencing, and other sediment control structures. Guardrail replacement and repair will also occur once surface conditions improve.

920





The 920 portal bridge was in adequate condition; minimal mucking of accumulated sediment along the base of the bridge splashguards should occur once spring like conditions persist (Photo 01).

Greens Creek flow appears normal for the season (Photo 02).

Until surface conditions allow safe access, the 1350 access road remains closed (Photo 03).

The 920 lined ditch that captures contact water from the mill area and routes to Pond A for treatment was operational (Photo 04). The 920 ditch was repaired as approved in the surface operations 2014 work plan. The 920 ditch is a gravity controlled lined ditch that leads to a concrete settling basin (degrit basin) then drains to a lined retention pond. The ditch is located along the improved edge of the 920 footprint and runs from the administration building to Pond A. Surface runoff at the mine/mill site from all process areas, including areas where chemicals are stored, drain across concrete surfaces to the lined 920 ditch (Appendix 5, Figure 4; Appendix 6, section 5.2). The 920 ditch serves as secondary containment barrier by reporting all liquid draining from the improved surface to Pond A. The repairs to the 920 ditch decreased sediment loading within the ditch, which has minimized reoccurring surface maintenance.

HGCMC has begun repairs to the ore pad diversion ditch and culvert (See Appendix 5, Figure 4 for reference). The upslope ditch adjacent to the ore pad is designed to divert stormwater before infiltration onto the ore pad can occur. A series of HDPE culverts, pipes, and lined ditches convey the influent stormwater to A Pond for treatment (Photo 05).

HGCMC is preparing to improve the 920 sewer lift station this summer (Photos 06-07). The text in italics below was extracted from the HGCMC 920 Sewer Lift Station Improvements memorandum dated February 27, 2017.

The purpose of this project is to replace the existing 10-foot x 18-foot x 12-foot deep vault used as a lift station for sewer influent with a 48-inch diameter HDPE caisson. Currently, a small portion of the existing vault is used to collect sewer influent for the 920 mill and admin buildings. This project will include the following:

- *Removal of the steel structure inside the vault.*
- *Installation of a 48-inch diameter caisson with two rail pumps.*
- *Filling of vault outside of the caisson with a low-strength concrete and/or gravel fill.*
- *Capping the fill with normal strength concrete.*

An isotainer transferred hydraulic oil to the double walled day tank located adjacent to the shop on the improved concrete pad. As mandated in the SPCC inspection checklist for bulk oil containment, a drip pan is in place under the hose connection at the isotainer (Photo 08).

B-ROAD BRIDGES

HGCMC discussed a number of ideas to reduce sedimentation in storm water runoff from the access roads at the three B-Road bridge locations: 7.4-mile Bridge (Photo 09); 3.0-mile Bridge (Photo 10); the 3.4-mile Bridge (*not inspected*). Planned work for 2017 includes regrading the road at the bridge approaches, replacing the 80-mil liner and wood decking, extension and inbound sloping of the existing splashguards, and the addition of wing walls at each end of the bridges. HGCMC will also apply a 'very hard' aggregate to the road surface near the bridges. HGCMC is currently investigating the feasibility of using a lighter weight, high strength polyester concrete to seal the surface of the 3-mile bridge, and may





apply it to a 20-ft test section at one end of the bridge in 2017. A plan would be submitted to the USFS for approval before proceeding with the test.

HGCMC is working on engineering design and cost analysis for options to replace the 3.4 and 7.4-mile bridges with culvert installations. HGCMC anticipates submitting a plan in 2017 for agency review. Replacing the bridges would likely be a multi-year project implemented in phases to minimize road closures. If approved, work may commence in 2018.

TDF

While not inspected, recent activity is noticeable at the 0.9-mile B-Road stockpile.

Windscreens are in place to mitigate fugitive dusting mandated in the 2013 Greens Creek Mine Tailings Disposal Facility Expansion FEIS/ROD (Photo 11).

Depositions of tailings continue in the S3P1 tailings expansion area (Photo 12).

SECON mobilized to site on April 19 for continued construction at the TDF southern expansion area. Construction has just begun for a diversion weir that will connect Pond 10 to Pond 7. Currently, all TDF drainage is diverted to Pond 7 for containment and then treatment before discharge. After Pond 10 construction is completed and once tailings deposition in the southern expansion reaches the proper elevation to divert TDF drainage, the connecting piping will be installed so that effluent can be routed to both Pond 10 and Pond 7 for storage and eventual treatment (Photo 13).

SAND PIT

No recent activity noted at the A Road Sand Pit. The peat storage area was not filled to capacity in 2016, leaving a basin for storm water to accumulate. HGCMC will continue to monitor the area to see if the ponded water dries out naturally over the next few months. If not, measures will likely be implemented to minimize ponding of water. Options may include re-grading the stockpile or reducing the height of the perimeter berm (Photo 14).

YOUNG BAY

No recent activity to report at Young Bay, the area is well maintained and orderly. Wattles are in position to intercept stormwater runoff from the crew bus loading area.

PIT 7

There is no recent activity to report at Pit 7 (Photo 15).

FOLLOW UP ITEMS

- **Inspect Sites C and D**
- **Inspect 0.9 mile stockpile**



PHOTOS

(Images available upon request)



Photo 01. 920 Portal and Bridge.



Photo 02. Greens Creek.



Photo 03. 1350 access road.



Photo 04. 920 ditch.



Photo 05. Diversion ditch upslope of the Ore Pad.



Photo 06. 920 sewage lift station.



Photo 07. 920 sewage lift station.



Photo 08. Drip pan under isotainer.



Photo 09. 7.4-mile Bridge.



Photo 10. 3.0-mile Zinc Creek Bridge



Photo 11. TDF wind fencing.



Photo 12. Southern expansion TDF (S3P1).



Photo 13. Pond 10 construction.



Photo 14. A-road Sand pit.



Photo 15. Pit 7.

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