



## INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group  
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Date of Inspection: Friday September 2, 2016  
Date of Report: Wednesday September 21, 2016  
USDA Forest Service Inspector: Richard Dudek

Ranger District: Admiralty National Monument  
Weather Conditions: Sunny. Temperature: Mid 60's °F.

Exploration in accordance with operating plan	Not Applicable
Timber removal following timber sale contract	Not Applicable
BMPs for erosion control	Satisfactory
Water Quality BMPs	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 transportation (Cessna 185) to and from the site.

Mitch Brooks (Environmental Engineer, Hecla Greens Creek Mining Company (HGCMC)) accompanied Kate Kanouse (Alaska Department of Fish and Game (ADF&G)), Curtis Caton (Geologist, US Forest Service), and Richard Dudek (Geologist, US Forest Service).

This inspection included A/B access roads, TDF area, 1350 area, 920 area, 5.0 Mile B-road Fish Pass, 7.4 Mile B-road Bridge, Falls Creek Bridge, Zinc Creek Bridge, 0.9 Mile B-road, and the 1.4 Mile A-road Sand Pit, and Pit 7.

### ACTION ITEMS

- 7.4-mile B-road Bridge: Downhill side abutment liner needs improvements.
- 7.4-mile B-road Bridge: Sediment accumulation at both ends of the bridge.
- 3.1 mile B-road sediment screen: The screen is near capacity and needs to be cleaned out.
- Zinc Creek Bridge: The uphill/downstream settling pond needs to be cleaned out.

### NOTE WORTHY ITEMS:

Contractors are currently performing rock cut stabilization at the 920 portal and along sections of the B-road. Image (Photo 1) shows contractors installing anchors for fencing above the 920 portal.

Contractors were brush-cutting vegetation along the rock wall at the 1.9-mile B-road prior to rock scaling (Photo 2). HGCMC has shipped off site thirteen twenty-foot containers for steel recycling.





### **A/B ACCESS ROADS**

Both A and B access roads were in adequate condition and comply with HGCMC's BMP plan for access road maintenance (Appendix 8, Table 8). During the inspection, a water truck was applying water along the B-road for dust control. Traffic was temporarily delayed due to the brush cutting along the rock wall at 1.9 mile B-road.

### **TDF AREA/POND-10**

HGCMC continues depositing tailings within the TDF expansion area (Photo 3). HGCMC has deposited additional Class-1 waste rock and organics on the outer slopes (Photo 4) of the TDF. The blasting of bedrock for Pond-10 construction (Photo 5) is still ongoing to meet the planned capacity. HGCMC is currently testing the blasted rock to determine if the material is suitable for construction. The blasted bedrock is being stockpiled at the staging area of 0.9-mile B-road (Photo 6).

### **1350 AREA**

Stormwater runoff, from a remnant waste rock pile is now being pumped from the caisson (Photos 7-8) to the 1350 adit. The water is then routed to the water treatment plant, and discharged under the APDES permit. HGCMC has hydroseeded the disturbed areas from the construction of the trench and caisson. Due to the 1350 adit being designated as a secondary escape-way, a newly installed emergency personnel shelter is now at this location (Photo 9).

### **920 AREA**

Greens Creek (Photo 10) flow rate for the day was 21.3 cubic feet per second (cfs). The 920 Bridge's splashguards are preventing sediments from entering into Greens Creek (Photo 11). Surface operations are maintaining the sump and rock dam (Photo 12) across from DB-01. The ore pad (Photo 13) was active with haul trucks depositing mined rock material. The warehouse area was tidy and in order with all liquid chemicals and petroleum products properly stored with secondary containment (Photo 14).

### **5.0 MILE B-ROAD (FISH PASS)**

The Greens Creek fish pass was reconstructed as part of the approved Record of Decision for the 2013 Environmental Impact Statement (EIS) for the Tailings Disposal Facility (TDF) Expansion. The construction of the fish pass included installing three concrete steel-capped weirs (Photo 15-16). HGCMC was also issued a fish habitat permit (FH11-1-0123) by the Alaska Department of Fish and Game (ADF&G). This permit authorizes HGCMC to maintain the fish pass in perpetuity. During Bio-monitoring in 2015 and 2016, juvenile Coho were observed at Site 54, which is approximately 3 miles upstream of the fish pass. This is evidence that the previous fish pass structure was not significantly damaged to the point of preventing fish passage. During the site visit, Kate Kanouse of the ADF&G stated that all though not observed at the present time, Pink salmon (*Oncorhynchus gorbuscha*) might be present elsewhere in the stream (Photo 17). Therefore, yearly bio-monitoring should be sufficient to determine fish passage beyond this natural barrier.

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

An old silt fence (Photo 18) underneath the downhill side of the bridge needs to be improved. Currently the silt fence is not effectively working to prevent sediments from flowing into Killer Creek. The liner on the uphill side (Photo 19) of the bridge is collecting sediments from the abutment however, some sediment from was observed on the ground (Photo 20). This requires frequent monitoring, and maintenance to reduce sedimentation. Removal of sediments is required when accumulation exceeds one-half of the structures design depth (2015 BMP plan Appendix 5 page BMP 24-25).





Sediment has accumulated on the bridge's splashguard rails (Photo 21). HGCMC Surface operations should frequently monitor and remove the sediments from the splashguard rails when necessary.

### **FALLS CREEK BRIDGE**

HGCMC Surface operations have placed sand bags (Photo 22), underneath the bridge, to capture sediments from entering Falls Creek. Bridge barriers (downstream side) need to be extended along both ends of the bridge to prevent sedimentation from stormwater runoff. The temporary barrier (Photo 23) on the downhill/downstream side of the bridge has a significant amount of sediment buildup. HGCMC should monitor and maintain the temporary barrier, and remove the sediments to prevent spill over, consistent with the BMPs for silt fencing (2015 BMP plan page BMP 12-13). While this temporary barrier has been shown effective, a longer-term solution for this location is desirable.

Below the confluence of Falls Creek and another side channel of Zinc Creek, Kate Kanouse from the AF&G, placed four fish traps for several hours to monitor smolt and other juvenile fish populations (Photo 24). The total fish species count for all four traps were 21 Coho salmon, 16 Dolly Varden, 9 Cutthroat/Rainbow trout, 1 Sculpin, and 1 adult female Sockeye salmon observed in a side channel for Zinc Creek.

### **ZINC CREEK BRIDGE**

The 3.1-mile B-road sediment bag (Photo 25) is near capacity and requires maintenance. A sediment sump (Photo 26) located on the uphill/downstream side is also near capacity and should be mucked to remove excess sediment. The BMP's installed (Photo 27) at the uphill/downstream side need to be frequently monitored and maintained. The buildup level for a sediment trap should not exceed one-half of the structures design depth as stated in the 2015 BMP plan Appendix 5 page BMP 24-25.

### **0.9 Mile B-ROAD**

During the last inspection (08/12/2016) it was documented that stormwater flow paths had formed toward the stockpile pad. Contractors have installed an up slope non-contact water trench (Photo 28) to capture and divert stormwater runoff from the stockpile. Additional BMP's were constructed at multiple locations with imported rock to capture stormwater runoff (Photo 29).

### **SAND PIT**

Gray/blue clay material has been stockpiled along the perimeter of the pit (Photos 30-31). The organic material at this location is from the excavation of Pond-10 as approved in the July 2015 Change Analysis. Approximately 148,000 cubic yards has been stockpiled at this location.

### **PIT 7**

The hydroseeded slopes show grass is growing well (Photo 32). The site was tidy and in order.

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**Photos** (Additional photos available upon request)

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**Photo 1. Rock bolting above the 920 portal.**



**Photo 2. Contractors are brush cutting along the rock wall at the 1.9 mile B-road.**



**Photo 3. HGCMC continues to deposit tailings at the TDF expansion area.**





**Figure 4. Class-1 waste rock and organic placed over tailing at the outer slopes.**



**Photo 5. Pond-10 construction.**



**Figure 6. Crushed bedrock from the Pond-10 construction stockpiled at the 0.9 mile B-road.**



**Photo 7. 1350 sump and caisson. The caisson and pump are protected by an electric fence.**



**Photo 8. Imported rock covering the pipeline from the caisson to the 1350 adit.**



**Photo 9. 1350 adit temporary shelter.**





**Photo 10. Greens Creek.**



**Photo 11. 920 Bridge.**



**Photo 12. Rock check dam and sump across from DB-01.**



Photo 13. A haul truck depositing mined ore at 920 ore pad.



Photo 14. 920 warehouse storage containers.

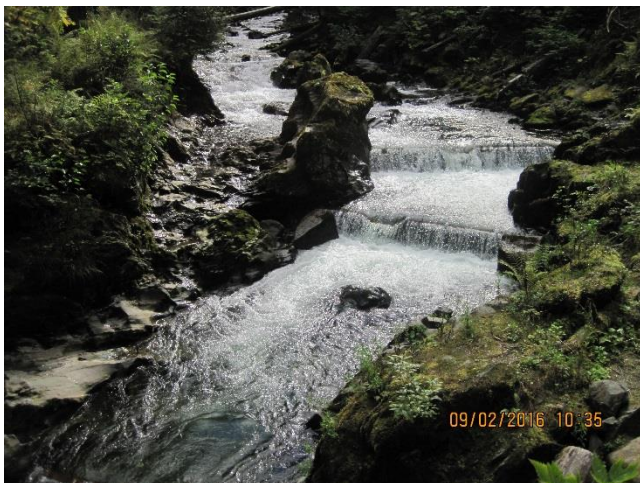
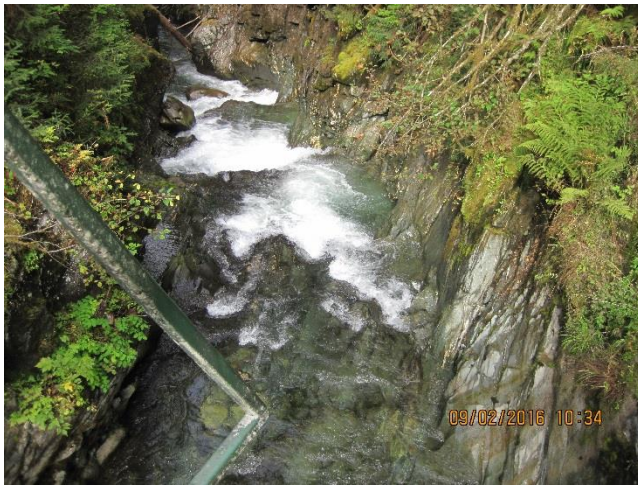


Photo 15. Upstream image of the Greens Creek fish pass.





**Photo 16. Upstream image shows 1 of 3 concrete steel capped weirs.**



**Photo 17. Downstream image of the Greens Creek fish pass.**



**Photo 18. Downhill side of Killer Creek Bridge.**



**Photo 19. Uphill side of Killer Creek Bridge.**



**Photo 20. Sediment on the tree branches and ground below Killer Creek Bridge.**



**Photo 21. Sediment accumulation on the rails of Killer Creek Bridge.**





**Photo 22. Sandbags and straw wattles placed below Falls Creek Bridge.**



**Photo 23. Temporary barrier at the downhill/streamside of Falls Creek Bridge.**



**Photo 24. 1 of 4 fish traps placed along above the Confluence of Falls Creek and an unnamed tributary.**





**Photo 25. 3.1 mile B-road removable sediment screen.**



**Photo 26. Zinc Creek Bridge uphill/downstream side sediment sump needs to be mucked.**



**Photo 27. Zinc Creek Bridge uphill/downstream sumps and rock check dams.**





**Photo 28. An up slope non-contact water diversion trench at the 0.9 mile B-road.**



**Photo 29. A sump for collecting stormwater runoff from the gravel stockpile at the 0.9 mile B-road.**



**Photo 30. 1.4 Mile A-road Sand Pit.**



**Photo 31. 1.4 mile A-road sand pit approximately two-thirds of the pit is full.**



**Photo 32. Pit 7 slope. Grass is growing well along the slope.**

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

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