

INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group
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Date of Inspection: Wednesday, March 16, 2022
Date of Report: 4/5/2022
USDA Forest Service Inspector: Casey Loofbourrow

Ranger District: Admiralty National Monument, Juneau Ranger District
Weather Conditions: Overcast, light rain Temperature: Mid 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	REQUIRES ACTION
Public safety & fire prevention	Satisfactory
Reclamation work adequate and timely	Satisfactory
Road 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.

Any conditions noted as Requires Action will require attention from the operator and suggestions for necessary work are listed below

Transportation to and from the site was with the HGCMC crew boat.

Mitch Brooks (HGCMC Environmental Technician) accompanied Casey Loofbourrow (Geologist, USFS), Rich Dudek (Geologist, USFS), and Pat Dryer (Hydrologist, USFS).

The site inspection included: The A and B access roads, 920 area, A Pond, Site 23 waste rock storage facility, 7.4 mile B-Road bridge (Killer Creek Bridge), 3.4 mile B-Road bridge (Falls Creek Bridge), 3.0 mile B-Road bridge (Zinc Creek Bridge), Site E, and the Tailings Disposal Facility (TDF).

STATUS OF ACTION ITEMS FROM PREVIOUS INSPECTIONS:

Date/Item No.	Item Description	Status
5/12/2021; 414-1	Perform maintenance on the Killer Creek Bridge downhill side abutment sedimentation BMPs	Pending. Sediment BMPs are in disrepair on the bridge abutments to Killer Creek. Requires repair or replacement of BMPs to minimize sediment release to Killer Creek. HGCMC GPO Appendix 5 lists approved BMPs along B-Road Bridges.

		Bridge decking replacement is scheduled for May 2022 during which time BMPs will be replaced
5/12/2021; 414-3	Monitor aluminum precipitate accumulating from abutment drain at Zinc Creek Bridge.	Pending. During reconstruction of the Zinc Creek Bridge, HGCMC excavated and replaced material that is suspected of being the source of the aluminum precipitate. This site was not visible in this inspection due to snow cover and will be monitored in future inspections to determine whether this measure was successful.
11/11/2021; 417-1	Bridge abutment sediment BMPs are not functioning optimally at the Falls Creek Bridge. Sediment BMPs should be repaired or installed to prevent sediment from entering Falls Creek.	Pending. Abutment BMPs continue to be in disrepair. Bridge replacement is planned for May 2022 which will provide an opportunity for construction and/or maintenance of BMPs.
11/11/2021; 417-2	Monitor conditions on the newly resurfaced Zinc Creek Bridge to ensure sediment control BMPs including splash guards are operating effectively.	Resolved. Surface ponding is present at the bridge ends, which allows water to overtop the liner and fall to the ground below. However, the ground surface underlying the ends of the bridge includes BMPs that should capture sediment transported from the roadbed.
01/20/2022; 418-1	Dust fencing along the southern perimeter of the TDF is damaged and requires repair	Pending. Fencing remains in disrepair.

NEW ACTION ITEMS

NEW ACTION ITEM 419-1: Sediment deflection boards at the uphill bridge end of Falls Creek Bridge are damaged and require replacement (Photo 14, requirements at GPO, Appendix 5 BMP Plan, page 10).

Access Roads

The A and B access roads appeared in good condition. Snow is present along the majority of both roads, and the road surfaces were free of excessive ponding or drainage issues.

Two sections of pipe along the B-Road that were damaged during recent snow removal operations were documented. This included the 10" HDPE pipeline at approximately 5.1-mile B-Road (Photo 1), which

resulted in the accidental discharge of an estimated 12,600 gallons of treated process water and was reported to the Alaska Department of Environmental Conservation on March 8, 2022.

Also damaged was the 8" HDPE pipeline at approximately 5.7-mile B-Road (Photo 2), which resulted in the accidental discharge of an estimated 9,000 gallons of mine drainage and storm water and was reported to the Alaska Department of Environmental Conservation on March 10, 2022.

920 AREA

The discharge data for Greens Creek (Photos 3-4) at the time of visit was unavailable due to equipment malfunction. The 920-area water withdrawal rate from Greens Creek was approximately 1.35 cfs.

The Greens Creek Bridge splash guards are working as designed to prevent sediment splash over from vehicular traffic (Photo 5).

Good housekeeping practices were observed at the 920 warehouse (GPO, Appendix 5 BMP Plan, page 39). All petroleum/chemicals observed were properly stored within secondary containment (Photo 6).

A slump/hillslope failure below the access road north of the warehouse area was observed (Photo 7). This slump is west of a similar feature documented on May 12, 2021, in inspection report 414. The newly observed slump is substantially larger than the one previously observed (Photo 8).

Pond A appeared in good condition with substantial available capacity (Photo 9).

SITE 23

Class 1 and 2/3 waste rock continues to be placed at this location. Pond 23 was in good condition with substantial available capacity (Photo 10).

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

REQUIRES ACTION - PENDING ACTION ITEM 414-1: The downhill side abutment BMPs are not optimally functioning as intended and should be maintained or replaced (Photo 11, requirements at GPO, Appendix 5 BMP Plan, page 10). Bridge replacement is scheduled for May 2022, during which time BMPs will be replaced. Prior to replacement, BMPs should be repaired to the extent necessary to prevent impacting surface waters.

SITE E

Site E is currently being used as a storage and distribution point for sand and gravel used for road maintenance and traction on snow covered roads. The old bridge decking from the Zinc Creek Bridge is currently being stored at this location (Photo 12).

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

REQUIRES ACTION - PENDING ACTION ITEM 417-1: Bridge abutment sediment BMPs are not optimally functioning. A high sediment load is present on the banks of Falls Creek under the bridge, indicating sediment has directly entered the water as well as being a potential source of sediment entering the stream if it were to experience a significant water level rise (Photo 13). Sediment BMPs should be repaired or installed to prevent causing increased turbidity in Falls Creek (Requirements at GPO, Appendix 5 BMP Plan, page 10). Replacement of this bridge is planned for May 2022, providing an opportunity to complete this work. Prior to replacement, BMPs should be repaired to the extent necessary to prevent impacting surface waters.

NEW ACTION ITEM 419-1: Sediment deflection boards at the uphill bridge end are damaged and require replacement (Photo 14, requirements at GPO, Appendix 5 BMP Plan, page 10).

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

HGCMC performed major maintenance and construction activities on this bridge including replacing the decking. This work was completed November 4, 2021.

RESOLVED ACTION ITEM 417-2: Ponding was observed on the road surface at both ends of the bridge (Photo 15). This source of water, and the limited vertical extent of the HDPE liner installed below the new bridge decking, allows turbid water to overtop the liner when disturbed by vehicle traffic and fall to the ground below, as was observed in this inspection during the passage of a Max Haul truck (Photo 16). The ground below the ends of the bridge where this occurs contain sediment and stormwater BMPs (Photo 17) that should effectively mitigate sediment or turbid water entering Zinc Creek.

PENDING ACTION ITEM 414-3: The location of aluminum precipitate accumulation from a bridge abutment drain was not observed during this inspection due to snow cover. During reconstruction of the Zinc Creek Bridge, HGCMC excavated and replaced material that is suspected of being the source of the aluminum precipitate. This site will be monitored in future inspections to determine whether this measure was successful.

TAILINGS DISPOSAL FACILITY (TDF) AREA

The current active tailings deposition location is the northern S3P1 expansion area, adjacent to 1.0 mile B-Road.

At the time of the inspection, Pond 7 (Photo 18) was collecting contact and process water, and Pond 10 (Photo 19) was not receiving water. The water treatment plant was discharging 1003 gpm to Outfall 002.

PENDING ACTION ITEM 418-1: REQUIRES ATTENTION - The fugitive dust fencing along the southern S3P1 area was damaged by wind and requires maintenance (Photo 20).

PHOTOS (Image files available upon request)



Photo 1. Repaired section of 10" HDPE pipe at approximately 5.1-mile B-Road.



Photo 2. Damaged section of 8" HDPE pipe at approximately 5.7-mile B-Road.



Photo 3. Greens Creek looking upstream from the weir at the 920 Area.

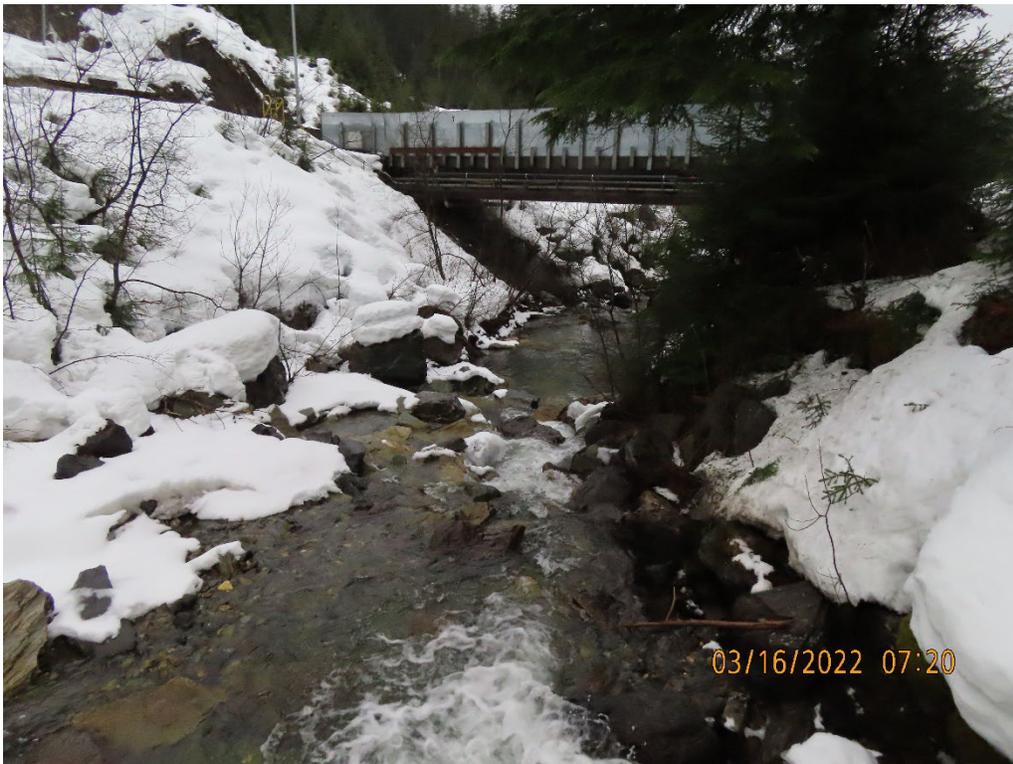


Photo 4. Greens Creek looking downstream from the weir at the 920 Area.



Photo 5. Greens Creek Mine portal and 920 bridge, showing functioning splash guards.



Photo 6. Chemicals in appropriate secondary containment at the 920 area warehouse.



Photo 7. New slump observed below access road north of the warehouse area.



Photo 8. Slump below access road north of the warehouse area that was first observed on March 12, 2021.



Photo 9. Pond A.



Photo 10. Pond 23 receiving contact water from Site 23.



Photo 11. Killer Creek Bridge downhill side abutment showing BMPs in disrepair.



Photo 12. Demolished Zinc Creek Bridge decking staged at Site E.



Photo 13. Below Falls Creek Bridge, showing excessive sediment accumulation without BMPs to prevent impacting surface waters with sedimentation and/or turbidity.



Photo 14. Damaged sediment deflection boards at Falls Creek Bridge.



Photo 15. Surface of Zinc Creek Bridge showing ponding at bridge end.



Photo 16. Closeup of turbid water overtopping bridge liner at Zinc Creek Bridge. Photo was taken immediately following the passage of a Max Haul truck, which produced the water in this photo, circled in red.



Photo 17. Stormwater BMPs below Zinc Creek Bridge that are below the overtopping water in photo 16, also visible on the right of this photo.



Photo 18. Pond 7.



Photo 19. Pond 10.



Photo 20. Damaged fugitive dust fencing south of the TDF.

Thanks to HGCMC for a safe visit.

/s/ Casey Loofbourrow