



BEST MANAGEMENT PRACTICES PLAN  
2022 ANNUAL REPORT



Hecla Greens Creek Mining Company

1 March 2023

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## 1. INTRODUCTION

This 2022 Best Management Practices (BMP) Plan Annual Report is submitted by Hecla Greens Creek Mining Company (HGCMC) pursuant to Part 2.2.6 of Alaska Pollutant Discharge Elimination System (APDES) Permit AK-0043206, effective 1 October 2015. This report summarizes the scope and dates of the comprehensive site compliance inspections/evaluations, major observations related to the implementation of the BMP plan, corrective actions taken as a result of the inspections/evaluations, identification of potential incidents of noncompliance as they pertain to the BMP plan, and BMP plan modifications made during the year.

This report does not include a discussion of storm water discharges. Detailed information on storm events and water quality monitoring performed at permitted storm water outfalls is provided in the Storm Water Monitoring Program 2022 Annual Report, submitted to the Alaska Department of Environmental Conservation (ADEC) separately. A copy of the report is available upon request.

## 2. COMPREHENSIVE SITE COMPLIANCE INSPECTIONS/EVALUATIONS, INCIDENTS OF POTENTIAL NONCOMPLIANCE AND ASSOCIATED CORRECTIVE ACTIONS

### 2.1. Monthly Site Compliance Inspections

Monthly storm water and BMP inspections were completed by HGCMC Environmental Department personnel and can be considered site compliance inspections. The inspectors have completed the Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) storm water training program. The results of the inspections generally involved the need for maintenance activities to existing BMPs. Records of these inspections are retained on site and are available upon request. Items noted as deficiencies during the 2022 inspections, as well as the corrective actions, included:

- During the July inspection, it was noted that the storm drain by the cannery bus parking area needed cleaning. Surface Operations personnel cleaned the drain using the vac truck prior to the next inspection.
- During the July inspection, it was noted that sumps along the B-Road needed cleaning. Surface Operations personnel cleaned sumps along the road using the vac truck within one week following the inspection.

### 2.2. Agency Site Compliance Inspections

Personnel with the USDA Forest Service (USFS) perform routine inspections, typically monthly. Occasionally they will be accompanied by personnel from other regulatory agencies, including the Alaska Department of Natural Resources (ADNR) and Alaska Department of Fish and Game (ADFG). The purpose of the inspections is to evaluate compliance with HGCMC operating plans and permits. The scope of the inspections includes the 1350 area, 920 area, 860 area, Site 23/D, Site E, the Tailings Disposal Facility (TDF), inactive pits/quarries, and the entire A & B Road system. Inspection reports with photographs are prepared by the agencies to document conditions and observations and includes a list of action items to correct any noted deficiencies.

The table below lists the inspections performed in 2022 and includes the date of the inspection, and action items.

### 2022 Agency Compliance Inspections

Date	Agency	Action Items
20-Jan	USFS	Wind screen on TDF south embankment road is damaged and requires repair.
16-Mar	USFS	Sediment deflection boards at uphill end of 3.4-Mile bridge are damaged and require replacement.
14-Apr	USFS/ADNR/ADFG	Sediment deflection boards at 7.4-Mile bridge are in disrepair and sediment requires removal. Sediment accumulated at uphill side Zinc Creek Bridge requires removal.
12-May	USFS	Stormwater sump adjacent to B-Road above 7.4-Mile bridge has accumulated sediment that requires removal.
29-Jun	USFS/ADFG	No new action items.
28-Jul	USFS	Increased turbidity of surface water runoff observed at Zinc Creek Bridge uphill side stormwater BMPs.
31-Aug	USFS	Absorbent pads at 1350 area require disposal. Stormwater BMPs on downhill side Falls Creek Bridge abutment require improvement to contain sediment. Sumps along B-Road near 3.1-Mile are filled with sediment.
28-Sep	USFS	No new action items.
26-Oct	USFS	3.4-mile bridge abutment BMPs on uphill side require improvement to reduce turbidity of runoff.
7-Dec	USFS/ADNR	No new action items.

In addition to the routine agency inspections, personnel from the ADEC performed a comprehensive site compliance evaluation inspection on June 16. This inspection focused on compliance with the APDES Permit and included a review of administrative records and plans, inspection of water treatment facilities, inspection of stormwater outfalls and general BMPs throughout the site.

Progress in 2022 included ditch repair and slope stabilization on sections of the B-Road, bridge rehabilitation and replacement, work on corrective and preventive actions from inspections, and on improvements to BMPs. The list below summarizes the 2022 work and improvements. A log of the BMP maintenance work is attached to this report. Photographs showing some of this work are included at the end of this report.

- *B-Road Ditch Maintenance and Stabilization*

Ditch repair, maintenance and stabilization activities began in April as soon as snowmelt and ground thaw allowed and continued throughout the summer and fall. After sections of the ditch were maintained, they were hydroseeded to establish vegetation for stabilization. Rock check dams were installed in steeper sections of the ditch below 3.4-mile to slow runoff velocity and reduce scouring of the ditch. Photo 1 shows a vegetated section of ditch with rock check dams below the 3.4.

- Sediment Sump and Culvert Maintenance

Sediment sumps and culverts along the B-Road were cleaned multiple times throughout 2022. This is primarily done using the vac truck. The culvert located at 5.1-Mile on the B-Road that was deteriorated and partially plugged was replaced with a new culvert to improve drainage in the roadside ditch.

- 3.4-Mile Falls Creek Bridge

In May, accumulated sediment was removed from the abutments beneath the bridge and new straw wattles were installed for managing runoff. In August the bridge was completely replaced. New bridge abutments were installed to raise the bridge ends and prevent upslope road runoff from flowing onto the bridge surface. The new bridge consists of panel sections that contain a sealed layer of composite material to prevent water or sediment from falling through. A layer of 80-mil HDPE liner was placed on top of the panels to cover the joints and extends up the side rails to seal the gap between the bridge surface and side rails. The design of the new bridge addresses Permit Section 2.2.4.6.3 to “[E]nsure that material tracked from haul equipment onto bridges does not enter waters of the United States”.

- 3.2-Mile B-Road Slope Stabilization

During the December 2020 storm event, extreme runoff caused a failure of the roadside ditch and erosion of the slope at approximately 3.2-Mile on the B-Road. A temporary repair of the ditch was performed in 2021. In September 2022 a project was completed to armor the eroded slope with large rock and reconstruct a stabilized ditch. Photo 2 shows the ditch at project completion.

- 5.6-Mile Slope Stabilization

In May, a section of the road by 5.6-Mile was reconstructed to install a Mechanically Stabilized Earth (MSE) wall to mitigate slope stability concerns in this area. This included raising the road surface, importing new road base material, installing multiple new culverts, and reestablishing the roadside ditch. Photo 3 shows new road rock being placed near completion of the project.

In September, a landslide occurred below the road in this area during a major storm event. In order to prevent failure of the road, a large buttress was constructed to stabilize the slide area. HGCMC utilized fallen trees from the slide, silt fence and straw wattles as construction BMPs to minimize erosion and contain sediment during the project. Photo 4 shows excavators preparing the foundation for the buttress and photo 5 shows the completed buttress.

- 7.4-Mile Killer Creek Bridge Rehabilitation

In May, a major project was completed to rehabilitate the 7.4-Mile Killer Creek bridge. As was done with the Zinc Creek Bridge in 2021, all materials were stripped off the bridge, down to the steel girders, and replaced. The new bridge consists of panel sections that contain a sealed layer of composite material to prevent water or sediment from falling through. A layer of 80-mil HDPE liner was placed on top of the panels to cover the joints and extends up the side rails to seal the gap between the bridge surface and side rails. The cover photo of this report shows the liner being installed on the new bridge surface. The design of the new bridge addresses Permit Section 2.2.4.6.3 to “[E]nsure that material tracked from haul equipment onto bridges does not enter waters of the United States”.

- Fugitive Dust Mitigation

HGCMC continued implementing measures throughout 2022 to reduce fugitive dust from the TDF. Excavated sediments from the B-Road ditch maintenance and materials removed from the inactive waste rock area Site E were hauled to the TDF and used to cap areas that were not going to be used for active tailings placement for an extended period. Logs from trees that were cut during the previous TDF expansion were placed around the facility to provide wind breaks. Wind screen continues to be maintained along the south embankment road. A water truck was also used as needed on accessible areas to control dust. Photo 6 shows an area of the TDF being capped with waste rock and a recently installed lined ditch for managing runoff.

- Pond 7 Sediment Removal

During June and July approximately 500 cubic yards of sediment was removed from Pond 7 using a dredge to fill sediment filter bags staged inside the perimeter of the TDF. After a short dewatering period, the sediment was loaded into trucks and hauled to a stockpile on top of the TDF where the material will be incorporated into the active tailings placement area. Dredging is expected to be an annual practice for managing sediment levels in Pond 7 to maintain adequate surge capacity for stormwater runoff.

### **2.3. HGCMC Monthly Evaluations and Site Inspections**

HGCMC environmental staff members conduct weekly, monthly and quarterly visual inspections of a variety of areas within the mine site to identify any issues with housekeeping, material storage areas, or potential breaches that may lead to pollutants entering the permitted outfalls, storm water drainage system, or surface waters. Any corrective actions needed to address findings from the inspections are conducted with coordination between the environmental department staff, the maintenance department staff, or the surface operations department staff. There were no significant action items resulting from the inspections performed in 2022.

## **3. BMP PLAN MODIFICATIONS IN 2022**

The HGCMC BMP Plan addresses all components and facilities associated with the Greens Creek Mine. The BMP Plan is a “living” document subject to frequent edits and revisions resulting from routine inspections and BMP modifications. The official copy is retained on-site.

There were no modifications to the BMP Plan in 2022 as a result of inspections.

## Photographs



PHOTO 1. Ditch maintenance below 3.4-mile bridge.



PHOTO 2. Stabilized slope and reconstructed ditch at 3.2-Mile.



PHOTO 3. 5.6-Mile MSE wall construction project.



PHOTO 4. Preparing foundation for buttress below 5.6-Mile after landslide.



PHOTO 5. Stabilized slope at 5.6-Mile.



PHOTO 6. Capping tailings with waste rock to control erosion and fugitive dust.

## 2022 BMP Maintenance Log

Date	Location	Description of Activity
2/26/2022	CLEAN 1.3 WHEEL WASH	SEDIMENT CONTROLS
2/27/2022	CLEAN SUMPS AT 920	SEDIMENT CONTROLS
2/28/2022	VAC- SUMP- CONS LOAD OUT	SEDIMENT CONTROLS
2/28/2022	A AND B ROAD	SEDIMENT CONTROLS
3/1/2022	SWEEP BRIDGES	SEDIMENT CONTROLS
3/9/2022	VAC TRUCK DB04	SEDIMENT CONTROLS
3/10/2022	DB04	SEDIMENT CONTROLS
3/14/2022	DB04	SEDIMENT CONTROLS
3/27/2022	CLEAN UP MUD AND FEED SNOW MELTER	SEDIMENT CONTROLS
3/28/2022	WORK ON ORE PAD	SEDIMENT CONTROLS
3/28/2022	CLEAN BRIDGES, 3 MILE AND 3.4	SEDIMENT CONTROLS
3/29/2022	CLEANING 1.3 WHEEL WASH	SEDIMENT CONTROLS
4/5/2022	CLEANING 1.3 WHEEL WASH	TAILS DUST CONTROL
4/7/2022	PORTAL SUMPS	SEDIMENT CONTROLS
4/7/2022	DB02	SEDIMENT CONTROLS
4/7/2022	920 CLEAN UP	SEDIMENT CONTROLS
4/8/2022	VAC SUMPS	SEDIMENT CONTROLS
4/8/2022	DB02	SEDIMENT CONTROLS
4/8/2022	CONS LOADOUT SUMP	SEDIMENT CONTROLS
4/9/2022	CLEAN SUMPS	SEDIMENT CONTROLS
4/9/2022	WORKING ON DB03	SEDIMENT CONTROLS
4/10/2022	CLEAN SUMPS	SEDIMENT CONTROLS
4/10/2022	CLEANED 3 MILE BRIDGE	SEDIMENT CONTROLS
4/11/2022	VAC B ROAD SUMPS	SEDIMENT CONTROLS
4/11/2022	3.4 BRIDGE CLEANING	SEDIMENT CONTROLS
4/15/2022	VAC 8.0 DITCH	SEDIMENT CONTROLS
4/25/2022	WHEEL WASH CLEAN OUT	SEDIMENT CONTROLS
4/25/2022	CLEAN DB01	SEDIMENT CONTROLS
4/28/2022	920 SUMPS	SEDIMENT CONTROLS
4/28/2022	DITCHING	SEDIMENT CONTROLS
4/28/2022	VAC TRUCK 8 MILE LINED DITCH	SEDIMENT CONTROLS
4/29/2022	VAC TRUCK 8 MILE LINED DITCH	SEDIMENT CONTROLS
5/3/2022	VACING AT 8 MILE	SEDIMENT CONTROLS
5/4/2022	VACING AT 920	SEDIMENT CONTROLS
5/5/2022	CLEAN SUMPS 920	SEDIMENT CONTROLS
5/7/2022	DB04	SEDIMENT CONTROLS
5/8/2022	CLEAN BRIDGES	SEDIMENT CONTROLS
5/8/2022	CLEAN 920	SEDIMENT CONTROLS
5/8/2022	VACING DITCHS BY POND 7	SEDIMENT CONTROLS
5/9/2022	CLEAN OUT SUMP POND 7	SEDIMENT CONTROLS
5/10/2022	VAC WORK	SEDIMENT CONTROLS
5/10/2022	920 CLEAN UP	SEDIMENT CONTROLS
5/11/2022	CLEAN CULVERTS	SEDIMENT CONTROLS
5/13/2022	VAC WORK	SEDIMENT CONTROLS
5/16/2022	VAC WORK	SEDIMENT CONTROLS
5/17/2022		SEDIMENT CONTROLS

## 2022 BMP Maintenance Log

Date	Location	Description of Activity
5/21/2022	3.4 BRIDGE WORK	SEDIMENT CONTROLS
5/23/2022	HYDROSEED 3 MI TO 2 MI	SEDIMENT CONTROLS
5/31/2022	WORKING UNDER 3 MILE BRIDGE	SEDIMENT CONTROLS
6/3/2022	CLEANUP UNDER THE 3 MILE BRIDGE AND HYDROSEEDING	HYDROSEED
6/4/2022		HYDROSEED
6/5/2022	UNDER 7.4 BRIDGE	SEDIMENT CONTROLS
6/6/2022	WORKED ON 7.4 BRIDGE	SEDIMENT CONTROLS
6/6/2022	PORTAL SUMPS	SEDIMENT CONTROLS
6/6/2022	DITCHING	SEDIMENT CONTROLS
6/7/2022	DITCHED FROM 3.0-4.1	SEDIMENT CONTROLS
6/11/2022	HYDROSEED 3 MILE BRIDGE	HYDROSEED
6/11/2022	VAC 1.3 WHEEL WASH	SEDIMENT CONTROLS
6/14/2022	BRIDGE SWEEPING	SEDIMENT CONTROLS
6/15/2022	PUT STRAW WATTLE AT 3.4 AND 7.4 BRIDGE	SEDIMENT CONTROLS
6/15/2022	ROADSIDE SUMPS	SEDIMENT CONTROLS
6/19/2022	BROOM TAILS	TAILS DUST CONTROL
7/4/2022	SEDIMENT CONTROLS	SEDIMENT CONTROLS
7/13/2022	BROOM BRIDGES	SEDIMENT CONTROLS
7/15/2022	CLEAN 920	SEDIMENT CONTROLS
7/16/2022	CLEAN SUMPS AND WATER ROADS	SEDIMENT CONTROLS
7/17/2022	VAC OUT SUMPS	SEDIMENT CONTROLS
7/20/2022	VAC WORK	SEDIMENT CONTROLS
7/21/2022	HYDROSEEDING	HYDROSEED
7/22/2022	HYDROSEEDING	HYDROSEED
7/22/2022	CLEAN 920	SEDIMENT CONTROLS
7/23/2022	VAC SUMPS	SEDIMENT CONTROLS
7/24/2022	CLEAN SUMPS	SEDIMENT CONTROLS
8/2/2022	3 LOADS FROM 920 - 1 LOAD ROADSIDE SUMPS	SEDIMENT CONTROLS
8/3/2022	VAC OUT SUMPS B ROAD AND 920	SEDIMENT CONTROLS
8/9/2022	SWEEP 920	SEDIMENT CONTROLS
8/10/2022	CLEAN DB01	SEDIMENT CONTROLS
8/12/2022	BATCH PLANT SUMP	SEDIMENT CONTROLS
8/16/2022	VAC TAILS SUMPS, THE BEACH	SEDIMENT CONTROLS
8/28/2022	DITCHING 5 MILE	SEDIMENT CONTROLS
8/29/2022	VAC 5.1 AND 7.6 AREA	SEDIMENT CONTROLS
8/29/2022	DITCHING 4.1 - 5.4	SEDIMENT CONTROLS
9/5/2022	1.3 WHEEL WASH DEGRIT BASIN	SEDIMENT CONTROLS
9/7/2022	CLEAN ROAD SIDE SUMPS	SEDIMENT CONTROLS
9/14/2022	CLEAN THE 920	SEDIMENT CONTROLS
9/28/2022	3 MILE BRIDGE SEDIMENT REMOVAL	SEDIMENT CONTROLS
10/5/2022	3.7 SUMP	SEDIMENT CONTROLS
10/8/2022	CLEAN 920	SEDIMENT CONTROLS
10/15/2022	VAC TRUCK CLEAN DEGRIT BASINS	SEDIMENT CONTROLS
10/16/2022	PICK UP MUD AROUND 920	SEDIMENT CONTROLS
11/1/2022	CLEAN 3 MILE BRIDGE	SEDIMENT CONTROLS