

BEST MANAGEMENT PRACTICES PLAN 2019 ANNUAL REPORT



Hecla Greens Creek Mining Company

March 1, 2020

Table of Contents

Attachments	i
1.0 Introduction.....	1
2.0 Comprehensive Site Compliance Inspections/Evaluations, Incidents of Potential Noncompliance and Associated Corrective Actions.....	1
2.1 AK-CESCL Site Compliance Inspections	1
2.2 Agency Site Compliance Evaluation Inspections	2
2.3 HGCMC Monthly Evaluations and Site Inspections	4
3.0 BMP Plan Modifications in 2019	4

Attachments

Photographs
BMP Maintenance Log

1.0 Introduction

This 2019 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 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 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 2019 Annual Report, submitted to the Alaska Department of Environmental Conservation (ADEC) separately. A copy of the report is available upon request.

2.0 Comprehensive Site Compliance Inspections/Evaluations, Incidents of Potential Noncompliance and Associated Corrective Actions

2.1 AK-CESCL Site Compliance Inspections

In March 2017, fourteen HGCMC personnel completed the Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) storm water training program. The training program outlines the key elements of a storm water pollution prevention plan; provides detailed instructions on how to select, install and maintain storm water best management controls; and teaches how to conduct site inspections and monitoring. The class was developed with input from the USACE Alaska district, ADOT, ADEC, ADNRR, ARRC, MOA and Alaska construction industry representatives. The AK-CESCL certification is for a period of three years from the date of the training.

Monthly storm water and BMP inspections were completed by certified inspectors and can be considered site compliance inspections. The results of the inspections conducted in 2019 generally involved the need for maintenance activities to existing BMPs. Records of these inspections are retained onsite and are available upon request. Items noted as deficiencies during the 2019 inspections, as well as the corrective actions taken, included:

- Multiple inspections noted that the sediment filter sock installed in the storm drain inlet box above Outfall 003 was getting full and recommended cleaning. On November 16, Surface Operations personnel removed the sediment filter sock, cleaned the storm drain box using the vacuum truck, and installed a new sediment filter sock under the storm grate.

- During the March inspection it was noted that ditches and settling sumps along the B-Road needed maintenance. Surface Operations personnel performed extensive ditch and BMP maintenance, including hydro-seeding, along the road system from March through June.
- Multiple inspections noted select culvert inlets that were partially obstructed. At the time of the inspection Environmental personnel used hand shovels to clear obstructions to the extent practicable. Culvert maintenance was then scheduled with Surface Operations using proper equipment.

2.2 Agency Site Compliance Evaluation Inspections

Personnel with the USDA Forest Service (USFS) perform routine inspections, typically monthly. Frequently they will be accompanied by personnel from other regulatory agencies. 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, 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 agency site inspections performed in 2019 and includes the date of the inspection, participating agencies, and action items.

2019 Agency Compliance Inspections

Date	Agency	Action Items
30-Jan	USFS / ADNR	No action items
26-Feb	USFS / BLM	No action items
28-Mar	USFS/ADNR/ADEC	No action items
1-May	USFS/ADNR/ADEC	<ul style="list-style-type: none"> • Multiple sediment sumps need cleaning • Sediment control structures at B-Road bridges need attention
26-June	USFS	<ul style="list-style-type: none"> • Concrete jersey barrier on 1350 access road shoulder is leaning and potential to fall down slope
30-July	USFS	No action items
11-Sep	USFS / ADNR	Sediment controls at 7.4-mile bridge need cleaning
24-Oct	USFS	Slope stabilization required at 7.4-mile bridge downhill abutment
11-Dec	USFS	No action items

Progress in 2019 included work on corrective and preventive actions from inspections, on continuous improvement projects on the various storm water outfall sites, as well as on improvements to BMPs. The list below summarizes the 2019 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 maintenance and stabilization activities began in mid-March as soon as snow melt and ground thaw allowed. Between March and June approximately 4,800 cubic yards of ditch sediments were excavated to re-establish the proper ditch geometry. Rock lining and/or rock check dams were added to the steeper gradient sections to reduce flow velocity and erosion. The entire ditch was hydroseeded in May, and redone in June as needed, to establish vegetation for stabilization. Photos 1-3 illustrate the ditch maintenance activities performed in 2019.

- *3.1-Mile Sediment Ponds*

The sediment ponds near 3.1-mile B-Road were cleaned and hydroseed was applied to the berms and adjacent areas. The surge capacity of the ponds was increased by drilling small holes in the vertical riser discharge pipe to allow the pond to slowly drain following precipitation events (Photo 4).

- *7.8-Mile B-Road Culvert (Outfall 005.5)*

Accumulated sediment was removed from the inlet sump at the 7.8-Mile culvert on May 10. The sump and roadside ditch were hydroseeded to establish vegetation. Enlargement of the sump and removal of fine-grained sediment restored the infiltrative capacity of the sump such that there was no observed discharge through the stormwater outfall in 2019. The culvert was observed during multiple large rain events from August through October. Photo 5 shows the condition of the sump on June 12.

- *Lower Pond C Modifications*

In 2019 the outer berm of Lower Pond C was modified to eliminate a zone of high permeability that was identified in 2018. Following excavation, a layer of HDPE liner was placed along the inside edge of the outer berm and then backfilled with clay and appropriate bedding material. The modifications to Lower Pond C improved the storm water management capabilities for the 860 area. Photo 6 shows the pond following completion of earthwork activities. The cover photo for this report shows the pond with vegetation established.

- *Road Re-surfacing*

In 2019, HGCMC imported ten barge loads gravel, consisting of three different material specifications, for use in road maintenance. Imported materials first pass a geochemical and geotechnical screening process to demonstrate suitability for use on the road system. Photo 7 shows one of the gravel barges arriving at the HGCMC dock.

- *B-Road Bridge Maintenance*

Maintenance activities at the bridges consisted of the following:

- 80-mil HDPE liner and both layers of wood decking were replaced on the 7.4-mile and 3.4-mile bridges (Photo 8).
- Partial replacement of wood decking on the 3.0-mile bridge.
- Installed steel retaining wall for slope stabilization at 7.4-mile bridge (Photo 9).
- Hydroseed abutments beneath 3.0-mile and 7.4-mile bridges.

- *Fugitive Dust Mitigation*

Measures were implemented in 2019 to reduce fugitive dust from the B-Road system and the

Tailings Disposal Facility (TDF).

- On June 11, the speed limit on the B-Road was reduced from 30 mph to 25 mph for all vehicles. The lower speed reduces the amount of airborne dust created from traffic and is also expected to reduce the rate of degradation of road surface material and generation of fine sediment.
- Excavated sediments from the B-Road ditch maintenance were hauled to the TDF and used to cap areas that were not going to be used for active tailings placement in 2019. These areas were then hydroseeded to establish vegetation and stabilize the surficial materials. Photo 10 shows a portion of the TDF with newly established vegetation.

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. The results of the inspections conducted in 2019 generally involve maintenance activities to existing BMPs. 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.

3.0 BMP Plan Modifications in 2019

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 2019 as a result of inspections.

Photographs



PHOTO 1. Ditch stabilization measures above 3.0-mile bridge.



PHOTO 2. Rock check dams and vegetation for ditch stabilization.



PHOTO 3. Vegetation in roadside ditch for erosion control.



PHOTO 4. Improved settling ponds above 3.0-mile bridge.



PHOTO 5. Inlet sump at 7.8-mile B Road culvert after cleaning and seeding.



PHOTO 6. Modified Lower Pond C near project completion.



PHOTO 7. Barge load of rock for road re-surfacing.



PHOTO 8. HDPE liner installed beneath new wood decking on 7.4-mile bridge.



PHOTO 9. Bank stabilization at 7.4-mile bridge abutment.



PHOTO 10. Capping and vegetation to control fugitive dust from tailings facility.

2019 BMP Maintenance Log

Date	Location	Description of Activity
1/6/19	SUMP ACROSS FROM CONS	Clean sediment
1/25/19	BATCH PLANT SUMP	Clean and haul to DB-01
1/25/19	TAILS TRUCK WASH	Clean and haul to tails
3/18/19	2 mile B Road	Ditching, ~10 yds
3/20/19	DB-09	Clean and haul to ore pad
3/21/19	DB-01	Clean and haul to ore pad
3/22/19	1.9-2.0 mile B Road	Ditching, ~20 yds
3/22/19	DB-04	Clean and haul to tails
3/23/19	2.0-2.2 mile B Road	Ditching, ~80 yds
3/23/19	6.1 TO 6.5	Road resurfacing
3/23/19	6.2 6.8	Road resurfacing
3/25/19	1.8-1.9 mile B Road	Ditching, ~75 yds
3/26/19	3.3 mile B Road	Sumps, ~12 yds
3/26/19	8.0 mile lined ditch	~24 yds
3/27/19	7.5-7.8 mile B Road	Ditching, ~50 yds
3/27/19	6.2-7.2 mile B Road	Ditching, ~20 yds
3/28/19	2 TO 3	Road resurfacing
3/28/19	2 TO 3	Road resurfacing
3/28/19	3 TO 4	Road resurfacing
3/28/19	4 TO 5	Road resurfacing
3/28/19	5 TO 6	Road resurfacing
3/29/19	7.0-7.8 mile B Road	Ditching, ~90 yds
3/29/19	6.1 TO 6.6	Road resurfacing
3/30/19	5.7 TO 6.1	Road resurfacing
3/30/19	5 TO 5.3	Road resurfacing
3/31/19	6.4-6.8 mile B Road	Ditching, ~50 yds
3/31/19	6.5 TO 7	Road resurfacing
4/1/19	2 mile B Road area	Ditching, ~171 yds
4/2/19	5.3-6.0 mile B Road	Ditching, ~180 yds
4/3/19	5.0-5.4 mile B Road	Ditching, ~20 yds
4/4/19	4.9-5.0 mile B Road	Ditching, ~160 yds
4/4/19	5.3-4.1 mile B Road	Ditching, ~60 yds
4/4/19	DB-08	Clean and haul to tails
4/4/19	4.7 TO 4.9	Road resurfacing
4/5/19	4.6-4.7 mile B Road	Ditching, ~180 yds
4/5/19	4.1-5.3 mile B Road	Ditching, ~200 yds
4/5/19	4.8 TO 4.9	Road resurfacing
4/5/19	4.8 TO 4.9	Road resurfacing
4/6/19	4.2-4.5 mile B Road	Ditching, ~180 yds
4/6/19	4.1-5.3 mile B Road	Ditching, ~160 yds
4/7/19	4.0-4.1 mile B Road	Ditching, ~120 yds
4/7/19	3.9-4.0 mile B Road	Ditching, ~100 yds
4/8/19	3.7-4.0 mile B Road	Ditching, ~160 yds
4/8/19	3.0-4.1 mile B Road	Ditching, ~200 yds
4/10/19	3.5 mile B Road area	Ditching, ~80 yds

2019 BMP Maintenance Log

Date	Location	Description of Activity
4/11/19	3.3-3.5 mile B Road	Ditching, ~140 yds
4/12/19	3.3 mile B Road	Ditching, ~140 yds
4/14/19	2.7-3.0 mile B Road	Ditching, ~136 yds
4/15/19	2.5-2.8 mile B Road	Ditching, ~120 yds
4/16/19	2.3-2.5 mile B Road	Ditching, ~180 yds
4/17/19	2.2-2.4 mile B Road	Ditching, ~45 yds
4/17/19	7.6 mile B Road area	Ditching, ~25 yds
4/18/19	7.6-7.8 mile B Road	Ditching, ~108 yds
4/21/19	B ROAD SUMPS	Clean sumps
4/21/19	920 sumps	Clean sumps
4/23/19	4.1 TO 4.2	Road resurfacing
4/23/19	ROAD	Road resurfacing
4/23/19	1.9 TO 2.7	Road resurfacing
4/23/19	4.3 TO 4.7	Road resurfacing
4/24/19	2.8 TO 3 MILE	Road resurfacing
4/24/19	6.1 TO 6.8	Road resurfacing
4/24/19	7.6 TO 8	Road resurfacing
4/25/19	ORE PAD HILL	Clean sumps
4/26/19	B Road bridges	Sweep bridges at 3.0, 3.4, and 7.4
4/27/19	DB-08	Clean and haul to tails
4/30/19	Junction	Ditching, ~5 yds
5/1/19	7.8 NPDES culvert	Clean sump
5/1/19	Portal	Clean and haul to DB-01
5/2/19	7.6 mile B Road	Clean sump
5/2/19	6.0 mile B Road	Clean sump
5/2/19	DB-03	Clean sediment
5/2/19	3 MILE BRIDGE APPROACH	Road resurfacing
5/2/19	3.4 BRIDGE APPROACH	Road resurfacing
5/2/19	7.4 BRIDGE APPROACH	Road resurfacing
5/3/19	DB-03	Clean sediment
5/4/19	DB-03	Clean sediment
5/4/19	3.0-3.2 mile B Road	Clean and haul to tails
5/7/19	1.8-2.8 mile B Road	Hydroseeding
5/7/19	5.2-4.6 mile B Road	Hydroseeding
5/7/19	7.6-8.0 mile B Road	Ditching, ~80 yds
5/8/19	4.6-3.3 mile B Road	Hydroseeding
5/8/19	7.5 mile B Road Area	Ditching, ~20 yds
5/9/19	3.3-2.8 mile B Road	Hydroseeding
5/9/19	7.3 mile B Road area	Ditching, ~50 yds
5/10/19	7.1 mile B Road	Ditching, ~40 yds
5/10/19	7.8 NPDES culvert	Clean sump
5/10/19	BATCH PLANT SUMP	Clean and haul to DB-01
5/11/19	6.9 mile B Road	Ditching, ~40 yds
5/11/19	BATCH PLANT SUMP	Clean and haul to DB-01
5/11/19	920 INVERT SUMPS	Clean and haul to DB-01

2019 BMP Maintenance Log

Date	Location	Description of Activity
5/12/19	6.8 mile B Road	Ditching, ~35 yds
5/12/19	SUMPS BY DB-01	Clean and haul to DB-01
5/13/19	6.6 mile B Road	Ditching, ~80 yds
5/13/19	1.0 mile sumps	Clean and haul to DB-01
5/13/19	SUMPS BY DB-01	Clean and haul to DB-01
5/14/19	6.5 mile B Road	Ditching, ~90 yds
5/14/19	SUMP BY DB-01	Clean and haul to DB-01
5/14/19	POND 7 INVERT FORM W.B.	Clean and haul to tails
5/15/19	7.6-6.8 mile B Road	Hydroseeding
5/15/19	6.4 mile B Road	Ditching, ~120 yds
5/18/19	6.1 mile B Road	Ditching, ~140 yds
5/23/19	6.1-6.8 mile B Road	Hydroseeding
5/24/19	7.9 TO 7.8	Road resurfacing
5/25/19	3.2 mile B Road	Ditching, ~125 yds
5/25/19	3.2 mile B Road	Ditching, ~10 yds
5/26/19	3 Mile Bridge	Hydroseeding
5/26/19	3.1-3.4 mile B Road	Hydroseeding
5/26/19	7.9 TO 7.8	Road resurfacing
5/26/19	7.2	Road resurfacing
5/27/19	4.0-6.0 mile B Road	Hydroseeding
5/27/19	3.4-4.0 mile B Road	Ditching, ~6 yds
5/27/19	7.2	Road resurfacing
5/27/19	5.8	Road resurfacing
5/28/19	6.0 mile B Road up	Hydroseeding
5/31/19	DB-04	Clean and haul to tails
5/31/19	C pond	Clean sediment
5/31/19	DB-04	Clean and haul to tails
5/31/19	Bach plant sump	Clean and haul to DB-01
6/1/19	SUMP ACROSS FROM SHOP	Clean sediment
6/1/19	2.8	Road resurfacing
6/1/19	2.8	Road resurfacing
6/2/19	0.7-0.8 mile B Road	Ditching, ~8 yds
6/3/19	Junction to 0.8 mile B	Ditching, ~40 yds
6/4/19	Junction to 0.8 mile B	Ditching, ~80 yds
6/7/19	Junction to 0.6 mile B	Ditching, ~90 yds
6/7/19	1.3-1.5 mile B Road	Ditching, ~100 yds
6/8/19	1.5-1.7 mile B Road	Ditching, ~100 yds
6/9/19	Junction - 1.8 mile B	Hydroseeding
6/9/19	1.6-1.8 mile B Road	Ditching, ~100 yds
6/10/19	Junction to 0.8 mile B	Hydroseeding
6/10/19	1.3-1.8 mile B Road	Hydroseeding
6/10/19	6.1-8.0 mile B Road	Hydroseeding
6/12/19	4.1-5.3 mile B Road	Hydroseeding
6/12/19	5.3-5.7 mile B Road	Hydroseeding
6/12/19	5.7-6.1 mile B Road	Hydroseeding

2019 BMP Maintenance Log

Date	Location	Description of Activity
6/12/19	6.1-7.4 mile B Road	Hydroseeding
6/12/19	3 Mile bridge to 3.3	Road resurfacing
6/13/19	3.3 TO 3.7	Road resurfacing
6/14/19	0.8-1.0 mile B Road	Hydroseeding
6/15/19	1.3 Wheel wash	Clean and haul to tails
6/15/19	3.7 To 4.7	Road resurfacing
6/16/19	860 TO 920	Road resurfacing
6/16/19	1 MILE	Road resurfacing
6/26/19	DB-03	Clean sediment
6/27/19	3 TO 4 MILE ROCK CHECKS	Ditching, ~6 yds
6/27/19	SHOP, POWER HOUSE SUMPS	Clean sediment
6/29/19	B Road bridges	Sweep bridges at 3.0, 3.4, and 7.4
7/5/19	bottom beach hill	Road resurfacing
7/13/19	5.4 TO 5.8 SPOTS	Road resurfacing
7/15/19	5.6	Road resurfacing
7/18/19	DB-08	Clean and haul to tails
7/18/19	DB-08	Clean and haul to tails
8/8/19	DB-04	Clean and haul to tails
8/11/19	DB-04	Clean and haul to tails
8/11/19	DB-04	Clean and haul to tails
8/14/19	DB-03	Clean sediment
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	SW Tails - Dust Cover	Hydroseeding
8/15/19	DB-03	Clean sediment
8/16/19	SW TAILS- Dust cover	Hydroseeding
8/17/19	SW Tails - Dust Cover	Hydroseeding
8/21/19	DB-02	Clean sediment
8/22/19	DB-02	Clean sediment
8/23/19	TAILS LOAD OUT SUMP	Clean sediment
8/23/19	CONS LOAD OUT	Clean sediment
8/24/19	920 sumps	Clean sediment
8/30/19	DB-01	Clean and haul to ore pad
8/30/19	DB-09	Clean and haul to ore pad
9/6/19	DB-08	Clean and haul to tails
9/7/19	B Road bridges	Sweep bridges at 3.0, 3.4, and 7.4
9/8/19	JUNCTION TO 0.8	Road resurfacing
9/29/19	7.0 TO 7.3	Road resurfacing
10/7/19	0.6-6.0 mile B Road	Ditching, ~85 yds
10/8/19	6.1-7.4 mile B Road	Ditching, ~18 yds
10/8/19	920 sumps	6 yds

2019 BMP Maintenance Log

Date	Location	Description of Activity
10/12/19	DB-04	Clean and haul to tails
10/13/19	DB-03	Clean sediment
10/14/19	3.0-4.1 mile B Road	Ditching, ~28 yds
10/15/19	3.0-4.1 mile B Road	Ditching, ~5 yds
10/16/19	4.0-5.0 mile B Road	Ditching, ~22 yds
10/17/19	4.0-5.0 mile B Road	Ditching, ~20 yds
10/18/19	4.0-5.0 mile B Road	Ditching, ~6 yds
10/18/19	DB-03	Clean sediment
10/18/19	920 sumps	Clean sediment
10/19/19	4.1-5.8 mile B Road	Ditching, ~28 yds
10/19/19	ACROSS FROM CONS	Clean sediment
10/28/19	DB-08	Clean and haul to tails
10/28/19	PORTAL SUMPS	Clean sediment
11/13/19	920 sumps	Clean sediment
11/13/19	BATCH PLANT SUMP	Clean sediment
11/13/19	SITE 23 ROAD SUMPS	Clean sediment
11/15/19	MUD WATERFALL SUMPS	Clean and haul to DB-01
11/16/19	003 SW Collection Box	Clean and replace filter sock
11/17/19	MUD WATERFALL SUMPS	Clean and haul to DB-01
11/17/19	B Road bridges	Sweep bridges at 3.0, 3.4, and 7.4
11/22/19	SITE 23 ROAD SUMPS	Clean sediment
11/23/19	DB-03	Clean sediment
11/23/19	DB-02	Clean sediment
11/24/19	920 sumps	Clean sediment
11/24/19	3.1 B ROAD SUMP	Clean and haul to tails
12/9/19	4.7 TO 1.3	Road resurfacing
12/11/19	3.0 mile B-Road bridge	Sweep 3.0 mile bridge
12/11/19	4.7 TO 920	Road resurfacing
12/12/19	DB-08	Clean and haul to tails
12/12/19	DB-08	Clean and haul to tails
12/13/19	2.8-3.2 mile B Road	Ditching, ~140 yds
12/27/19	DB-08	Clean and haul to tails