COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Henderson Mine	**MINE/PROSPECTING ID#:** M-1977-342	**MINERAL:** Molybdenum	**COUNTY:** Clear Creek, Grand
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Peter Hays	**INSP. DATE:** May 6, 2020	**INSP. TIME:** 10:00
OPERATOR: Climax Molybdenum Company	**OPERATOR REPRESENTATIVE:** Aaron Hilshorst	**TYPE OF OPERATION:** 112d-3 - Designated Mining Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $37,993,785.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** 	**SIGNATURE DATE:** May 29, 2020

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS---------- Y	**(FN) FINANCIAL WARRANTY-------- N**	**(RD) ROADS---------- N**
(HB) HYDROLOGIC BALANCE---------- N	**(BG) BACKFILL & GRADING---------- N**	**(EX) EXPLOSIVES--------- N**
(PW) PROCESSING WASTE/TAILING---- N	**(SF) PROCESSING FACILITIES------- N**	**(TS) TOPSOIL---------- N**
(MP) GENL MINE PLAN COMPLIANCE- Y	**(FW) FISH & WILDLIFE---------- N**	**(RV) REVEGETATION---- N**
(SM) SIGNS AND MARKERS---------- Y	**(SP) STORM WATER MGT PLAN---- N**	**(RS) RECL PLAN/COMP-- N**
(ES) OVERBURDEN/DEV. WASTE--------- N	**(SC) EROSION/SEDIMENTATION--- Y**	**(ST) STIPULATIONS------- N**
(AT) ACID OR TOXIC MATERIALS------- N	**(OD) OFF-SITE DAMAGE----------N**	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

OBSERVATIONS

The Henderson Mine was inspected by Peter Hays with the Division of Reclamation, Mining and Safety (Division/DRMS) as part of the Division's monitoring inspection program. Mr. Aaron Hilshorst with Climax Molybdenum - Henderson Operations (Henderson) was present during the inspection. The purpose of the inspection was to observe the stormwater control facilities, environmental protection facilities (EPFs), surface water monitoring locations and groundwater compliance monitoring well located at the mine facility.

The Henderson Mine facilities are constructed primarily on waste rock from the development of the Mine. The disturbance at the Henderson Mine is fairly static and the potential sources of pollution have been documented by the Operator in the Stormwater Management Plan (SWMP). The surface water features at the mine include Butler Gulch which flows through the affected area, the West Fork of Clear Creek which flows along the northern permit boundary and No Name Gulch which is diverted by ditches around the south and east sides of the affected area. The BMPs used to prevent erosion within the diversion ditches include the existing vegetation and rock check dams.

Stormwater control facilities:
The Division and Henderson staff attempted to inspect the sixteen outfalls at the mine site. However, due to snow cover all the outfalls could not be observed during the inspection. A list of the outfalls with comments from the inspection are below:

OF-1: BMP's at this outfall location consist of a series of rock check dams leading to a rip-rap outfall. The outfall was not observed due to snow cover on the West Laydown Yard preventing access to the outfall.

OF-2: BMP's at this outfall location consist of a series of rock check dams leading to a sedimentation pond above the rip-rap outfall. The sedimentation pond contained water above the outfall. The outfall appeared to be functioning properly.

OF-3: BMP's at this outfall location consist of an engineered wetland and a sedimentation pond. The outfall was observed, however it was mostly covered by a snow drift.

OF-4: BMP's at this outfall location consist of a vegetated area at the bottom of a slope. The outfall was not observed due to being covered by a snow drift.

OF-5: BMP's at this outfall location consist of rip-rap and vegetation leading to a sedimentation pond above a culvert. The sedimentation pond contained water and the outfall appeared to be functioning properly, however the outfall was partially covered by a snow drift.

OF-6: BMP's at this outfall location consist of rip-rap and a sedimentation pond. The outfall was not observed due to snow cover on the Emrick & Hill Yard preventing access to the outfall.

OF-7: BMP's at this outfall location consist of rip-rap and rock check dams. The sediment pond contained water and the outfall was partially snow covered, but appeared to be functioning properly.

OF-8a: BMP's at this outfall location consist of ditch with a series of rock check dams leading to a sedimentation pond. The ditch and sedimentation pond were snow covered and could not be observed during the inspection.

OF-8b: BMP's at this outfall location consist of a series of ditches and rock check dams leading to a rip-rap outfall. The ditch leading to the outfall was snow covered and could not be observed during the inspection.

OF-8c: BMP's at this outfall location consist of a ditch with a series of rock check dams leading to a rip-rap outfall. The ditch and sediment pond contained water and the outfall was partially covered by snow, but appeared to be functioning properly.

OF-9: BMP's at this outfall location consist of rip-rap and vegetation below the discharge pipe. The outfall was flowing water and appeared to be functioning properly.

OF-12: BMP's at this outfall location consist of a rip-rap check dam above the West Fork of Clear Creek. The outfall was not observed due to snow cover on the Lower Yard Storage area preventing access to the outfall.

OF-13: BMP's at this outfall location consist of a rip-rap check dam. The sediment pond contained a small pool of water and the outfall was covered by snow.

OF-14: BMP's at this outfall location consist of a ditch with a series of rock check dams leading to a rip-rap outfall. The sediment pond contained water and outfall was covered by snow.

OF-15: BMP's at this outfall location consist of a series of rock check dams leading to a sedimentation pond above a culvert. The outfall was not observed due to snow cover on the access road to the outfall.

OF-16: BMP's at this outfall location consist of rip-rap and vegetation below the discharge pipe. The outfall was covered by a snow drift. The inlet of the culverts above the outfall were partially filled with sediment. The Division recommends the culverts are cleaned out to maintain the flow of water through the culverts.

The Operator stated stormwater inspections would be performed in June of this year by Henderson staff. Any repairs or maintenance to the stormwater structures would be performed as needed by the Operator.

The latest version of the SWMP on file with the Division is the 2012 Stormwater Management Plan. The Operator is required to renew and update the SWMP annually with the Colorado Department of Public Health and Environment (CDPHE). The Operator stated the CDPHE changed the requirements for the SWMPs. Currently, the Mine and Mill sites are covered under one SWMP, however for next year the CDPHE will require separate SWMPs for the Mine and Mill sites. The Operator is evaluating combining outfalls OF-9 and OF-16 to simplify the SWMP for the Mine site. The URAD water treatment area may also be included in the updated SWMP for the Mine site. The Division requests the Operator provide copies of the updated SWMPs for the Mine and Mill when available for the Division's file.

Surface water and groundwater compliance points:
Surface water and groundwater compliance points; CC-10, CC-30, BG-20 and MNGW-1 were attempted to be observed, however snowdrifts prevented the compliance points to be reached during the inspection.

The Operator reported pH values below the numeric protection limit (NPL) limits at POC locations MNGW-1 and MNGW-7 in the 2018 Annual Water Monitoring Report dated May 31, 2019. Tabular data for the surface water and groundwater compliance points were provided in the report.

The Operator reported the most recent NPL exceedance at MNGW-1 with a 6.3 pH value on March 30, 2020 and a follow-up 6.3 pH value on April 28, 2020. These values exceed the NPL of 6.5-8.5. During the inspection, the Operator discussed returning the monitoring of MNGW-1 back to tri-annual testing regardless of NPL exceedances for pH. The well sampling frequently produces pH values lower than the approved NPL. The approved Groundwater Monitoring Plan (GWMP) requires the Operator to perform follow-up sampling for every NPL exceedance. The Division will require the Operator to provide justification to end the follow-up sampling for pH exceedances of the NPL at MNGW-1. The Division will require the Operator to continue to sample the compliance well in accordance with the approved GWMP until a variance is approved by the Division.

Mine EPSs:
Mine EPF 1.1 – Mine Water System diverts mine water from the underground mine workings to the URAD treatment plant for treatment via 12" and 14" HDPE pipelines. The pipelines are estimated to be 2.5 miles long and appeared to be working as designed and in accordance with the approved as-built drawings. The lines are cleaned weekly, alternating lines, with "pigs" which are pushed through the lines with pressure from a surge tank to scour and reduce scaling in the pipes. The URAD water treatment plant and the entire length of the mine water pipelines were recently incorporated into the permit boundary under AM-07.

Mine EPF 1.2 is utilized for storm water control at the site. The Pond 1.2 liner was covered with snow. The liner and the inlet and outlet structures appeared to be working as designed and in accordance with the approved as-built drawings. The chain-link fence surrounding the pond was repaired in 2019. Sections of the fence were observed to be damaged by the snow load over the past winter. The Division recommends the damaged sections of fence are repaired by the Operator.

Inspection Contact Address
Aaron Hilshorst
Climax Molybdenum Company
19302 County Rd. #3
Parshall, CO 80468

Enclosure – SWMP Mine Map

Ec: Jared Ebert, DRMS

PHOTOGRAPHS

Henderson Mine sign

View of OF-2

View of OF-13

View of OF-9

View of OF-16

View of partially filled culverts above OF-16

View of EPF 1.2

View of damaged fence around EPF 1.2

View of OF-8a

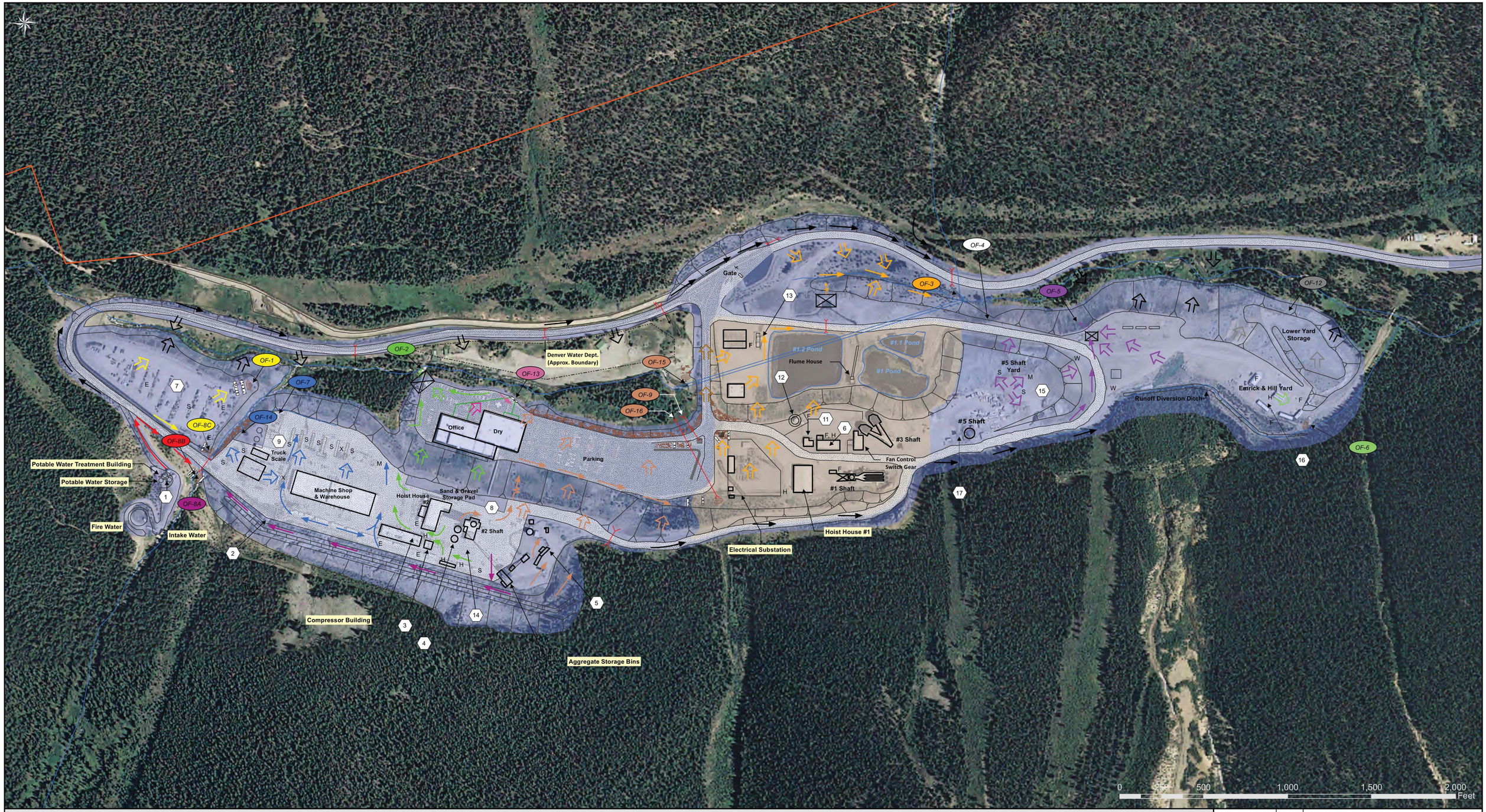
View of OF-8b

View of OF-8c

View of OF-14

View of OF-5

View of OF-3



LOCATION MAP

MAP FEATURES

- NPDES Permitted Process Water Area
- Surface Stormwater Area Disturbed By Plant Facilities
- Impervious Areas
- Rip-Rap Check Dams / Wattles
- Rock BMP
- Sediment Pond
- Sediment Pond
- Electrical or Telephone Manholes and Drains
- Buidling Drains
- Area Drains and Culverts
- Sediment Basin & Outfall Chute
- Concentrated Flow Swales & Channels
- OF-4 Stormwater Outfall (Conc. Flow)
- 7 Potential Stormwater Pollutant Source
- Decorative Rock Wall
- Property Boundary

POTENTIAL POLLUTANT SOURCES

1. Chlorinator Building Drain
2. Underground Warehouse Adit
3. Compressor Cooling Station / StorageTank
4. Cement and Fly Ash Silos and Unloading Area
5. Waste Sorting and Recycling Facility
6. Hazardous Waste Collection / Storage Dock
7. West Laydown Yard
8. Sand and Gravel Storage Pad
9. Salvage and Equipment Yard
11. Bulk Oil Storage Near #1 Shaft
12. Waste Oil Storage Tank Near #1 Shaft
13. Lower Yard Fuel Island
14. Storage Area South of #2 Shaft
15. 5 Shaft Salvage and Equipment Yard
16. Emerick and Hill Contractor Yard
17. Underground Fuel Transfer Station

MATERIAL STORAGE AREAS

- S - Steel, Pipe, and Metal Stock
- E - Small Equipment, Machine Parts, and Ventilation Equipment
- M - Mobile Equipment (Salvage) Parking
- F - Flammable Storage and Explosive Magazines
- W - Electrical Equipment and Supplies
- H - Hazardous Materials and Chemicals
- T - Tires
- X - Timber and Wood Products
- CF - Stockpiled Clean Fill Material

REVISION	DATE
Move OF-9, add OF-16, add decorative rock wall, add berms	1-28-2011
Change labels for OF-9 and OF-16, extend culvert leading to OF-16	5-18-2011
Add PPS-14, remove PPS-10, add warehouse and truck scale	7-08-2011

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CLIMAX MOLYBDENUM COMPANY

HENDERSON MINE

Empire, Colorado

FIGURE 2

MINE STORMWATER MANAGEMENT MAP

DESIGNED BY:

DRAWN BY: MT (AQUIONIX)

DATE DRAWN: 1/28/2011

SCALE: AS NOTED

FILE: