




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

The Division of Reclamation, Mining and Safety has 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 S. Hays	INSP. DATE: May 24, 2018	INSP. TIME: 09:00
OPERATOR: Climax Molybdenum Company	OPERATOR REPRESENTATIVE: Miguel Hamarat, Geoff Nigler	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 31, 2018	

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

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

OBSERVATIONS

The Henderson Mill 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. Miguel Hamarat and Mr. Geoff Nigler with Climax Molybdenum - Henderson Operations (Henderson) were present during the inspection.

The purpose of the inspection was to inspect the 1-Dam and 3-Dam Tailings Impoundments with a Henderson staff engineer to observe the Henderson inspection process. Henderson updated their tailing impoundment inspection form to an electronic ArcGIS based form since last year's inspection with the Division. Henderson provided the Division with a paper copy of the updated Henderson Mill Tailings Storage Facilities Monthly Inspection Report.

The following aspects of the 3-Dam and 1-Dam Tailings Impoundments were observed and discussed during the inspection; Dam Crests, Downstream Faces, Beaches and Dam Toe/Abutments. The dam crests were observed for crest condition, settlement, cracking, other signs of movement, tailings delivery line and instrumentation readings. The downstream faces were observed for dam condition, settlement, cracking, erosion, other signs of movements and vegetation growth. The beaches were observed for beach condition, estimated beach width, freeboard, signs of movement, deposition, and beach erosion. The dam toes and abutments were observed for toe condition, signs of movement, abutment condition, seepage condition and drain condition.

The Tailings Delivery System (TDL) was observed for the pipe condition, drop tower condition, valve condition, instrumentation readings and instrumentation availability. The Seepage Collection System was observed for amount of seepage flow, diversion of seepage, seepage water properties and seepage pond condition. The Return Water System was observed for pond elevation, barge pumping flow rate and barge condition.

The road adjacent to the TDL was driven to observe the condition of the line and towers. No recent problems or repairs of the TDL have been reported by Henderson.

The impoundment water pool location is estimated by Henderson based on monuments located in the impoundment. A minimum 500' beach offset from the crest of the impoundment is required by AECOM. A minimum 1,000' offset is required by Henderson. The beach distance was reported at a 2,200' offset during the inspection.

Tailings deposition in the 3-Dam cells is scheduled for the fall of this year and will consist of one deposition. Tailings deposition in the 1-Dam cells is scheduled to occur from south to north. The recent deposition in the abutment cell between 3-Dam and 1-Dam and Cell 1 in 1-Dam were observed during the inspection. Deposition in Cell 2 in 1-Dam is scheduled to occur next week according to the Operator. The remaining cells in 1-Dam have been prepared for deposition this year. Cells 8 and 9 were observed during the inspection. The initial Coherex application on the tailings impoundment is completed for the year.

The toe of 1-Dam was observed to evaluate the seepage collection system. Henderson stated horizontal drain cleaning is completed for the year and p-trap maintenance will begin soon. The foundation drains under the impoundments were discussed and several of the active drains were observed.

The return water system was observed to verify the pond elevation and the pumping flow rate. The Ultimate Canal was inspected from north to south during the inspection. Henderson has identified several areas of cattails in the canal which will require mechanical removal to maintain the proper function of the canal. The cattail removal work is scheduled to occur this year. The pond elevation is surveyed quarterly to determine the elevation.

Henderson reported filter sand for the 3-Dam buttress project was being imported and stored in the gravel pit for use in the project this year. The preliminary work to evaluate the removal of G-bench on the face of 1-Dam as the source of the 3-Dam buttress project material was observed during the inspection.

Photographs taken during the inspection are attached.

Inspection Contact Address

Mr. Miguel Hamarat
Climax Molybdenum Company
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Ec: Wally Erickson, DRMS

PHOTOGRAPHS



View of 3-Dam Impoundment from the south end looking north



View of tailings deposition in the abutment cell between 1-Dam and 3-Dam looking south



View of 1-Dam Cell 1 tailings deposition looking north



View of 1-Dam Cell 2 looking north



View of the 1-Dam toe drains and channel from the south end looking north



View of the 1-Dam toe drains and channel from north end looking south



View of 1-Dam Cell 9 looking north



View of 1-Dam Cell 8 looking south



View of the seepage collection area below 1-Dam looking south



View of cattails in the Ultimate Canal near the Ranger Gulch junction