

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 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:	MINE/PROSPECTING ID#:	MINERAL:	COUNTY:	
San Luis Project	M-1988-112	Gold and silver	Costilla	
INSPECTION TYPE:	INSPECTOR(S):	INSP. DATE:	INSP. TIME:	
Multi Person Inspection	Timothy A. Cazier	June 20, 2018	09:30	
OPERATOR:	OPERATOR REPRESENTATIVE:	TYPE OF OPERATION:		
Battle Mountain Resources, Inc.	Deb Miller	112d-3 - Designated Mining Operation		
REASON FOR INSPECTION:	BOND CALCULATION TYPE:	BOND AMOUNT:		
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: None	BOND AMOUNT: \$7,400,000.00		
REASON FOR INSPECTION: Normal I&E Program DATE OF COMPLAINT:	BOND CALCULATION TYPE: None POST INSP. CONTACTS:	BOND AMOUNT: \$7,400,000.00 JOINT INSP. AGE	NCY:	
REASON FOR INSPECTION: Normal I&E Program DATE OF COMPLAINT: NA	BOND CALCULATION TYPE: None POST INSP. CONTACTS: None	BOND AMOUNT: \$7,400,000.00 JOINT INSP. AGE None	NCY:	
REASON FOR INSPECTION: Normal I&E Program DATE OF COMPLAINT: NA WEATHER:	BOND CALCULATION TYPE: None POST INSP. CONTACTS: None INSPECTOR'S SIGNATURE:	BOND AMOUNT: \$7,400,000.00 JOINT INSP. AGE None SIGNATURE DAT	NCY: E:	

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>N</u>	(FN) FINANCIAL WARRANTY <u>N</u>	(RD) ROADS <u>Y</u>
(HB) HYDROLOGIC BALANCE <u>Y</u>	(BG) BACKFILL & GRADING <u>Y</u>	(EX) EXPLOSIVES <u>N</u>
(PW) PROCESSING WASTE/TAILING <u>N</u>	(SF) PROCESSING FACILITIES N	(TS) TOPSOIL <u>N</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>N</u>	(FW) FISH & WILDLIFE N	(RV) REVEGETATION Y
(SM) SIGNS AND MARKERS <u>N</u>	(SP) STORM WATER MGT PLAN <u>N</u>	(RS) RECL PLAN/COMP Y
(ES) OVERBURDEN/DEV. WASTE <u>N</u>	(SC) EROSION/SEDIMENTATION \underline{Y}	(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

This inspection report supplements the inspection report by Lucas West in that this report focuses on the inspection of the tailings facility embankment. This inspector accompanied Ms. Deb Miller (engineer of record) with Miller Geotechnical Consultants for the inspection of the embankment.

<u>Background</u>: This tailings facility is constructed completely on a liner. There has been no tailings added to the facility in several years and final reclamation is in progress.

<u>Toe Drains</u>: There was no visual evidence of seepage through the toe. The three toe drain discharge pipes (see **Photo 1**) appeared to be functioning, although these were disconnected from a previously attached manifold. The only observed sign of water seeping through the dam was from these three pipes. As the outlets were partially submerged it was difficult to gage the flows from each individual pipe. The ponding did not appear to be significant. However, modifying the outfall drainage such that it is free draining away from the toe would improve performance and long term stability by lowering the risk of pore pressure buildup.

<u>Downstream Slope</u>: The downstream slope of the dam was walked to determine the overall condition of the dam. The downstream slope appeared to be in good condition (exceptions on the north end discussed below) and was covered with grasses and small shrubs (see **Photo 2**). Some erosion gullies were observed on the north end of the downstream slope (see **Photo 3**). Ms. Miller indicated previous erosion gullies were much worse and the mine had initiated repairs (see **Photos 4** and **5**) are revegetation efforts greatly improving the situation. However, she agreed additional erosion control efforts needed to be implemented. Some of the small riprap on the geotextile had been washed off by runoff in these downchutes (see **Photo 6**) and the energy from these flows had eroded the downstream edge of the intercepting cross channels (see **Photo 7**). My field <u>experience suggests riprap on slopes steeper than about 10 to 12 percent is easily washed off geotextile filters. I recommend using a granular filter for long term performance on steep slopes. Vegetation was not yet fully established on the north end where previous erosion repairs were completed (see **Photo 8**).</u>

<u>Upstream Face</u>: The upstream face appeared in good condition. The pump back line towards the north end did show signs of leaking (see **Photo 9**). This should be repaired.

Water Level: The level pool was estimated to be between 700 and 800 feet from the crest (see Photo 10).

<u>Crest Condition</u>: The crest and upstream face appeared to be in good condition (see **Photos 11** and **12**). The crest is maintained as an access road to the south side of the facility.

Please contact Tim Cazier (303)866-3567 ext. 8169 or email at <u>tim.cazier@state.co.us</u> if you have any questions regarding this report.

PHOTOGRAPHS



Photo 1. Three toe drain discharge pipes (manifold disconnected).



Photo 2. Downstream slope (looking north from left groin).

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PHOTOGRAPHS (cont.)



Photo 3. Typical erosion gully observed on the north end of the downstream slope (looking upslope).



Photo 4. Drainage repair work (downchute) needing maintenance (note exposed geotextile filter).

PHOTOGRAPHS (cont.)



Photo 5. Drainage repair (cross channel) needing maintenance (some cross channels eroded right banks).



Photo 6. Drainage repair (downchutes) needing maintenance (small riprap washed of geotextile filter).

PHOTOGRAPHS (cont.)



Photo 7. Drainage repair (cross channel) needing maintenance (some cross channels eroded right banks).



Photo 8. Vegetation not fully established, north end of previously completed erosion repairs (looking SW).

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PHOTOGRAPHS (cont.)



Photo 9. Leaking pump back line (north end of beach, looking west).



Photo 10. Level pool (looking NE from near center of dam crest).

PHOTOGRAPHS (cont.)



Photo 11. Dam crest (looking south from near center of dam crest).



Photo 12. Dam crest (looking north from near center of dam crest).

Inspection Contact Address

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ec: Lucas West, DRMS DRMS file