COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY
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: Revenue Mine	**MINE/PROSPECTING ID#:** M-2012-032	**MINERAL:** Ag, Pb, Zn	**COUNTY:** Ouray
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Bob Oswald	**INSP. DATE:** May 20, 2014	**INSP. TIME:** 08:00
OPERATOR: Star Mine Operations, LLC	**OPERATOR REPRESENTATIVE:** John Trujillo	**TYPE OF OPERATION:** 112d-1 - Designated Mining Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $277,078.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:**	**SIGNATURE DATE:** June 4, 2014

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

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

OBSERVATIONS

This was a routine inspection conducted by the Division as part of its monitoring of 112d-1 permits, and to observe the drilling of one of the required water quality monitoring wells. The operator's representative named on page one was present throughout the inspection. Also present onsite to observe the well drilling was Wayne Pandorf of Buckhorn Geotech. The mine site was active on the day of the inspection, with drilling of the monitoring well and continued construction of the underground milling facilities. There was still a small amount of residual snow on portions of the mine site.

The required permit ID sign was observed posted at the entrance gate to the permitted area. Permit boundary markers (which the operator is aware must be installed along the permitted area boundary in 2014) were not inspected at this time.

The drilling project was required in the permit's Environmental Protection Plan (EPP), but was not begun until now. The original plan and well design were revised under TR-3 (approved on 5/14/14) due to finding that there were two separate alluvial aquifers and that both of them should be sampled. Well designs were approved, supplies were delivered, and drillers arrived onsite to begin drilling on 5/20/14. Drilling supplies observed onsite included sufficient amounts of: Colorado silica sand (dry, bagged), Quikrete (dry, bagged), Enviroplug grout (dry, bagged), Enviroplug bentonite tablets (dry, buckets), 2-inch PVC slotted well pipe (decontaminated, wrapped), 8-inch PVC slotted well pipe (decontaminated, wrapped), stainless steel centralizers, 4x4-inch steel well caps (lidded, 5-ft length).

The drilling contractor was Core-One from Delta. The 4-inch diameter drill stems were steam cleaned to remove surface rust and any residual hydrocarbon lubricants. The drill bit was 10 inches in diameter. The drill hole was located about 25 feet (measured horizontally) from the edge of Sneffels Creek and over 10 feet in elevation higher than the creek. Drilling the first hole began at 11:05 am. Drill water was supplied by pumping from Sneffels Creek to the drill sump. The drill hole did not advance very well, due to the drill bit being wider than the stem, and the loose alluvium and waste rock falling back into the hole. Drilling proceeded fairly continuously until about 4:00 pm, with final depth reached only 10 feet. A different drilling method and well design were discussed as being necessary to successfully finish the six well installations. The operator and the engineering consultant will provide revised designs to the Division for review and incorporation into the EPP.

The constructed components of the approved mine water handling plan were inspected. These included: (1) the vault immediately outside the Revenue portal in which the discharge water can be routed to any of several pipelines (although only one line was installed). (2) The one currently-installed discharge line is an 8-inch diameter, thick-walled poly pipe (8" IPS, DR-11), laid in an open trench around the south side of the former mine pond. This will be perforated to become a permanent weep line after the leach field is installed. Water from its outlet currently reports to the new mine pond, though that is temporary. (3) The downstream sediment pond is constructed and is functional. The middle sediment pond is not constructed yet, but its location is being prepared as old waste dump material is pulled back and a bench is created. (4) The earthwork for the new mine pond was completed in late 2013, but final shaping was not completed and no liner is installed yet. This pond currently has piped portal water discharging into it (as described in #2, above) and it percolates through from there. All structures associated with this plan are to be completed this construction season (2014). Since they are all parts of the EPP, they need to be constructed and installed according to the approved plan, inspected during installation, and certified that they conform to the plan.

The southern side of the pre-existing low-grade ore stockpile had to be moved to accommodate the weep line trench; with moved material replaced on the northern side of the pile. The east end of the old mine pond (which was drained in 2013) is where waste rock from recent underground mine development is being placed. Equipment and parts are stored on the mine waste dumps, especially near the mill and filter building, including timbers, steel pipe, plastic pipe, copper cable and electrical supplies, rail and track supplies, explosives magazines, mill balls, steel welding supplies, and wood debris (for burn pile). Very little milling equipment remains on the surface, most of it having been installed.

The mill is in the final stages of construction; it has not produced tailings or concentrates in any significant (production) quantities, though there have been outside reports to the contrary. A limited amount of ore material was crushed and run through the filter presses to test their function, but there was no extraction of metal concentrates or tails produced. The filter building also contains the reagent storage and mixing facilities, areas to which improved containment has been added this winter. This includes concrete stem walls, impermeable synthetic containment berms, better sumps and pumping circuits, and impermeable resin coatings on the floors. Those changes are minor and do not warrant a technical revision. The operator stated that a separate mill chemical storage facility may be desired (to enhance safe transport and handling). This change would need to be reviewed by the Division as a technical revision to the permit.

There is a new stockpile of ore that has been dumped below the loadout, adjacent to the inert waste rock. The ore is not placed on an impermeable pad nor covered against the weather. The Division does not know when this was placed here, but the operator must ensure that this pile of ore does not remain in this unprotected location for longer than 180 days.

Neither the mill or crushing gallery, nor any other underground areas were inspected at this time. There were no further observations, and no problems noted. The bond amount was recently calculated and is sufficient.

Due to recent changes in mine ownership (though there has been no transfer of the DRMS permit yet), the Division's primary contact person for the operator should be updated; please provide the updated name and address to the Division.

For questions related to this report, please contact this inspector at the Division's Durango Field Office: telephone 970-247-5193, or 303-866-3567 ext 8175.

All written correspondence should be sent directly to the Division's Denver Office:
Division of Reclamation, Mining & Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Inspection Contact Address
Star Mine Operations, LLC
1675 Larimer Street, Suite 820
Denver, CO 80202

EC: John Trujillo, Star Mine Operations, via email
Greg Lewicki, Greg Lewicki and Associates, via email
Wayne Pandorf, Buckhorn Geotech, via email

PHOTOGRAPHS

Monitoring well drill bit, 10-inch diameter

Drill rig on drill pad location

New waste rock placed in east end of old mine pond

Disturbed surface (south) of historic low-grade ore pile

Equipment at ore and waste loadout (ore pile visible on right)

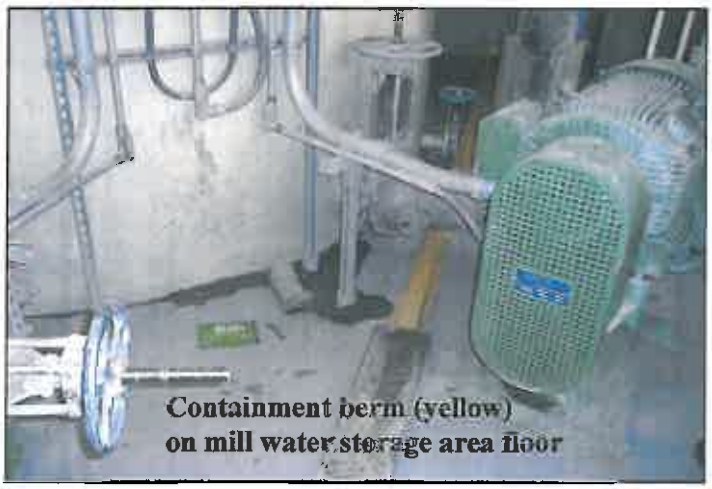
Steel and electric storage, near filter building

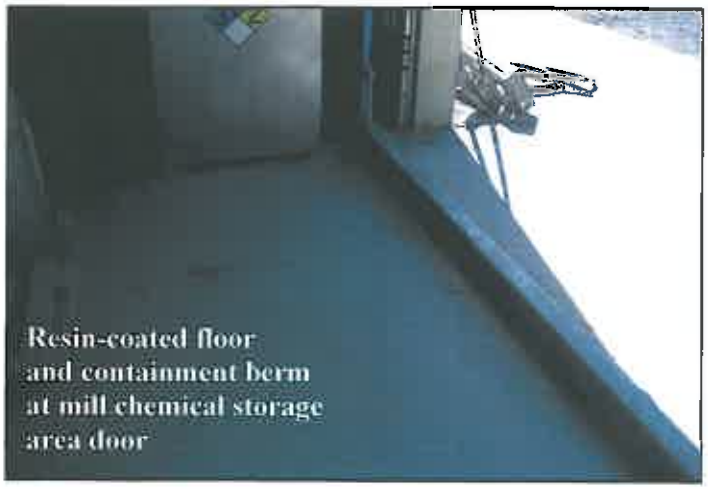

Approved double-walled diesel storage tank

Diesel storage tank (empty) without secondary containment


Mill chemical storage and mixing area


Mill ball storage


Containment berm (yellow) on mill water storage area floor

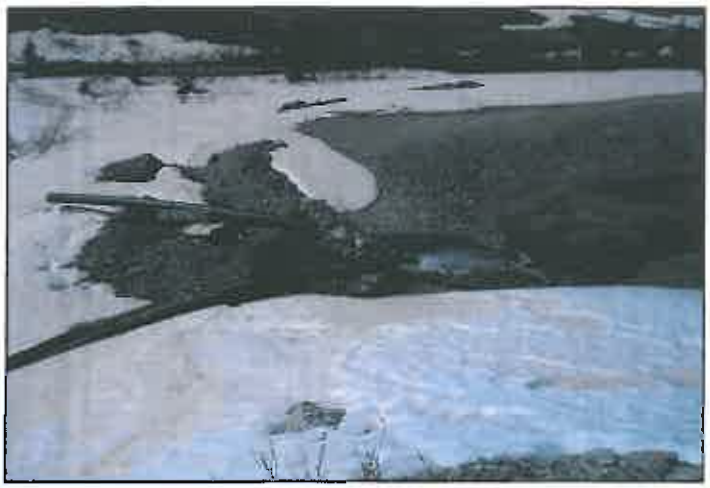

Resin-coated floor and containment berm at mill chemical storage area door

Discharge water vault (interior of building structure)

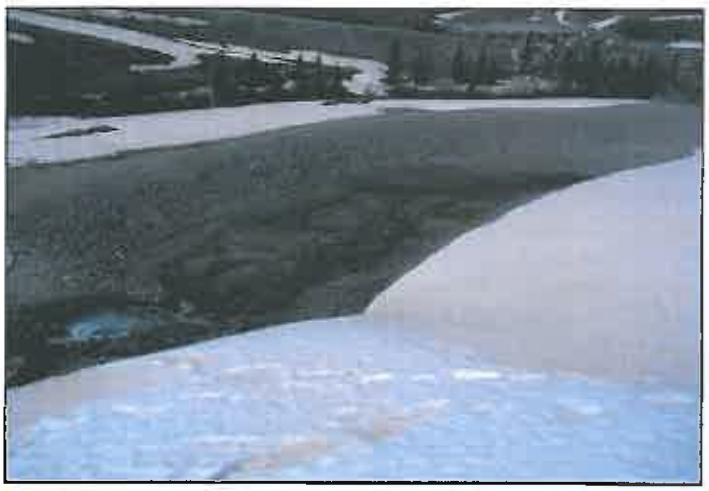
View toward Revenue portal: drainage/weep line in trench

Drainage/weep line: one line not connected

Drainage/weep line, conveying toward new mine pond



Drainage/weep line: outlet (discharge) in new mine pond



New mine pond