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:** Pb, Ag, Au	**COUNTY:** Ouray
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Bob Oswald	**INSP. DATE:** August 20, 2014	**INSP. TIME:** 10:00
OPERATOR: Star Mine Operations, LLC	**OPERATOR REPRESENTATIVE:** John E Trujillo, Clint Fletcher	**TYPE OF OPERATION:** 112d-1 - Designated Mining Operation	

REASON FOR INSPECTION: High Priority	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $277,078.00
DATE OF COMPLAINT: August 19, 2014	**POST INSP. CONTACTS:** Colo. Health Dept.	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Bob Oswald	**SIGNATURE DATE:** August 26, 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---------- Y
(HB) HYDROLOGIC BALANCE---------- Y	(BG) BACKFILL & GRADING---------- Y	(EX) EXPLOSIVES--------- N
(PW) PROCESSING WASTE/TAILING---- Y	(SF) PROCESSING FACILITIES------- Y	(TS) TOPSOIL---------- NA
(MP) GENL MINE PLAN COMPLIANCE- Y	(FW) FISH & WILDLIFE---------- NA	(RV) REVEGETATION---- NA
(SM) SIGNS AND MARKERS---------- Y	(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 high priority inspection conducted by the Division in response to a report received by the Division of an unauthorized chemical spill from this permitted mine into the adjacent creek. The operator named on page one was present throughout the inspection. In additional that operator's representative, also present at various times during the inspection were Clint Fletcher (general mine manager) and Dave Rigsby (mill manager). The site was active on the day of the inspection.

The required permit ID sign was observed posted at the entrance gate to the permitted area. Permit boundary markers (tall white PVC pipes) were installed at the boundary corners.

The release report (no. 2014-0526) came from the CDPHE Office of Emergency Preparedness and Response; it was from an anonymous phone caller on 8/19/14. A paper copy of the report was given to the operator. All parties met initially in the operator's onsite office to discuss the spill report, and which site areas needed to be checked. The report specifies that the chemicals released were "sodium hydroxide... and other chemicals," which the mine does in fact store onsite for use in its milling process. The chemicals are alleged to have been leaked numerous times from the mine and have entered Sneffels Creek, which is the water supply for the Town of Ouray. The areas of the permit considered to be most important to check included: Sneffels Creek (for clarity), stormwater control structures (especially along the creek), and the mill facility and filter building, where the chemicals are stored and handled.

The operator is currently engaged in pulling back the steep slopes of the historic waste rock dumps adjacent to Sneffels Creek, as part of its establishment of new areas for waste rock and tails disposal. Sediment fence, diversion ditches and sediment ponds are required in the permit, and were observed to be present and functional on this date. Sneffels Creek was observed to be running clear, indicating that the operator is adequately controlling the sediment in its routine surface water management and the streamside waste rock grading currently ongoing.

Water quality monitoring for surface and groundwater is required under the permit. The operator has been engaged in frequent water monitoring during 2014, and is presently up-to-date in its sampling.

Sodium hydroxide is a strong base, in a liquid form, commonly used in milling processes to raise the pH in the process solutions. The milling and extraction processes for this site's ore is still being fine-tuned, and initially it was thought that sodium hydroxide would be necessary in the processing of this ore also. Sodium hydroxide is approved for use at this site. It was soon found however, that a safer and more effective substance to use for raising pH was powdered lime. The operator is currently using lime in its test runs of the mill, and has not used the sodium hydroxide for several months. There is one opened plastic vessel, a 300-gallon tote, in the filter building's chemical storage area, which contains about 140 gallons or less of sodium hydroxide. However, since it is in a container with a broken seal it cannot be returned to the manufacturer. The chemical is in an intact plastic tote, properly labeled, in an area with sloping floor, a floor sump with operable pump, raised threshold at the bay door, and full resin-coated floor. It is therefore being stored properly in the approved area, inside complete secondary containment, and it is approved for storage and use at this site.

Note: A photograph of the same vessel of sodium hydroxide, taken by the Division on May 20, 2014, has the same level of liquid contents. This confirms the operator's statement that none has been used for months.

Other chemicals stored in the chemical storage area include dry and liquid chemicals, all of which were observed (again) to be on the approved list, and properly labeled and stored. There is no sign of leaks or spills of the chemicals. As such, the Division finds no problem with the presence, storage or use of these chemicals.

The sodium hydroxide and other chemicals are delivered to the site from the operator's warehouse in the operator's truck. Vessels being transported are protected from rockfall by a steel cover. Upon reaching the mine, they are transferred directly to the chemical storage area. The operator has no recorded incident involving loss of chemicals or damage to containers during transport, nor breach of the containers during storage or use. There have been test runs of the mill process (which terminate with the dewatering of the tails in the filter presses) that have resulted in some water and sludge being sprayed in the filter building, but it has all been contained and is recycled. The mill chemicals are used only in the reagent mixing tanks which is in the same room as the storage, and are not piped or carried outside the filter building or mill, except in the minute quantities contained in the concentrates or tails. Those solid materials are dewatered prior to leaving the building, and are not placed anywhere near the creek. The process leaves the chemicals extremely diluted and dispersed, neutralized and spent, or bound up chemically. Ongoing water sampling is required so that releases may be detected, but to-date none have been found. As such, the Division does not feel that there has been an opportunity for this substance to reach the creek in the quantities or concentrations necessary to adversely affect the water quality.

In conclusion, it is the Division's assessment that the operator's plan and practices are appropriate, and there appears to have been no opportunity for an accidental release of sodium hydroxide and/or other chemicals that are stored and used at the Revenue Mine and mill, and no evidence of adverse impact to Sneffels Creek.

Additional permit areas were inspected at this time. These included: the avalanche deflection berm immediately behind (south) the office/dry and generator buildings. The operator is moving old waste rock generated from the site preparation for Sediment Pond #2, up to this location. The berm is presently 150 ft long x 30 ft high with 2:1 side slopes. This will part of the operator's improved avalanche protection plan.

Sediment Pond #2 will be excavated soon, when the site is leveled and graded. A large amount of steel and wood debris continues to be unearthed from the old dump material; all the metal is being culled from the rock, and will be hauled offsite and recycled. There does not appear to be any such metal in the lower dump layer that will be disturbed for Sediment Pond #2.

An upslope diversion ditch above the portal, shop, filter building areas must be constructed. It will be near the permit boundary, in a revised location, high enough to not destabilize the underlying rock that may be weakened due to the underground shop and mill. It should be depicted on an updated map when it is completed.

All water is gone from the old mine pond and new material is being dumped and spread in the bottom, to prepare it for deposition of new tails and waste rock.

A stockpile of 1/2-inch minus crushed gravel was near the new mine pond location. It will be used to line the pond basin before the geotextile is deployed. This should happen within the next month. The operator's onsite engineer will observe and document the construction of this facility.

The operator is close to constructing the approved vent in Governor Basin by drilling a pilot hole and raise boring the shaft. The location was inspected with two members of the drilling company who will be performing the task. The collar location was being prepared, adequate water supplies were being confirmed, and several locations along the access road up to the Virginius Mine were being smoothed (under USFS permit). The raise bore will be drilled soon.

There were no problems noted at this time. The operator is undertaking numerous activities, all of which appear to be in compliance with the permit. The operator is reminded to document, by photographs and reports, the construction of the various facilities, and provide these materials to the Division with the construction calendar.

This inspector thanks the operator for the time allotted on this date for discussion and inspection of all matters related to the spill report.

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:
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PHOTOGRAPHS

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