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: Cresson Project	**MINE/PROSPECTING ID#:** M-1980-244	**MINERAL:** Gold	**COUNTY:** Teller
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Amy Eschberger	**INSP. DATE:** April 18, 2017	**INSP. TIME:** 10:30
OPERATOR: Cripple Creek & Victor Gold Mining Company	**OPERATOR REPRESENTATIVE:** Cheyne Mann, Tyler O'Donnell, etc.	**TYPE OF OPERATION:** 112d-3 - Designated Mining Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $173,934,420.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Eschberger	**SIGNATURE DATE:** July 12, 2017

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

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 normal monitoring inspection of the Cresson Project (Permit No. M-1980-244) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The Division was accompanied by various mine staff members throughout the inspection. This is a 112d-3 Designated Mining Operation permitted for 6,001.10 acres (after 66.9 acres were released with Acreage Reduction No. 4 approval on July 10, 2017) to mine and process gold on site. The site is located between the towns of Cripple Creek and Victor. The approved post-mining land use is rangeland and wildlife habitat.

This inspection included the following:

- Inspection of Arequa Gulch Adsorption/Desorption Recovery facility where Technical Revision No. 90 proposed installation of a mercury retort
- Inspection of High Grade Mill facility exterior
- Inspection of Guyot Hill area where Technical Revision No. 73 proposed an alternate power line for Squaw Gulch
- Follow-up of Fuel Island edge of liner markers
- Inspection of haul road from Load Out Bin to Squaw Gulch Valley Leach Facility
- Inspection of surface of Squaw Gulch Valley Leach Facility
- Inspection of South Cresson road construction at eastern edge of permit area (near Goldfield)
- Observation of water level readings for Arequa Gulch Valley Leach Facility Phases I, II, and III, and Squaw Gulch Valley Leach Facility
- Close-out meeting in Victor office

Arequa Gulch Adsorption/Desorption Recovery Facility (ADR-1):
The Division inspected the portion of the Arequa Gulch ADR-1 refinery where Technical Revision No. 90 (TR-90) proposed the installation of a 6 cu. ft. mercury retort (**Photos 1-3**). The retort will be used to remove mercury from the gold concentrate generated through the electrowinning cells at both the Squaw Gulch and Arequa Gulch ADR facilities. The retort control system is to include a retort, two condenser tubes, a collector, an aftercooler, two carbon columns, and a chiller. An additional foundation (approximately 5 inches thick) will need to be constructed on top of the current refinery floor to support the retort. Foundations will also need to be constructed to support the chiller and ventilation stack. The chiller will be constructed outside of the ADR-1 facility, at its southeastern corner. The outside area is currently enclosed by a chain-link fence with barbed wire across the top. Access to the inside of the refinery is controlled by a security guard unit, with only a limited number of employees allowed to enter at once.

After reviewing TR-90, the Division had some concerns regarding materials handling, spill prevention, and controlling mercury exposure to personnel and the environment. The Division outlined these concerns to the operator in an adequacy review letter sent on May 10, 2017. The operator responded to these concerns on June 02, 2017. The operator committed to placing a specially designed spill kit in the refinery prior to operation of the retort. The spill kit will contain HGX powder which is used for spill clean-up of elemental mercury. Additionally, the operator committed to utilizing best available practices, procedures, and personnel protective equipment to transfer elemental mercury and water from the collector to the flask and decant the water. The

concrete flooring around the retort area and long term mercury flask storage area will be treated with a non-slip epoxy paint to prevent contamination of the concrete in the event of a spill.

The operator currently monitors for vaporized mercury inside of the ADR-1 facility using a handheld Jerome 631-X meter, and will use the same device to monitor the refinery. Vaporized mercury inside the facility will also be controlled by the emission control system over the blast furnace which contains two carbon bed scrubbers capable of removing vaporized mercury. Additionally, the retort will have a ventilation system capable of moving 3,000 cu. ft. of air a minute which will help prevent vaporized mercury from entering the refinery. Finally, due to functionality restrictions for the chiller (which will be located outside), the operator committed to not operating the retort if ambient temperatures outside are below -20ºF, unless a temporary enclosure can be constructed around the chiller to raise the temperature above -20ºF.

During the inspection of the ADR-1 refinery, no issues were identified that would hinder the approval of TR-90.

<u>High Grade Mill Facility (HGM) Exterior:</u>
The Division inspected the exterior perimeter of the HGM facility to look for any leaks, spills, or secondary containment problems. The Division observed the area on the west side of the HGM where the operator indicated a spill had occurred on April 14, 2017 (**Photo 4**). As of the inspection, the Division had not yet received notice of the spill from the operator. After the inspection, on April 20, 2017, the Division received the required notice. According to this notice, the slurry was released from the mill carbon-in-pulp (CIP) circuit, and approximately 100 gallons exited the facility via one of the garage doors on the west side of the facility. The spilled slurry had an estimated WAD Cyanide concentration of 100-200 ppm. All slurry material that exited the facility was collected and placed on the mill tailings stockpile for transport to the Squaw Gulch Valley Leach Facility.

During the inspection, the Division observed no indication of the spill in the area around the west garage doors. The area was recently excavated and dry. In efforts to prevent recurrence of this type of spill from the CIP circuit, the operator may install enhanced level controls on each tank within the circuit to provide earlier indication of high slurry levels. To reduce potential for released slurry to exit the HGM facility, the operator is reviewing all doorway locations to ensure sufficient containment is in place. Additional infrastructure will be installed if needed (i.e., concrete curbing).

In the vat leach area on the west side of the facility, the Division observed that one of the six vat leach tanks was out of operation (**Photo 5**). The operator explained that a new air distribution system was being installed for all vat leach tanks, and the tank out of operation was the last tank to receive this modification. The Division observed the secondary containment wall around the vat leach tanks had been extended 12 inches (**Photo 6**) in accordance with Technical Revision No. 81, approved on January 18, 2017. This extension increases the secondary containment capacity to 110% of the volume of one leach tank. The secondary containment for the vat leach tanks was clear and dry at the time of the inspection (**Photo 7**).

The Division completed the inspection of the HGM exterior without any issues observed.

Guyot Hill Area:

The Division inspected the Guyot Hill area where Technical Revision No. 73 (TR-73) proposed installing an alternate power line for Squaw Gulch (**Photos 8-10**). The additional 1,500 foot, 13.2 KV powerline was to be installed from the crusher power line to the Squaw Gulch ADR-2 in time for construction of that facility. The new line was to start at an existing pole on the existing mill circuit located on the edge of Arequa Gulch Valley Leach Facility, Phase 4. The poles were to contour down Guyot Hill, past the Chickenhawk, onto the old railroad grade, and down to the new ADR-2 security building. The rest of the poles and powerline would be on the pad side of the toe berm, over the ADR-2 facility. TR-73 was approved by the Division on October 29, 2014. Installation of the powerline was to occur in October/November of 2014.

The Division confirmed the powerline was installed in accordance with TR-73. No issues were observed.

Fuel Island:

While waiting on the operator to refuel the truck at Fuel Island, the Division observed the edge of liner buried beneath the fueling station had been marked as recommended by the Division in its March 28, 2017 inspection report. The Division had recommended the edge of the subgrade liner be marked to help show whether or not potential petroleum product spills occur over the liner, and also to help prevent damage to the liner during potential construction activities. The operator has placed posts along the edge of the buried liner with signage that reads "Do Not Disturb – Buried Liner" (**Photos 11 and 12**). Therefore, the Division considers this item to have been completed satisfactorily.

Haul Road From Load Out Bin (LOB) to Squaw Gulch Valley Leach Facility (SGVLF):

The Division inspected the road that haul trucks use to move crushed ore and mill tailings from the LOB to the SGVLF. Portions of the haul road are off liner. This activity is allowed by Technical Revision No. 83 (TR-83), approved by the Division on November 9, 2016. The operation hauls crushed ore and mill tailings over approximately 6,600 feet of unlined haul road located on the SGVLF. Each haul truck moves approximately 240 tons of dry crushed ore and 26 tons of mill tailings with a moisture content of 16% and 0.22 pounds of free sodium cyanide.

TR-83 outlines a spill response plan for material spills that occur along the haul road. This plan includes immediately cleaning up any spills by over-excavating surrounding material to ensure no spilled material is left on the ground. After clean-up, samples of the spilled material and soil matrix will be sent to a laboratory for WAD cyanide analysis, to ensure contaminated material is completely removed. Any recovered material will be returned to Phase I of the SGVLF. The operator committed to inspecting the unlined portions of the haul road for spilled material at least daily. Additionally, equipment used to load and haul the mill tailings will be decontaminated on the SGVLF via water truck cannon prior to being used for operations off lined areas. The operator intends to commence with construction of the SGVLF Phase II liner in 2019, with an estimated completion in 2020. At that time, the Phase II liner will completely tie-in to the Phase I liner, allowing haul truck traffic to travel over liner when on the SGVLF footprint. A section of the haul road from the LOB to the edge of the SGVLF liner system (approximately 1,200 feet) will remain unlined.

The Division began the haul road inspection from the LOB. At the LOB, the Division observed as haul trucks

were first partially loaded with crushed ore (**Photo 13**), then loaded with tailings (**Photo 14**), and topped off with additional crushed ore (**Photo 15**). The operator explained this was a new loading process initiated in January of 2017 to help reduce spills from the haul trucks. Also to help reduce spills, the operation adjusted the travel pattern in the loading area to create a straighter pathway for haul trucks as they exit the LOB.

The Division travelled the entire length of the haul road from the LOB to the SGVLF, including the lined and unlined portions (**Photos 16-19**). The Division noted that haul trucks travel downgradient for much of the length of the haul road as they enter the SGVLF, which should help minimize spills from occurring in these areas. The Division did not observe any spilled material on the haul road during the inspection.

Squaw Gulch Valley Leach Facility (SGVLF):

The operation was in the process of placing the third ore lift on the SGVLF (**Photo 20**). The Division inspected the surface of the SGVLF to check for ponded solution. The surface of the top (3rd) lift appeared to have little to no ponding (**Photo 21**). The surfaces of the 2nd and 1st lifts had some ponded solution (**Photos 22 and 23**). Most of the "ponds" had surface areas well beneath the 3 foot by 3 foot limit for protection of wildlife. However, the Division did observe a few, especially on the 2nd lift, that were near the size limit (**Photo 24**). Because these areas did not exceed the limit, a problem is not cited in this report. However, the Division recommends the operator closely monitor the leaching surface of SGVLF and work to reduce or eliminate ponding solution (e.g., cross-ripping the surface to allow solution to penetrate the material more easily).

South Cresson Road Construction:

The Division inspected the area where the new road was constructed just east of the South Cresson portion of the Main Cresson Mine, on the east-facing hillside facing the city of Goldfield. This road was constructed to provide access to the operator's BAM/Rigi meteorological and air quality monitoring station, as the existing access road was cut off by recently installed mine fencing. The road was constructed within the approved Amendment No. 11 permit and affected land boundaries. However, there was a miscommunication between the work crew and mine environmental personnel regarding the location of the road to be constructed, resulting in the road being constructed outside of the approved mine development boundary. The road is approximately 300 feet in length with a total disturbance of 0.26 acre. The road was constructed within the historic Portland Mine footprint which includes old waste piles associated with that operation.

The operator notified the Division of the newly constructed road on March 29, 2017. The operator immediately implemented reclamation of the road, to include grading the area, replacing topsoil with salvaged material that was bermed along the sides of the road, and broadcast seeding the area with an approved seed mixture for road reclamation. The operator also committed to constructing stormwater controls (i.e., straw waddles) as necessary to control erosion of the area until it has been sufficiently stabilized and revegetated.

During the inspection, the Division observed the road had been successfully graded and retopsoiled (**Photo 25**). According to the operator, the area would most likely be seeded this spring. Because the operator is promptly reclaiming the road, the Division will not require a bond increase to cover costs for this task.

Water Level Readings:
The Division observed water level readings for both the high volume and low volume solution collection systems of the Arequa Gulch Valley Leach Facility Phases I, II, and III, and of the Squaw Gulch Valley Leach Facility. All levels observed were below their respective limits.

Close-out meeting:
The Division had a close-out meeting with Mr. Cheyne Mann in the operator's Victor office, during which the following items were discussed:

a) HGM spill that occurred on April 14, 2017 will require proper notification to the Division immediately.
b) What aspects of the mercury retort proposed for installation in the ADR-1 refinery could be constructed prior to TR-90 approval, if any (i.e., concrete foundation work). The Division explained any features requiring additional bond costs for reclamation could not be constructed prior to Division approval of TR-90 and receipt of the required bond. Additionally, any features of TR-90 pertaining to the importation, use, or storage of designated chemicals could not be implemented prior to TR-90 approval. Finally, the construction of any features prior to TR-90 approval, such as the concrete foundation work, would be at the risk of the operator, as the Division may require modifications to the proposed plan in review of TR-90. (TR-90 was approved by the Division on June 1, 2017.)

This concluded the inspection.

PHOTOGRAPHS

Photo 1. View of southeastern exterior of ADR-1 refinery, showing area where two carbon columns will be installed to support the new mercury retort (note one column already present).

Photo 2. View of fence-enclosed area outside southeastern corner of ADR-1 refinery, where chiller will be installed to support the new mercury retort.

Photo 3. View of area inside ADR-1 refinery where mercury retort will be installed.

Photo 4. View of area located on west side of High Grade Mill where slurry spilled out of garage door (at right). Note spill had been mitigated.

Photo 5. View of vat leach tank out of operation during inspection to receive new air distribution system.

Photo 6. View of extension (steel plate and rubber membrane) added to secondary containment of vat leach area to increase capacity.

Photo 7. View of vat leach area showing secondary containment clear.

Photo 8. View looking southwest at Guyot Hill showing alternate powerline installed to support Squaw Gulch ADR-2 facility.

Photo 9. View looking south from eastern edge of Guyot Hill showing pole on existing mill circuit located on edge of Arequa Gulch Valley Leach Facility, Phase 4 (at left) where alternate Squaw Gulch powerline was started.

Photo 10. View looking down northern side of Guyot Hill showing powerline installed downhill to Squaw Gulch ADR-2 security building. Note ADR-2 facility shown in distance (at center).

Photo 11. View of Fuel Island showing one of posts placed to mark edge of buried liner (circled).

Photo 12. View of Fuel Island showing another one of posts placed to mark edge of buried liner (circled). Signs on posts read "Do Not Disturb – Buried Liner".

Photo 13. View of Load Out Bin area showing haul truck being partially loaded with crushed ore.

Photo 14. View of Load Out Bin area showing haul truck being partially loaded with mill tailings after first being partially loaded with crushed ore.

Photo 15. View of Load Out Bin area showing haul truck receiving final partial load of crushed ore to cover mill tailings.

Photo 16. View of portion of haul road between Load Out Bin (LOB) and Squaw Gulch Valley Leach Facility closer to LOB area. Note road is clear of spilled material from haul trucks.

Photo 17. View of portion of haul road between Load Out Bin and Squaw Gulch Valley Leach Facility (SGVLF) after entering SGVLF footprint. Note road is clear of spilled material from haul trucks.

Photo 18. View of unlined portion of haul road between Load Out Bin and Squaw Gulch Valley Leach Facility. Note road is clear of spilled material from haul trucks.

Photo 19. View of portion of haul road between Load Out Bin and Squaw Gulch Valley Leach Facility (SGVLF) as crossing top of ore lift placed inside SGVLF. Note road is clear of spilled material from haul trucks.

Photo 20. View looking west across Squaw Gulch Valley Leach Facility showing placement of third ore lift.

Photo 21. View looking across surface of top (3rd) ore lift in Squaw Gulch Valley Leach Facility where very little to no ponded solution was observed.

Photo 22. View looking across surface of 2nd ore lift in Squaw Gulch Valley Leach Facility where some ponded solution was observed (circled). Note haul truck dumping onto 3rd ore lift in background.

Photo 23. View looking across surface of 2nd ore lift in Squaw Gulch Valley Leach Facility where some ponded solution was observed (circled).

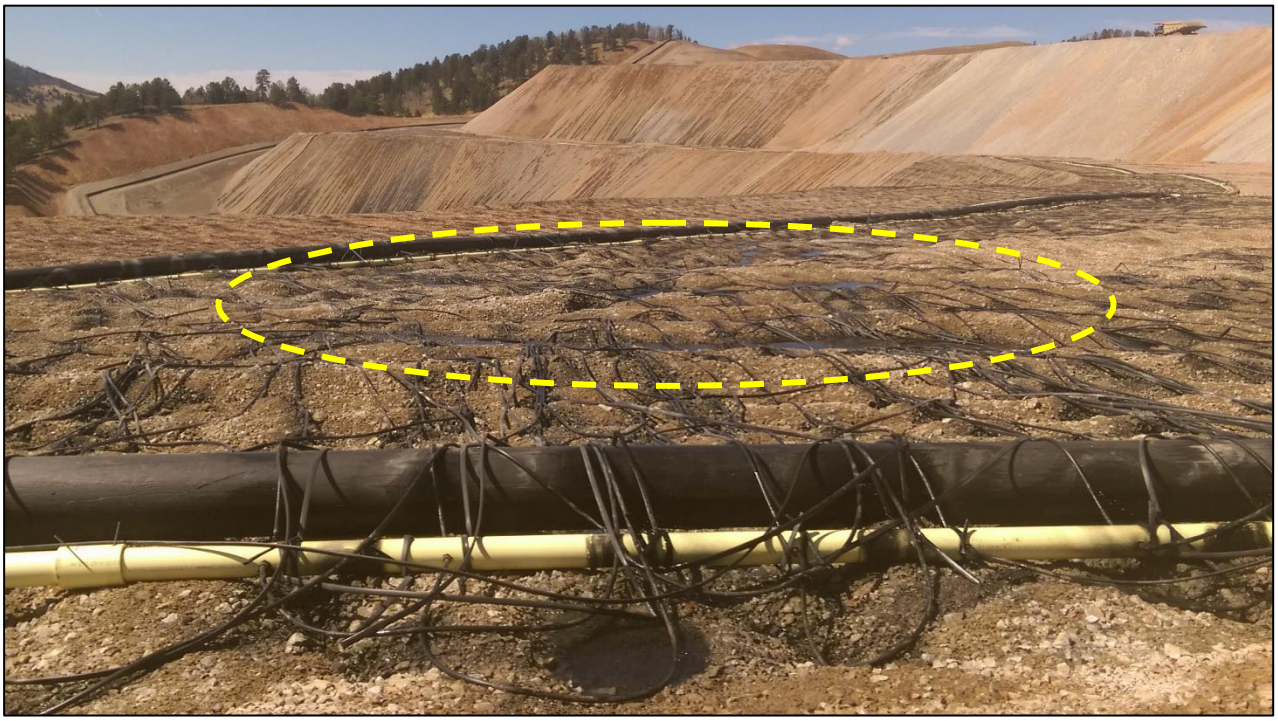

Photo 24. View looking across surface of 2nd ore lift in Squaw Gulch Valley Leach Facility where a few solution "ponds" appeared to be near the 3 foot x 3 foot surface area limit. The irregular surface of the trenches broke up the "ponds" so that no one pond seemed to form a consistent 3 foot length.

Photo 25. View of haul road constructed just east of South Cresson portion of Main Cresson Mine. Note road has been graded and retopsoiled.

Inspection Contact Address

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