



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: Schwartzwalder Mine	MINE/PROSPECTING ID#: M-1977-300	MINERAL: Uranium	COUNTY: Jefferson
INSPECTION TYPE: Monitoring	INSPECTOR(S): Amy Eschberger, Michael Cunningham	INSP. DATE: November 3, 2021	INSP. TIME: 12:30
OPERATOR: Colorado Legacy Land, LLC	OPERATOR REPRESENTATIVE(S): Jim Harrington, Elizabeth Busby, Billy Ray	TYPE OF OPERATION: 112d-2 - Designated Mining Operation	
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: None	BOND AMOUNT: \$7,674,022.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: November 19, 2021	

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>N</u>	(SF) PROCESSING FACILITIES----- <u>Y</u>	(TS) TOPSOIL----- <u>N</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>Y</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

Y = Inspected / 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 Schwartzwalder Mine (Permit No. M-1977-300) conducted by Amy Eschberger and Michael Cunningham of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Jim Harrington, Elizabeth Busby, and Billy Ray during the inspection. The site is located approximately 6 miles northwest from Golden, CO in Jefferson County. Access to the site is off of Glencoe Valley Road. The affected lands are owned by the operator. This site is on a quarterly inspection frequency. This inspection serves as the 4th quarter inspection for 2021. **Photos 1-18** taken during the inspection are included with this report.

At the time of the inspection, the mine pool was at 328 feet below Steve Level, which is 178 feet below the required 150 foot depth. The water treatment plant was shut down for the winter back in September. According to the operator, the plant operated for a total of 4-1/2 months this year. An additional in-situ injection treatment of the mine pool was completed from late September to early October of this year. This treatment included only ethanol (and no molasses). This is the 5th injection treatment to occur at the site, including those completed in 2013, 2015, 2017, and 2020. In Amendment No. 6 (AM-6), currently being reviewed by the Division, the operator notes there was not a significant decrease in uranium concentrations after the 2020 in-situ treatment as was seen in the previous in-situ treatments. The operator discusses a few factors that might explain these results, including, the natural population of sulfate-reducing bacteria in the mine pool might be at a steady state condition after the 2017 in-situ treatment and not actively biocycling sulfur, there may be a rate limiting factor in the creation of a proper reducing environment conducive to the reduction of U(VI) to U(IV), and/or a potential disruption to the creation of a sufficient reducing environment due to the addition of oxygenated (sump) water to the mine pool. Through its review of AM-6, the Division has requested additional information on the results observed from in-situ treatment and the anticipated longevity of this program in reducing uranium concentrations in the mine pool. The decision date for AM-6 is currently set at December 26, 2021.

The valley excavation project, in which, radionuclide-impacted alluvial valley soils are excavated and disposed of underground (on site), was underway during the inspection. Excavation activities were occurring at the far northwestern edge of the project area, near the southeastern edge of the South Waste Rock Pile (SWRP). The operation was excavating soils from beneath the area where the access road had been located. Because of this, the northwestern portion of the permit area (with the waste rock piles) must be accessed by foot at this time. Since the Division's last inspection of the site (on September 14, 2021), excavation activities in the northwestern project area have been focused in areas along the western edge of Ralston Creek, which has included excavating through a portion of the existing access road. A temporary access road has been constructed to the west/southwest of the current excavation areas (up to the SWRP, where there was insufficient space to relocate the road). The bypass pipeline that routes water from the creek around the mine site has been temporarily relocated for the excavation project. This pipeline is still functional, although the creek was dry during the inspection.

The excavated soils were being hauled to the Black Forest Mine for disposal, per Amendment No. 5 (AM-5; approved on January 13, 2021). During the inspection, only approximately 50 feet remained between the toe of the backfilled material inside the mine and the gated entrance to the mine. In AM-5, the operator committed to maintaining a 25 foot buffer between the toe of the backfill and the gate. The approved backfill closure plan includes removing the existing gates from the mine openings, backfilling the adits with large diameter rock (> 1 foot) sourced from on site, placing a layer of rockfill mixed with common fill over the large rock to minimize visible void space between the rocks, then covering the backfill with a minimum of one foot of growth medium. Any backfill areas will be revegetated along with the valley disturbances.

According to the operator, the Black Forest Mine will reach capacity within a few days of the inspection.

However, as discussed during the previous inspection, the excavation project will produce additional material (currently estimated at approximately 5,000 cubic yards) that will not fit inside the approved underground disposal locations (Black Forest Mine and CV Glory Hole in the Minnesota Mine). During the previous inspection, the operator was considering placing this additional material on top of one of the existing waste rock piles. While the operation was previously approved to do this, given the reclaimed state of the waste rock piles, the Division informed the operator any proposal to redisturb the piles must be submitted in a Technical Revision. During the current inspection, the operator discussed placing the additional excavated material along the southeastern edge of the SWRP, and possibly tying it into the adjacent Black Forest Mine backfill area (once completed). This new disturbance to the SWRP would be "capped" with a minimum of one foot of growth medium and revegetated. The existing waste rock piles were reclaimed in this manner and now have an established vegetative cover. This alternative disposal plan for excavated alluvial valley soils will need to be submitted in a Technical Revision for Division review and approval.

Since the Division's last inspection, additional excavation activities have also occurred in the southeastern project area (near the eastern permit boundary), where an elongated pit approximately 5-6 feet deep has been created along the western/southwestern edge of the access road. The operation will most likely need to temporarily relocate the access road and bypass pipeline in this area in order to excavate contaminated soils beneath these features. As previously discussed, the operator will need to abandon the alluvial groundwater monitoring wells MW-6 and MW-7 in this area in order to ensure the surrounding contaminated soils are appropriately excavated. This proposed change to the approved groundwater monitoring program must be submitted in a Technical Revision. As discussed during the inspection, one revision may be submitted to propose this change as well as the proposed alternative disposal location for the additional excavated soils. The alluvial valley excavation project is still on schedule to conclude in January of 2022, with final surveys to be completed that spring/summer. The final grading plan for the valley will be submitted in a Technical Revision.

The Division observed the storage area located north of the creek (across from the Black Forest Mine). The Division estimates the disturbance in this area to cover approximately one acre. Since the existing bridge access to this area is currently restricted due to the excavation activities occurring nearby, an additional access (across the dry creek channel) has been created to the southeast. The operator is currently storing woody debris, rocks, and various pieces of equipment and empty storage containers in this area. A small shed and tank are present in the northwestern portion of this area. The operator has plans to remove all equipment from this storage area in the coming months, and to chip the wood for use in reclamation (as mulch). The rocks stored in this area can also be used for reclamation (e.g., adit backfill closures). Through its review of AM-6, the Division has requested additional information on how this area will be reclaimed. The Division has also inquired about where growth medium required for reclamation will be obtained, given the lack of any salvaged topsoil stored on site. During the inspection, the operator explained the necessary growth medium will be borrowed from the hillside adjacent to the storage area. They believe enough growth medium is available within the permit area at this location to reclaim the site, including the borrow area(s). For reclamation, all disturbances in the storage area north of the creek will be scarified, retopsoiled, and revegetated in the same manner as the valley disturbances will be reclaimed. Additional details on this plan will be provided in AM-6.

This concludes the report.

Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at amy.eschberger@state.co.us.

PHOTOGRAPHS



Photo 1. View looking northwest (from top of mesa with water treatment plant) across northwestern valley excavation project area. Excavated soils are currently being disposed of inside Black Forest Mine, per AM-5.



Photo 2. View looking northwest across recent excavation area along western edge of creek channel (in northwestern project area), approximately 4-6 feet in depth.



Photo 3. View looking southeast across recent excavation area along western edge of creek channel (in northwestern project area), showing temporarily relocated access road (at right).



Photo 4. View looking southeast across recent excavation area along western edge of creek channel (in northwestern project area). Note bypass pipeline (at right) temporarily relocated.



Photo 5. View looking north at current excavation activities (in northwestern project area) adjacent to southeastern toe of SWRP (slope visible left of excavator). Note bypass pipeline (in foreground) temporarily relocated.



Photo 6. Closer view of current excavation activities (in northwestern project area) adjacent to southeastern toe of SWRP (and bridge access to storage area north of creek; portion of bridge visible at bottom, left).



Photo 7. View looking northwest at main entrance to Black Forest Mine, in which, excavated soils are being placed, per AM-5.



Photo 8. View looking inside Black Forest Mine, in which, excavated soils are being placed, per AM-5. At time of inspection, toe of backfilled material was approx. 50 feet from mine entrance gate.



Photo 9. View looking southeast across excavation area (in northwestern project area) at toe of mesa with water treatment plant.



Photo 10. View looking southeast across recent excavation area (in southeastern project area) adjacent to access road, approximately 5-6 feet in depth.



Photo 11. View looking east at new access (indicated) to storage area located north of creek, as existing bridge access is restricted by adjacent excavation activities.



Photo 12. View looking northwest across storage area located north of creek showing woody debris, rocks, and various pieces of equipment and empty storage containers stored in this area. All equipment will be removed from this area. Woody debris will be chipped for mulch, and rocks will be used for reclamation backfill.



Photo 13. View looking east at storage area located north of creek showing woody debris, rocks, and various pieces of equipment and empty storage containers stored in this area. Adjacent undisturbed hillside (in background) may be used as a topsoil borrow area.



Photo 14. View looking southeast at storage area located north of creek, showing equipment and rocks stored at southern edge of this area.



Photo 15. View looking west at storage area located north of creek, showing rocks stored in this area.



Photo 16. View looking southeast across storage area located north of creek, showing woody debris, rocks, and various pieces of equipment and empty storage containers stored in this area.



Photo 17. View looking northwest at storage area located north of creek, showing small shed and tank stored at northern edge of this area.



Photo 18. View looking northwest at Ralston Creek channel just upstream of bridge access to storage area (upgradient cutoff wall is located further upstream). Creek was dry during inspection.

Inspection Contact Address

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