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: Schwartzwalder Mine	**MINE/PROSPECTING ID#:** M-1977-300	**MINERAL:** Uranium	**COUNTY:** Jefferson
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Amy Eschberger	**INSP. DATE:** November 7, 2019	**INSP. TIME:** 08:30
OPERATOR: Colorado Legacy Land, LLC	**OPERATOR REPRESENTATIVE:** Billy Ray and Liz Busby	**TYPE OF OPERATION:** 112d-2 - Designated Mining Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $8,900,000.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Eschberger	**SIGNATURE DATE:** December 17, 2019

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---------- Y	(EX) EXPLOSIVES--------- N
(PW) PROCESSING WASTE/TAILING---- N	(SF) PROCESSING FACILITIES------- N	(TS) TOPSOIL---------- N
(MP) GENL MINE PLAN COMPLIANCE- Y	(FW) FISH & WILDLIFE---------- N	(RV) REVEGETATION---- Y
(SM) SIGNS AND MARKERS---------- N	(SP) STORM WATER MGT PLAN---- N	(RS) RECL PLAN/COMP-- Y
(ES) OVERBURDEN/DEV. WASTE--------- N	(SC) EROSION/SEDIMENTATION--- Y	(ST) STIPULATIONS------- N
(AT) ACID OR TOXIC MATERIALS------- Y	(OD) OFF-SITE DAMAGE---------- 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 Schwartzwalder Mine (Permit No. M-1977-300) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Liz 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 from the south off Glencoe Valley Road. This site is on a quarterly inspection frequency. This inspection serves as the 4th quarter 2019 inspection. **Photos 1-11** taken during the inspection are included with this report.

This is a 112d-2 underground uranium mine with a permit area of 72.24 acres. The site is situated at the bottom of a canyon, adjacent to Ralston Creek. The site was mined by Cotter Corporation, then Colorado Legacy Land, LLC took over the permit in 2018 to complete reclamation of the site. Since that time, the operator has relocated water treatment plant operations to the mesa, demolished structures in the valley, placed demolition debris underground as approved in the permit, and begun excavation activities in the valley. The operation continues to conduct surface water and groundwater monitoring on a quarterly basis, and treatment of groundwater via in-situ methods and a water treatment plant.

The water treatment plant was online during the inspection. The mine pool was at 197 feet below the Steve Level, which is 47 feet below the required 150 foot depth. The current mine pool level is very close to the target depth for in-situ treatment, which the operator anticipates will occur in mid-late December. The new mine pool dewatering 60 HP submersible pump installed this spring, was online during the inspection. Mine water is now being pumped from the Jeffrey Air Shaft and conveyed downhill via a double-walled HDPE pipeline to a holding tank located on the east side of the water treatment plant, rather than pumped from the Steve Adit. The water infrastructure installed in the Steve Adit is still in place at this time.

No excavation or hauling activities were occurring on site during the inspection. However, the operator anticipates excavation activities will continue into the winter season as long as weather conditions are favorable. Excavation activities are currently located near the Black Forest portal, just south of the South Waste Rock Pile (SWRP). The operator has graded most of the slopes in the excavation area to a stable configuration in preparation for the winter season. The operator is temporarily stockpiling excavated material on the floor of the excavated pit until it can be hauled up to the Minnesota Mine for disposal. Thus far, the operator has placed approximately 15,790 cubic yards of excavated material into the CV Glory Hole (in the Minnesota Mine) in accordance with the approved reclamation plan. The operator estimates the CV Glory Hole to have a remaining capacity of approximately 12,000 cubic yards. As the excavation project continues, the operator has found the contaminated alluvial fill to be more extensive than originally estimated. Therefore, it is likely that more material will need to be excavated (potentially up to 30,000 cubic yards) than can be placed inside the CV Glory Hole.

While the operator is authorized to place additional material onto the existing waste rock piles, it is not preferred at this point given the reclaimed state of the piles and the potential seep issue with the North Waste Rock Pile (NWRP). Therefore, the operator is exploring the possibility of placing excavated material into the Black Forest Mine. The Division informed the operator during the inspection that this proposed change to the approved reclamation plan would need to be submitted through an Amendment application. Given the lower elevation of the Black Forest Mine relative to the current approved underground disposal area (the Minnesota Mine), a proposal to dispose of contaminated material inside this mine must include adequate demonstration the mine is not hydrologically connected to the Ralston Creek alluvial system. The operator indicated the Amendment application may need to include a slight increase in affected lands to incorporate access to the Black Forest Mine.

The wetland and biochemical reactor (BCR) pilot-scale study continues on top of the mesa, in an area east of the water treatment plant. The primary focus of the study is to evaluate whether uranium can be treated biologically. The study is operated seasonally (May – October) and monitored for inflow and outflow metals concentrations. The wetland treatment system consists of four cells in a series with local plants. Two series are built with bulrush and the other two series are built with aquatic sedge. The operator indicated they observed promising results with the bulrush plants over the summer. The BCR system consists of five separate columns, two of which have a solid carbon source (food for microbes), two of which have a liquid ethanol carbon source, and one of which is a control with no carbon added. A small greenhouse structure has been constructed around the BCRs to keep them above 50°F over the winter. The operator anticipates running the BCRs until about mid-December, at which time, the system will be put into hibernation for the winter. If, based on the results of this study, the operator decides to incorporate passive treatment methods into the reclamation plan for the site, these changes could be proposed through the appropriate permit revision.

The Division inspected the upgradient cutoff wall and observed that all flows in Ralston Creek were being routed through the bypass pipeline. According to the operator, the creek was not flowing above the cutoff wall just a few weeks ago, prior to significant snowmelt occurring in the valley. The Division also inspected the areas adjacent to Glencoe Valley Road (near the toe of the NWRP) located upstream from the cutoff wall, where red- and green-colored ponded water (believed to be seep water from the NWRP) was observed during the inspection conducted on March 22, 2019. These areas were dry during the current inspection.

The Division inspected the top of the NWRP, where saturated conditions were observed during the Division's March 22, 2019 inspection. Saturated conditions were not observed on top of the pile during the current inspection. The Division is currently reviewing Technical Revision No. 28 (TR-28; submitted on May 9, 2019) to revise the stormwater control plan for the NWRP that was approved in 2017 (through Technical Revision No. 23). The decision date for TR-28 is currently set for January 10, 2020. The operator believes that installation of the revised stormwater control structure(s) will address any seep issues with the NWRP by diverting water from the above drainage around the pile, and discharging the water to the creek below.

The operator initially expected to install the revised stormwater control structure(s) during the 2019 construction season. However, due to the extensions needed for addressing the Division's concerns in TR-28, the operator now expects the system will be installed during the 2020 construction season. In the meantime, the operator has cleaned out the ditch along the northern edge of the top of the NWRP to allow stormwater to flow more easily around the pile until the revised structures can be approved and installed next spring/summer. The operator indicated the affected lands boundary may need to be slightly expanded around the NWRP to accommodate disturbances associated with installation of the stormwater control structures. Any proposed increase to the approved affected area could be included in the same Amendment application submittal to propose disposing of excavated valley fill material inside the Black Forest Mine.

No problems were observed during the inspection. 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 southeast at area east of water treatment plant where wetland and biochemical reactor (BCR) pilot-scale study occurs. Note small greenhouse constructed around BCR system to protect it over the winter.

Photo 2. View of BCR system inside small greenhouse, located east of water treatment plant.

Photo 3. View of wetland treatment system constructed with bulrush and aquatic sedge, located east of water treatment plant (east of greenhouse).

Photo 4. View looking at upgradient cutoff wall/head gate in Ralston Creek, showing creek flowing during inspection.

Photo 5. View looking downstream from upgradient cutoff wall in Ralston Creek, showing creek dry during inspection.

Photo 6. View looking south along ditch adjacent to Glencoe Valley Road (near toe of NWRP), where a pool of green-colored water was observed this summer. Note this area was dry during the inspection.

Photo 7. View looking down ditch along northern edge of top of NWRP which operator has cleaned out as a temporary stormwater control measure while TR-28 is under review.

Photo 8. View standing on top of NWRP, looking up drainage above the pile.

Photo 9. View looking southwest across excavation area, showing shallow monitoring well MW-1 (circled) which will be removed per TR-29.

Photo 10. View looking southeast across excavation area, showing excavated material stockpiled on pit floor.

Photo 11. View looking southeast across excavation area. Note slopes graded to a stable configuration for winter.

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