




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, Russ Means	INSP. DATE: June 11, 2019	INSP. TIME: 09:30
OPERATOR: Colorado Legacy Land, LLC	OPERATOR REPRESENTATIVE: Jim Harrington, Liz Busby, Paul Newman	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: Denver Water, Geosyntec Consultants	
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: August 7, 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----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>N</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>N</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>N</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>Y</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 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, Michael Cunningham, and Russ Means of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Jim Harrington, Liz Buzby, and Paul Newman during the inspection. Representatives from Denver Water and Geosyntec Consultants were also present 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. However, the Division may inspect the site more frequently during the active construction season. This inspection serves as the 2nd quarter 2019 inspection. **Photos 1-20** 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 alluvial excavation activities. 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.

During the inspection, the Division observed the SW-BPL surface water monitoring location below property line, at which intercepted surface flows and alluvial groundwater from upgradient of the mine site, and treated groundwater collected from the mine, are discharged. The operator maintains a permit with the CDPHE, WQCD for this discharge point, under which the discharged water must meet specified water quality standards. The operator estimated the average discharge rate for intercepted water to be approximately 60 gallons per minute (gpm), and the average discharge rate for treated water to be approximately 150 gpm. Both the water diversion pipe and treated water pipe were discharging water into the creek during the inspection.

The water treatment plant was online during the inspection. The mine pool was at 160 feet below the Steve Level, which is 10 feet below the required 150-foot depth. The new mine pool dewatering 60 HP submersible pump (approved in Technical Revision No. 27) was installed on site this spring. This pump was lowered approximately 550 feet below the Sunshine Adit (approximately 410 feet below the Steve Adit) on a custom fabricated housing shed via a winch system. The dedicated winch system is adjacent to the Jeffrey Air Shaft on a concrete footer. The new pump was not online yet at the time of the inspection. Therefore, mine water was still being pumped from the Steve Adit. Once the new system is online, untreated water pumped from the Jeffrey Air Shaft will be conveyed downhill via a 5-inch High Density Polyethylene (HDPE) pipe installed inside a larger 8-inch HDPE pipe, to an existing holding tank located on the east side of the water treatment plant. This new pipeline has been installed.

The operator was preparing to initiate a wetland study in which passive biochemical reactors will be explored for their potential use in final reclamation near the creek. This study will be conducted on top of the mesa, in the cleared off area east of the water treatment plant. Several open top plastic tanks to be used in the study were stored just east of the water treatment plant during the inspection.

Excavation activities were taking place in the valley during the inspection. While the operator is authorized (by Technical Revision No. 23) to place additional excavated material onto the existing waste rock piles, the operation is currently only placing excavated material in the other approved on-site disposal location, the CV Glory Hole inside the Minnesota Adit. The operation was hauling excavated material uphill to the Minnesota Adit during the inspection. According to the operator, approximately 190 cubic yards of material is excavated per day during the active construction season.

The Division inspected the upgradient cutoff wall and observed that all flows in Ralston Creek were being routed through the bypass pipeline. The Division also inspected the creek and adjacent areas upstream from the cutoff wall where the two areas of ponded (potentially impacted) water were observed during the inspection conducted on March 22, 2019. A problem was cited in the Division's inspection report sent on April 9, 2019, requiring the operator to sample the ponded water and submit the results to the Division along with any additional relevant monitoring data. Based on the sampling results (provided by the operator on May 9, 2019) and location of the ponded water, the operator believes the water is representative of sequential seeps from the nearby North Waste Rock Pile (NWRP), and the water is naturally attenuating prior to mixing with the creek. The hypothesized flow path begins with water in the ephemeral drainage above the NWRP, then expresses as surface water in the green-colored pool (located closest to the NWRP), and begins to mix with the creek in the red-colored pool (located closest to the creek), finally joining the creek prior to entering the bypass pipeline (at the cutoff wall). These two pools were still present during the current inspection, and appeared to have no significant changes in size or depth since the March 22, 2019 inspection.

The operator stated in its May 9, 2019 corrective action response that sampling results from the downstream monitoring location (at SW-BPL) indicate contaminated surface waters are not leaving the affected lands. Additionally, any potentially contaminated alluvial groundwater would be collected in the sump collection system and pumped back on site for treatment. To address the NWRP seep issue, the operator submitted Technical Revision No. 28 (TR-28) on May 9, 2019 to revise the NWRP stormwater management plan to install structures that divert upgradient surface water around the pile to the creek below. TR-28 is still under review as of the signature date of this report, with a current decision date of August 16, 2019. The Division considers the two problems cited in the April 9, 2019 inspection report to be abated at this time. However, the effectiveness of the implemented stormwater management plan for the NWRP will be evaluated in future inspections.

The Division inspected the top of the NWRP and found saturated conditions near the center top surface of the pile, where hydrophytic vegetation (mainly cattails) are growing. Saturated conditions were not observed in this area during the March 22, 2019 inspection. The Division inspected the narrow drainage above the NWRP which is composed of outcropped granitic bedrock. A trickle of water was flowing in the drainage during the inspection. This water appeared to be infiltrating the top of the NWRP. No surface flows across the top of the pile were observed. However, the Division did observe a pathway of flattened grass and woody debris where the drainage meets the top of the NWRP, indicating surface flows do occur, most likely during high runoff events. No erosion issues were observed on the sides of the NWRP. It appears the water mostly pools at the top of the pile, particularly in the area where saturated conditions were observed during this inspection.

The Division inspected the pumpback sump #4, located northwest of the water treatment plant. This sump was dry during the inspection. The operator notified the Division after this inspection (via email on July 29, 2019) that sumps 9 and 10 (located northwest of the plant) will need to be taken offline as they are in an area targeted for excavation. The Division inspected these areas during its August 1, 2019 inspection of the site, and will document its observations in the associated inspection report.

The Division would like to remind the operator to provide an estimated timeline for submittal of the Amendment application (required by SO-01 approval in 2018) addressing final reclamation of the site, including a plan for stabilizing the mine pool. This timeline was requested of the operator in the Division's April 9, 2019 inspection 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 of area where bypass pipeline (smaller pipe) and treated water pipeline (larger pipe) discharge into Ralston Creek at surface water monitoring station SW-BPL.



Photo 2. View looking northwest at new water treatment plant located on top of mesa along southern edge of valley.



Photo 3. View of existing holding tank located on east side of water treatment plant, where untreated mine water will be pumped from Jeffrey Air Shaft via double-lined HDPE pipe, once the newly installed 60 HP submersible pump is online. The new pipeline has been installed (indicated with arrow).



Photo 4. View of Steve Adit where water is currently pumped in from sump collection system and pumped out to water treatment plant (in lowering the mine pool).



Photo 5. View of area just east of the water treatment plant where several open top plastic tanks were being stored for use in an upcoming wetland study.



Photo 6. View of cleared off area on top of mesa, east of water treatment plant, where wetland study will be conducted.



Photo 7. View looking west showing excavation activities taking place in the valley during the inspection.



Photo 8. View of Minnesota Adit where excavated alluvial fill is transported for disposal into the CV Glory Hole.



Photo 9. View looking east down the valley, showing groundwater monitoring wells MW-15 and MW-16 (circled) located on the hillside above the water treatment plant.



Photo 10. View looking east, showing dedicated winch system constructed on concrete footer adjacent to Jeffrey Air Shaft for new 60 HP submersible pump (installed inside the mine this spring).



Photo 11. Closer view of Jeffrey Air Shaft in which new 60 HP submersible pump was installed this spring. Note double-walled HDPE pipe in which untreated mine water will be conveyed downhill to the water treatment plant once the new pump is online.



Photo 12. View looking downstream from upgradient cutoff wall in Ralston Creek, showing creek dry during inspection.



Photo 13. View looking at upgradient cutoff wall/head gate in Ralston Creek, showing creek flowing at time of inspection.



Photo 14. View of green-colored pool (indicated with arrows) still present in ditch adjacent to Glencoe Valley Road, near toe of NWRP. The operator believes this is seep water from the nearby NWRP, and hopes to address this issue by installing the stormwater control structures proposed in TR-28.



Photo 15. View of red-colored pool still present in area between creek and green-colored pool (shown in Photo 14). The operator believes this pool represents seep water starting to mix with creek water prior to joining the creek near the cutoff wall.



Photo 16. View looking west down north edge of NWRP (approx. edge of pile indicated with dashed yellow line) where operator proposes (in TR-28) installing a stormwater control structure to divert upgradient surface water around pile to creek below.



Photo 17. View looking across top of NWRP, showing approximate area (indicated with yellow dashed line) where saturated conditions were observed during inspection.



Photo 18. View looking up drainage above NWRP. Note pile of woody debris and large rocks present near area where drainage meets top of pile.



Photo 19. View looking up drainage above NWRP (further up drainage than shown in Photo 18). Note trickle of water flowing in drainage during inspection (indicated with arrow).



Photo 20. View inside pumpback sump #4, showing sump dry during inspection.

Inspection Contact Address

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