



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: Cross Gold Mine	MINE/PROSPECTING ID#: M-1977-410	MINERAL: Gold, copper, silver, zinc and lead	COUNTY: Boulder
INSPECTION TYPE: Monitoring	INSPECTOR(S): Amy Eschberger, Michael Cunningham, Russ Means	INSP. DATE: January 11, 2022	INSP. TIME: 09:45
OPERATOR: Grand Island Resources LLC	OPERATOR REPRESENTATIVE(S): Richard Mittasch, Daniel Pollock, Daniel Takami	TYPE OF OPERATION: 110(2) - Hard Rock Limited Impact	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: None	BOND AMOUNT: \$39,811.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: January 18, 2022

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>N</u>
(HB) HYDROLOGIC BALANCE----- <u>N</u>	(BG) BACKFILL & GRADING----- <u>N</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</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>N</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>N</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 Cross Gold Mine (Permit No. M-1977-410) conducted by Amy Eschberger, Michael Cunningham, and Russ Means of the Division of Reclamation, Mining and Safety (Division). The operator was represented during the inspection by Richard Mittasch, Daniel Pollock, and Daniel Takami. Starting in 2022, this site will be inspected on a quarterly basis. This inspection serves as the 1st quarter inspection for 2022. The focus of this inspection was to observe the new water treatment system operating at the site. Significant snow cover was present during the inspection. **Photos 1-7** taken during the inspection are included with this report. The site is located approximately 4 miles northwest of Nederland, CO in Boulder County, at an elevation of approximately 9,760 feet. Access to the site is off of Caribou Road. A separate entrance exists for each of the two mines at the site, the Cross Mine (to the south) and the Caribou Mine (to the north).

This is a 110(2) underground mining operation permitted for 8.95 acres (see two enclosed Google Earth images of site) to mine for gold, silver, copper, zinc, and lead. The permit area includes two discharging mine openings: the Cross Mine portal (at the Cross Mine) and the Idaho Tunnel portal (at the Caribou Mine). Previously, discharge from these mines was directed to a series of plastic-lined ponds prior to being discharged into Coon Track Creek at the permitted discharge point. Only the Cross Mine water was treated (with daily lime addition in Pond 1 prior to discharge into Pond 2). Water from the Caribou Mine was directed through three settling ponds (Ponds 3A, 3B, and 3C) prior to being routed to Pond 2, where it was combined with the treated water from the Cross Mine. The combined mine water in Pond 2 was then discharged via pipeline to the approved outfall at Coon Track Creek. With the increased activities occurring underground over the past few years (e.g., rehabilitation, exploration), the previous water treatment system is no longer sufficient at ensuring mine water meets discharge standards. The operator conducts bi-monthly water sampling at the discharge point and reports this data to the Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division (WQCD) in accordance with their discharge permit. The mine permit does not include an approved water monitoring program at this time, and therefore, no monitoring data is reported to the Division.

This permit is currently under a Notice of Violation/Cease and Desist Order (Order) issued by the CDPHE, WQCD on November 5, 2021 (revised on November 30, 2021) for violations of the discharge permit. The Violation was issued in part for exceedances of effluent limitations set for cadmium, copper, lead, silver, and zinc going back to December of 2020. The Order issued by WQCD includes multiple corrective actions with deadlines ranging from 30 to 90 days, and a requirement to start submitting quarterly progress reports.

This permit was also issued a Violation (No. MV-2021-017) and Cease and Desist Order by the Colorado Mined Land Reclamation Board (MLRB) during the December 15, 2021 enforcement hearing, for failure to minimize disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems both during and after the mining operation and during reclamation. The MLRB requires the operator to submit, by February 28, 2022, a Technical Revision to modify the water management and treatment program for the site to sufficiently address all water quality issues, and provide a surface water and groundwater monitoring program that meets all applicable requirements of the Rules. This revision must be approved by the Division by April 29, 2022. The MLRB also requires the operator to submit, within 30 days of the effective date of the Board Order, an interim financial warranty in the amount of \$162,841.00 for water treatment at the site. Additionally, the operator must submit quarterly progress reports starting with the first quarter of 2022, and appear at the December 2022 Board meeting to provide a status update on the corrective actions required by the Board Order. While the MLRB found the above violation, Cease and Desist Order, and corrective actions during the December 15, 2021 hearing, it continued consideration of the civil penalties associated with this violation to the January 19-20, 2022 meeting. Per the MLRB's request, the January hearing will also include a status update on site activities,

particularly with regard to water treatment. After the January hearing, a Board Order will be issued for Violation No. MV-2021-017, which details the MLRB's findings, violation, Cease and Desist Order, corrective actions, and civil penalties (as assessed during the December 2021 and January 2022 hearings).

The MLRB's Cease and Desist Order prohibits any further activities underground, except those activities approved by the Division in writing, as necessary to comply with the conditions of the Board Order, protect water quality, prevent damage to off-site areas, complete reclamation, or to protect public health and safety, until the corrective actions have been resolved to the satisfaction of the Division. No mining activities are occurring at the site at this time. Site activities are currently focused on maintenance, safety, and water management/treatment. In accordance with the Cease and Desist Order, the operator has requested the Division's approval of several site activities categorized by priority level (1-3). The Division approved all activities classified as "Priority 1" and all but one of the activities classified as "Priority 2" within 24 hours of the operator's request. After the operator provided additional information on the proposed activities, the Division also approved one of the "Priority 3" activities. However, the Division has requested additional details on the remaining "Priority 3" activities and Hydrogeologic Study before these activities can be approved under the Cease and Desist Order. After discussing the proposed activities during the inspection, the Division has a better understanding of what the operator is proposing in the "Priority 3" activities associated with the Cross Mine, and believes these activities could be approved after the operator has formally submitted the additional information requested.

During the inspection, the Division observed the new treatment system which has been operating on site since December of 2021. This new system operates inside of an insulated Conex box located at the Cross Mine, and includes both filtration and heavy-metal polishing components. The filtration system alone has operated on site since November of 2021. At this time, discharge from the Caribou Mine is being routed via pipeline to Pond 1 where it combines with discharge from the Cross Mine. Water levels in the pond are being maintained via a 3 HP pump/pressure transducer system. Water from Pond 1 is pumped via pipeline to the treatment system inside the Conex box. Water entering the treatment system goes through a series of four bag filters (5-micron) before entering a vessel with adsorptive materials (MetSorb). It should be noted, two polishing vessels are present inside the Conex box; however, the operator has determined only one vessel is needed at this time, as using both vessels appeared to be "over-treating" the water, resulting in pH issues. A new pipeline was installed to route treated water from the Conex box to the existing monitoring shed near Pond 2, where it joins with the existing discharge pipeline to Coon Track Creek. Pond 2 is not used to manage mine water under the current treatment regime.

The operator has installed automation instrumentation on the new treatment system to allow for 24/7 operation and remote monitoring. The system just began operating on a continual basis the night before the inspection. The operator is still working to fine tune this system to effectively treat mine water at the site, and will most likely need to make some adjustments along the way to ensure the system is capable of treating the higher volumes of water that come with spring runoff. The operator has solicited the expertise of Class A Industrial Waste Water Treatment Operator Patrick Delaney in evaluating the water management/treatment system at the site. The operator will provide details of the new water treatment system, including all associated new infrastructure, in the forthcoming Board-Ordered Technical Revision. This revision will also include an updated bond estimate that includes costs for operating and maintaining this system as well as for removing this system and its associated infrastructure for final reclamation. As mentioned above, the operator is required (by the MLRB) to post an interim financial warranty for water treatment at the site. However, the Division will evaluate the actual costs for water treatment in its review of the detailed plan provided in the Board-Ordered revision.

At the time of the inspection, sampling data for December was not yet available. The operator expects to get these laboratory results back by the time of the January Board hearing. The December sampling data must be

reported to WQCD (for the discharge permit) by January 28, 2022. The operator did inform the Division that the 4th quarter Whole Effluent Toxicity (WET) passed on December 27, 2021. In the Board-Ordered revision, the operator must provide all available sampling data demonstrating the new treatment program is effective at ensuring compliance with discharge standards. Additionally, the operator must notify the Division of any future WQCD compliance advisories issued for the site.

It should be noted, the Division participated in an additional joint agency meeting with WQCD, Boulder County, and the City of Boulder on January 13, 2022 to discuss this site (the last meeting occurred on November 22, 2021). During this meeting, the Division provided an update on the December 2021 MLRB hearing, the upcoming January 2022 MLRB hearing, citizen complaints received for the site, site activities approved under the MLRB's Cease and Desist Order, the new water treatment system (observed during this inspection), and on the status of the adequacy review process for Amendment No. 2 (AM-2). WQCD indicated the operator had been in regular communication with their office and seemed to be actively working to address the violations with their discharge permit. WQCD also mentioned the last sampling data submitted to their office (for November) was compliant with all effluent limitations except for lead and pH. They are currently waiting to review the results from the December sampling.

As of the signature date of this inspection report, the Division has processed a total of 53 citizen complaints against the operation, copies of which, were forwarded to the operator for review. On January 11, 2022, the operator provided a response to the issues identified in the complaints. The Division is currently investigating jurisdictional issues identified by the complainants, particularly those claiming impacts to groundwater wells. While very limited water quality data was provided with the complaints (only one sampling event at one well), the Division is also reviewing available water quality data provided by the City of Boulder for the Barker Reservoir Watershed. At this time, the Division anticipates concluding its investigation of the complaints by the end of the month.

The Division continues to review AM-2, which was filed with our office on February 8, 2021. The pre-operation inspection for AM-2 was conducted on June 24, 2021. AM-2 proposes a 1.04 acre increase in the permit area, for a new permit area of 9.99 acres (the maximum permit area allowed under the existing 110 permit). While AM-2 does propose adding a new internal mine road and two additional mine openings for ventilation purposes, the primary purpose of this amendment application is to incorporate offsite affected lands into the permit as a required corrective action for a problem cited in the Division's October 9, 2020 inspection report. The Division has issued a total of three adequacy review letters for AM-2 thus far, the last of which, was issued on December 29, 2021. The Division is currently waiting for the operator's response to its most recent adequacy letter. The current decision date for AM-2 is set for February 8, 2022. Per Rule 1.4.1(9), an applicant may request the office's review time of an application be extended and the decision date reset, not to exceed 365 days from the date the application was filed, which in this case, is February 8, 2022. Therefore, Division staff will not be able to approve any additional extensions of the decision date. For AM-2 approval, the operator must satisfy all remaining adequacy items by the February 8, 2022 decision date. It should be noted, the Division received untimely comments on AM-2 from Save The Colorado (on December 28, 2021) and City of Boulder Utilities (on January 14, 2022), which have been forwarded to the operator.

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 across Ponds 3A-C (covered with snow) at the Caribou Mine. Discharge from the Caribou Mine is currently routed to Pond 1 to combine with Cross Mine water prior to entering the new water treatment system.



Photo 2. View looking southeast across Pond 1 at the Cross Mine. Discharge from both the Caribou and Cross mines is currently routed to this pond, from which, it is pumped to the new treatment system (inside insulated Conex box visible in background).



Photo 3. Closer view of insulated Conex box stored at Cross Mine, which houses new water treatment system. Note water inlet pipe (at bottom right, indicated) which transports mine water (from Pond 1) into treatment system.



Photo 4. View inside insulated Conex box stored at Cross Mine, which houses new water treatment system. Note filtration system in foreground (circled) consisting of four bag filters, through which, mine water is first run.



Photo 5. View inside insulated Conex box stored at Cross Mine, which houses new water treatment system. Note polishing system consisting of two blue vessels, through which, mine water is run after passing through filtration system. As mentioned above, only one of these vessels is in use at this time.



Photo 6. View looking north/northeast at Pond 2 (covered with snow; indicated), not used by current water management/treatment system.



Photo 7. View looking east at new pipeline (indicated) installed to transport water from new treatment system to existing monitoring shed (circled) near Pond 2, where it joins with existing pipeline to discharge at permitted outfall on Coon Track Creek.

Inspection Contact Address

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Encls: (2) Google Earth images of site

CC: Daniel Pollock, Grand Island Resources LLC
Daniel Takami, Grand Island Resources LLC
Michael Cunningham, DRMS
Russ Means, DRMS

M-1977-410 / Cross Gold Mine / Grand Island Resources LLC / 110(2) Permit

Red outline = 8.95 acres = Approved permit area (location approximated based on permit maps)

Blue outline = Approx. location of lined ponds

Yellow box = Approx. location of Conex box housing new water treatment system

Yellow line = Approx. location of new pipelines installed to direct water from Pond 1 through new treatment system then to existing discharge pipeline
(Image data from 9/13/2019)



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(Closer view of new water treatment infrastructure)

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