

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
HARD ROCK MINING BUREAU
OPERATING PERMIT – FIELD INSPECTION REPORT

Operator: Montana Resources, LLC				Inspection Date: November 22, 2022			
Operating Permit #: 00030			Project: Montana Resources- Continental Mine Complex			County: Silver Bow	
Nearest City or Town(s): Butte							
DEQ Staff: Macy Livesay, Tim Matthews, Mark Odegard, Garrett Smith				Company Representative(s): Mark Thompson, Jeremy Fleege			
Agencies w/overlapping Jurisdiction:		USFS		BLM		Other	X None
Minerals: Copper, molybdenum, minor silver							
Status:		X Active		Inactive		Suspended	Other
Weather: Partly cloudy, high temp 40°F							
Type of Operation:				Purpose of Inspection:			
X	Open Pit				Initial (Pre-permitting)		
	Underground			X	Regular Compliance		
	Placer				Amendment #		
X	<i>Heap Leach- Leach pads near HSB no longer receiving solution</i>				Complaint Received		
	Vat Leach				Bond Release		
X	Mill				Other		
	Other:				NON issued		

INSPECTION CHECKLIST
(N/O = Not Observed, N/A = Not Applicable)
Additional notes are italicized

GENERAL:

	Yes	No	N/O	N/A	
	X				All mining-related disturbances within permitted and bonded areas.
				X	Incremental bonding requirements have been submitted
	X				Following approved mining plan and permit conditions
	X				Following approved monitoring plans
	X				Reclamation concurrent with mining

MATERIAL HANDLING:							
	Yes		No		N/O		N/A
	×						Soil salvage according to plan
	×						Soil stockpiles properly maintained: <i>Soil is being salvaged and stockpiled near D East to prepare for highwall layback. The Moulton Ridge/west side stockpiles were not observed</i>
	×	and	×				Special handling/stockpiling of materials consistent with plan: <i>Lunchroom stockpile is providing borrow material for Parrot waste removal project. Not a violation of permit, but language in Op/Rec Plan should be updated to consider this offsite use.</i>
FACILITIES:							
	Yes		No		N/O		N/A
	×						Construction reports properly filed.
	×						Acceptable liner integrity
	×						Tailings impoundment/heap leach/dump design as approved
	×						Road construction as approved
WATER CONTROLS:							
	Yes		No		N/O		N/A
	×						Erosion-control measures (BMPs) concurrent with mining,
	×						Erosion/sedimentation mitigations acceptable: <i>Reclaimed surfaces to be further assessed as vegetation is established. Maintenance and repairs would follow Erosion Control Plan.</i>
					×		Culverts installed and maintained as approved
					×		Diversions maintained and functioning as approved
	×						Process/storage/settling pond(s) constructed, operating, and maintained.
	×						Acid rock drainage controlled
	×						Adequate freeboard in all solution storage and process facilities
AIR QUALITY:							
	Yes		No		N/O		N/A
	×						Acceptable air quality. <i>No fugitive dust observed, snow and ice cover on roads and tailings.</i>
OTHER:							
	Yes		No		N/O		N/A
	×						Noxious weeds controlled. <i>Some weeds observed on reclamation areas during prior growing season (dormant now). Weed control to continue in upcoming year.</i>
	×						Wildlife mitigations in place and functioning: <i>Continuing success for the Berkeley Pit bird mitigation program during migration.</i>
						×	Cultural resource mitigations properly implemented

			×				Water sample(s) taken.
			×				Materials sample(s) taken
	×						Photos taken
	×						Are revisions or amendments anticipated in the next year? <i>Updated Op/Rec Plans in January 2023, amendment to raise TSF embankment crests and align storage capacity with ore reserves</i>
			×				Is comprehensive 5-year bond review due in the next year? Date of next 5-year bond review: <i>Final due in January 2026</i>
							Other

DISCUSSION: DEQ staff arrived and signed in at Montana Resources (MR) offices at 9:00 AM. The site inspection focused on areas of recent activity and upcoming permit modifications-- the Continental Pit, Yankee Doodle Tailings Impoundment (YDTI), Horseshoe Bend (HSB) area, and the concentrator facilities. **Compliance assistance and recommendations are provided in bold.**

Migratory Birds

The fall monitoring program for migratory birds typically runs from August 15 through December 31 each year. The methods used to identify and deter birds that land on the Berkeley Pit Lake are continuously improving (Photo 1). Although the water quality is not acutely/immediately toxic, prolonged exposure can lead to increased bird mortality. Based upon the characteristics and habits of each species, MR staff have been trained to implement different methods during different times of the day to prevent the birds from staying on the pit lake for extended periods of time. The methods used to deter birds have included noise machines, lasers, spotlights, aerial or aquatic drones, rifles, propane cannons, and fireworks. During the inspection, a contractor was conducting tests with a new type of autonomous aquatic drone that would continuously circulate around the lake surface. MR reported that the mitigation program continues to be successful. Two weeks prior to this inspection, there were approximately 2,000 birds that landed temporarily on the pit lake, no mortalities were reported.

Continental Pit and D East Highwall

As discussed with DEQ through late September and October, MR has observed areas of instability on the D East highwall in the Continental Pit. On October 26, 2022, permit revision MR22-002 was approved for additional disturbance and overburden removal to the east of the current extent of the highwall, to create a shallower slope on the rock face and limit future instability. **No changes were made to the current provisions in the Operating Plan about blasting within the Continental Pit, but MR committed to proactive communication and planning with DEQ and Dept. of Transportation if future blasting would be necessary less than 1,000 feet from the interstate right-of-way.**

As predicted by the pit monitoring system, a failure occurred in the central portion of the D East highwall in the middle of the night on November 1, 2022 (Photos 2 and 3). Although an estimated 1 million tons of rock were displaced along a series of benches, there were no employee injuries or damage to equipment. Vegetation removal and soil salvage are ongoing to the east of the highwall and this material is being stockpiled in other locations along the East Dump Complex, where it may be more easily accessed for future use during reclamation (Photo 4). MR currently estimates that the removal of overburden and displaced rock may take approximately two years to complete. Mining continues in other portions of the Continental Pit, with little influence from the recent failure.

YDTI Embankments and Tailings Management

Waste rock is being used as construction material to expand the capacity of the Yankee Doodle Tailings Impoundment (YDTI) by raising the embankment crests to 6,450 feet (Amendment 010). Only a portion of the crest has not been

constructed to this elevation, near the juncture between N-S and E-W Embankments (Photo 5). The primary haul route now follows along the ramp constructed on the N-S Embankment.

A wide beach area is important to separate the tailings pond from the embankments, thus contributing to the safety and stability of the facility. During Q2 and Q3, MR completed the installation of 18 new tailings discharge locations around the YDTI, which consist of single or twinned 12-inch pipelines. This will allow greater flexibility for selectively applying tailings slurry in areas that might become dry and prone to blowing dust, and to control the development of the beach and pond areas (Photos 6 and 7). Dust control efforts in 2022 have also included the application of 1.5 million gallons of magnesium chloride on the tailings beach. The storage tanks and bladders positioned around YDTI allow for more rapid filling and deployment of the tracked vehicles used for dust suppression. Satellite images are reviewed twice per month to observe the shape of the tailings beach and the position of the pond with regard to the embankments. The shortest beach length between the pond and embankment in Q3 was observed at the northern end of the North-South Embankment and estimated to be approximately 1,450 feet, similar to the previous quarter.

The West Embankment crest has been constructed to an elevation of 6,450 feet and tailings discharge along this side of YDTI continues to develop a wide beach between the West Embankment and the supernatant pond. Compost is being stockpiled along a portion of the embankment, to be mixed with soil during concurrent reclamation (Photo 8). **Based on project scheduling and material availability, the concurrent reclamation of the downstream (outer) slope of the West Embankment should proceed as approved in Amendment 010.** Along the northwest part of the permit area, contractors for Butte-Silver Bow are in the process of relocating a pipeline that conveys water from Moulton Reservoir to the municipal water treatment plant to the north of Walkerville (Photo 9). This construction activity was anticipated and included in the YDTI expansion approved in Amendment 010.

YDTI Water Management and Superfund Overlap

Some details were obtained from the "Q3 2022- YDTI Quarterly Water Data Summary; Knight Piésold, 11/28/2022). The elevation of the YDTI supernatant pond is measured weekly. At the end of Q3 (9/29/2022), the water elevation was 6,358.4 feet. The objectives for hydrodynamic containment approved in Amendment 010 were based on the lowest elevation identified for groundwater in the West Ridge (6,380 feet), although that groundwater elevation has risen in recent years. **Future permit modifications for the YDTI should consider these changing groundwater elevations and evaluate the objectives for hydrodynamic containment in terms of water elevations near/within the West Embankment Drain (WED).** The rate of pond elevation change is influenced by seasonal precipitation, tailings slurry deposition, and the rate of YDTI water being treated at the Polishing Plant and discharged offsite. The treatment and discharge steps are conducted as part of the Pilot Project for the BMFOU remedy, while simultaneously addressing MR's permit conditions to reduce the pond volume to approximately 15,000 acre-ft.

The YDTI pond had a net gain of approximately 145 million gallons (445 acre-ft) in Q3. This is the first quarter that did not result in a net decrease since the Pilot Project began in September 2019. In addition to increased precipitation in these months, water treatment and discharge to Silver Bow Creek was paused for approximately nine weeks (mid-July to mid-September). Due to naturally occurring high temperatures in the creek, the temperature requirements established for discharging water from the Polishing Plant could not be achieved. This short-term gain in the YDTI pond volume is not anticipated to have a significant impact on the objective to reduce the operational volume, but it indicates the degree of influence the Pilot Project has on the YDTI water balance.

The annual bathymetric survey and assessment of the YDTI pond volume occurred in June 2022. The estimated pond volume (approximately 21,500 acre-ft) indicates a decrease of 5,700 acre-ft (21%) since June 2021. The pond surface in June 2022 was estimated to be 480 acres, a decrease of 70 acres (13%) since 2021. If this rate of decrease continues, the target volume of 15,000 ac-ft may be reached in the next year or so. This is significantly faster than the decades-long drawdown period that was modeled and evaluated as part of permitting YDTI reclamation through Amendment

010. Future permit modifications for the YDTI should include updated models for pond drawdown and address different potential scenarios for water management, incorporating the observations made at the facility with and without the influences from the BMFOU Pilot Project.

At the south end of the West Embankment, the WED continues to discharge captured seepage into a lined extraction pond and the flow is pumped back into the YDTI. Between commissioning the system in November 2019 and late January 2022, the average weekly pumping rate for the dewatering system ranged from 250 gpm to 440 gpm. Since February 2022, the weekly averages have increased and range between 450 to 950 gpm. The elevated flows are attributed to the discharge of tailings near to the West Embankment, where the tailings have now overtopped the historical tailings pipeline corridor for the 6,400 ft lift of the embankment. The crest of the pipeline corridor acts as a preferential pathway for tailings water to infiltrate into the WED.

A short-term peak of 2,670 gpm was measured between July 9 to 15, before returning to more typical values. This high flow was an isolated event and associated with power outages and increased infiltration of tailings water into the WED. Although considerably higher than other measurements to date, this flow was still within the designed total capacity for the WED (4,500 gpm). MR monitors the daily pumping records and conducts regular visual inspection of the tailings beach adjacent to the West Embankment. No signs of tailings slurry flowing directly into the embankment or other adverse conditions have been observed. **Water quantity and quality monitoring in the WED Extraction Pond should continue as specified in the Operating Plan. These results should be compared to the modeling assumptions that were included in Amendment 010 and incorporated into the development of water management plans associated with future YDTI expansion.**

Horseshoe Bend (HSB) and Concentrator

The inspection continued to the HSB overlook near Tailings Booster Station #3, before going through the HSB area (Photo 10). On July 14, 2022, DEQ approved Minor Amendment 011 for the construction of a rock disposal site (RDS) within the HSB area, at the southern toe of YDTI. The RDS would include a foundation drainage layer and engineered rock drains to capture and convey seepage flows from underneath the RDS, through a conveyance channel, and then to the management and treatment systems required under the Superfund remedy. Stockpiles of rock from the Pipestone Quarry have been placed within the HSB area, awaiting placement and drain construction (Photo 11). Three different size fractions of rock would be used to create the layered drains, similar in construction to the WED. The foundation drainage layer was being placed during the inspection and based on the rapid infiltration of seepage that was observed, it seems likely that most of the seepage that emanates in HSB would be conveyed within this layer, beneath the layered rock drains (Photos 12 through 14). The HSB Weir provides monitoring data for the total flow leaving the HSB area. The average flow measured in the HSB Weir during Q3 was approximately 3,220 gpm, which is comparable to the average flows observed since the recirculation of leach pad solutions was stopped in July 2021.

The historical copper precipitation plant has been undergoing demolition in preparation for the RDS construction, though some portions of the plant are still operational at decreased capacity (Photo 15). Copper is being recovered from water pumped out of the Berkeley Pit, when not disrupted by freezing conditions. A new precipitation plant is being constructed to the south of HSB, near the HSB Water Treatment Plant (Photo 16). This facility was approved on October 26, 2022 as revision MR 22-001. MR reported that the facility would be operational in 2023, although some aspects of construction (particularly electrical work) have recently been delayed. The site inspection concluded with an overview of the milling and concentrating facilities as an orientation for new DEQ staff. These pre-1971 processing facilities are exempt from the permitting and bonding requirements of the MMRA.

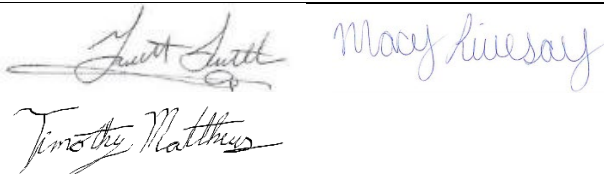

Pending Actions

- Site-Wide Reclamation Plan- As described in the Minor Amendment 011 application, “MR's Consolidated Operations and Reclamation Plans were preliminarily submitted to DEQ on December 10, 2021 and will be formally submitted to DEQ as a permit revision later in 2022. Revised pages and exhibits in both plans that

are specific to this permit modification are listed in Attachment 5.” DEQ’s approval of the minor amendment included a stipulation for the submittal of updated Operations and Reclamation Plans by January 10, 2023. MR has discussed the ongoing preparation of these documents and DEQ has reviewed MR’s preliminary responses to deficiency comments provided for the Plans in January 2022.

- Exploration License #00711- Most of the disturbances associated with exploration have been reclaimed and bond released, or incorporated into the Operating Permit. One exception is a small access road to the north of YDTI. MR indicated that this area would be incorporated into the Operating Permit in a future modification to expand the YDTI. **DEQ is currently reviewing bond amounts held for exploration projects, and MR said they would prefer that DEQ retain any unobligated bond rather than proceed with bond release. Exploration License #00711 currently has four cash bonds and DEQ will reach out to MR to address organizing the bonds and updating the affiliated name from “Montana Resources, LLP” to “Montana Resources, LLC.”**

The site inspection concluded by 12:30 pm. No issues were noted that need immediate attention. Recommendations and action items are shown in bold above.

Signature of Inspector(s):		Date:	12/9/2022
Signature of Reviewer:		Date:	12/12/2022
Copy reports to:	Permittee (c/o Mark Thompson, Montana Resources); eFile 00030.3		

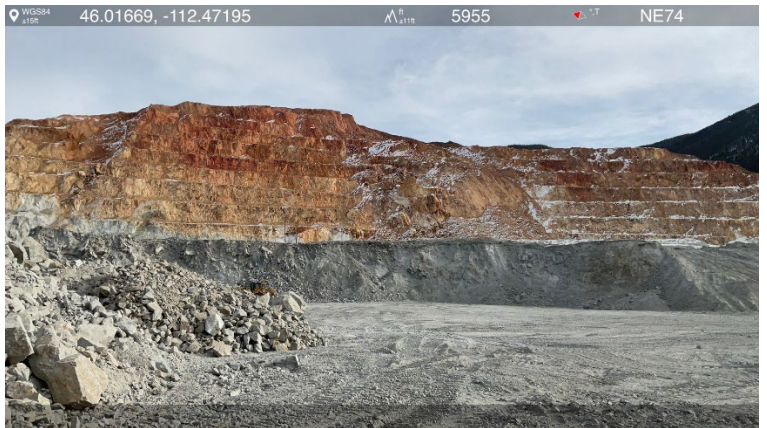
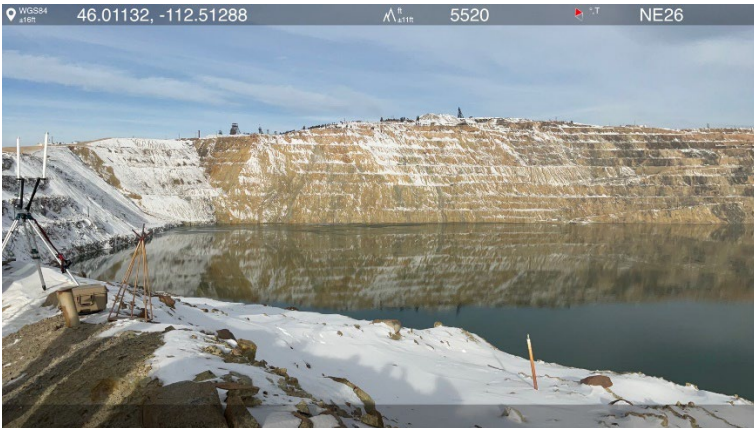


Photo 1- The methods used to identify and deter birds that land on the Berkeley Pit lake are continuously improving. During the inspection, a contractor was conducting tests with a new type of autonomous aquatic drone that would continuously circulate around the lake surface. **Photo 2-** A failure occurred in the central portion of the D East highwall on November 1, 2022. Although an estimated 1 million tons of rock were displaced along a series of benches, there were no employee injuries or damage to equipment.

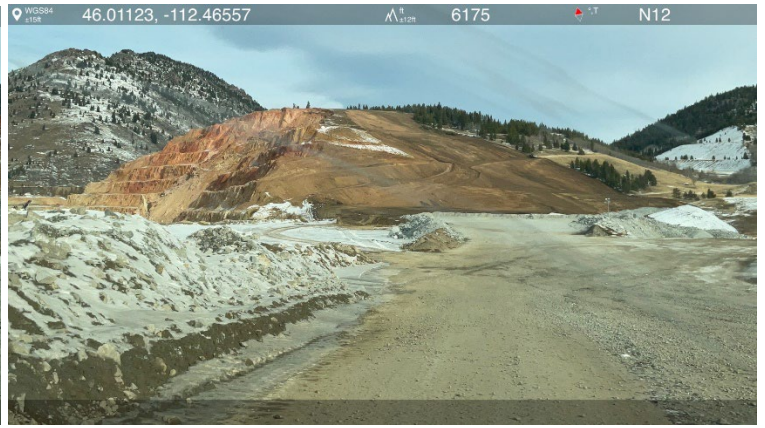


Photo 3- Note that the lateral extent of the failure was limited by a wide access road which separates the D East area from the deeper portions of the Continental Pit (to the left of this view). **Photo 4-** Vegetation removal and soil salvage are ongoing to the east of the highwall and this material is being stockpiled in other locations along the East Dump Complex, where it may be more easily accessed for future use during reclamation.



Photo 5- Only a portion of the crest has not been constructed to this elevation, near the juncture between N-S and E-W Embankments (outlined in black). The primary haul route now follows along the ramp constructed on the N-S Embankment (orange dashes).



Photo 6- Additional tailings discharge lines have been installed around the perimeter embankments of YDTI. Note the diminishing remnants of the “Rocky Knob” granite outcrop, which used to be a prominent topographic feature above the beach. **Photo 7-** Additional tailings discharge lines will allow greater flexibility for selectively applying tailings slurry in areas that might become dry and prone to blowing dust, and to control the development of the beach and pond areas.



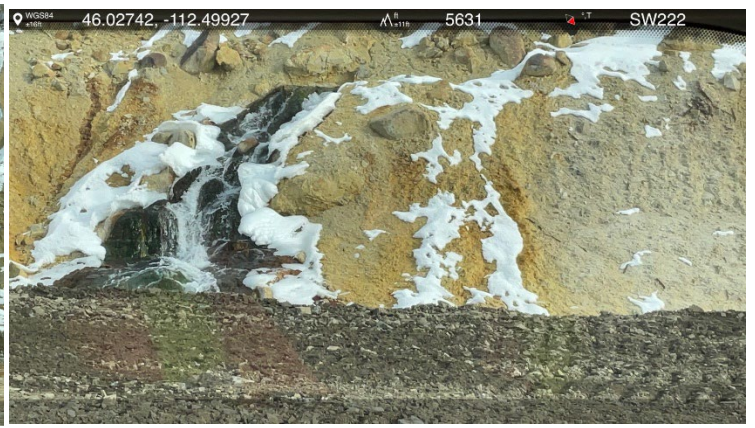
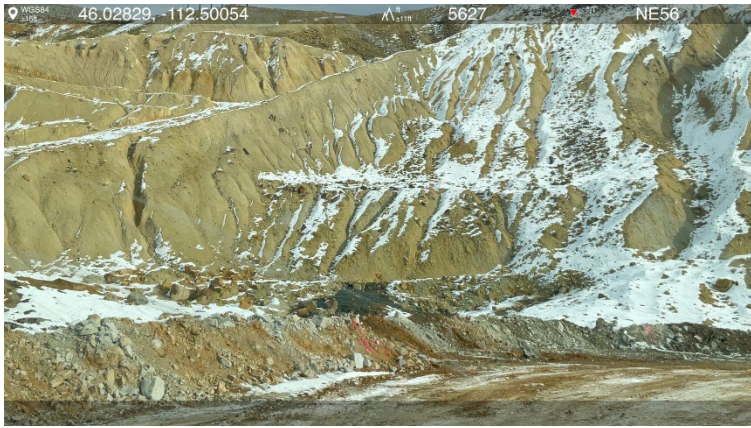
Photo 8- Compost is being stockpiled along a portion of the West Embankment, to be mixed with soil during concurrent reclamation. **Photo 9-** The interior/upstream face of the West Embankment, with tailings discharge lines across the slope.



Photo 10- The HSB overlook near Tailings Booster Station #3, major features from the report are outlined and labeled.



Photo 11- Stockpiles of rock from the Pipestone Quarry have been placed within the HSB area, awaiting placement and drain construction. **Photo 12-** The foundation drainage layer was being placed during the inspection, prior to the construction of rock drains.



Photos 13 and 14- Based on the rapid infiltration of seepage that was observed going directly into the foundation drainage layer, it seems likely that most of the seepage that emanates in HSB would be conveyed within this layer, beneath the layered rock drains.



Photo 15- The historical copper precipitation plant has been undergoing demolition in preparation for the RDS construction, though some portions of the plant are still operational at decreased capacity. Copper is being recovered from water pumped out of the Berkeley Pit, when not disrupted by freezing conditions. **Photo 16-** A new precipitation plant is being constructed to the south of HSB, near the HSB Water Treatment Plant. This facility was approved as revision MR 22-001.