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

Operator: Montana Resources, LLC							Inspection Date: September 28, 2023				
Operating Permit #: 00030				Project: Montana Resources-Continental Mine Complex				County: Silver Bow			
Nearest City or Town(s): Butte											
DEQ Staff: Tommy Butler, Eric Dahlgren, Wayne Jepson, Tim Matthews, Garrett Smith; Dan Seifert (BLM)							Company Representative(s): Mark Thompson				
Agencies w/overlapping permit jurisdiction:		USFS		BLM		Other	✕	None			
Minerals: Copper, molybdenum, minor silver											
Status:	✕	Active		Inactive		Suspended		Other			
Weather: Partly cloudy, high temp 60°F											

Type of Operation:		Purpose of Inspection:	
✕	Open Pit		Initial (Pre-permitting)
	Underground	✕	Regular Compliance
	Placer		Amendment #
✕	Leach- *Leach pads near HSB not receiving solution*		Complaint Received
✕	Tailings Storage Facility: [✕] Active or [ ] Inactive		Bond Release
✕	Mill	✕	Other (tour, data collection, baseline, TSF, etc.)
	Other: (surface rock picking, trenching or excavation)		NON issued

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

GENERAL:								
	Yes		No		N/O		N/A	
	✕							All mining-related disturbances within permitted and bonded areas.
							✕	Incremental bonding requirements have been submitted
	✕							Following approved mining plan and permit conditions
	✕							Following approved monitoring plans
	✕							Reclamation concurrent with mining: *Active reclamation on TSF West Embankment*

MATERIAL HANDLING:								
	Yes		No		N/O		N/A	
	✕							Soil salvage according to plan
	✕							Soil stockpiles properly maintained: *Soil salvaged from N/NW of TSF West Embankment*
	✕							Special handling/stockpiling of materials consistent with plan

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: *Maintenance and repairs to follow Erosion Control Plan as needed. See notes about East RDS access road*
	×							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: *No fugitive dust observed. Water is sprayed on the roads and multiple strategies used on the tailings*
OTHER:								
	Yes		No		N/O		N/A	
	×							Noxious weeds controlled.
	×							Wildlife mitigations in place and functioning: *Berkeley Pit bird mitigation practices to increase during upcoming migration.*
							×	Cultural resource mitigations properly implemented
			×					Water sample(s) taken.
			×					Materials sample(s) taken
	×							Photos taken
	×							Are revisions or amendments anticipated in the next year? *Future amendment for TSF expansion, aligning mine life with ore reserves.*
			×					Is comprehensive 5-year bond review due in the next year? Date of next 5-year bond review: *Final due in January 2026*
								Other

DISCUSSION: DEQ and BLM staff arrived at Montana Resources (MR) offices at 1:30 PM. The site inspection focused on the recent testing of geotubes to recover rare earth elements or critical minerals (REE/CM), as well as ongoing operations and reclamation at the Yankee Doodle Tailings Impoundment (YDTI). **Compliance assistance and recommendations are provided in bold.**

Horseshoe Bend (HSB), Seep 10, and Water Treatment

On the way to the HSB Water Treatment Plant, haul road maintenance was observed around the Continental Pit (Photo 1). A water truck for dust suppression was encountered at multiple locations around the site. MR is currently coordinating with a research group from West Virginia to evaluate the potential to recover REE/CM from the precipitated sludge produced by water treatment at the HSB plant. In the days prior to this site visit, 24 geotubes were placed on a gravel pad area next to the plant (Photo 2). Following a two-stage lime addition to Berkeley Pit water (after copper precipitation) to reach target pH values of 4.5 and 8.5, the secondary sludge was conveyed through a series of hoses and valves to fill the geotubes at about 150 gpm (Photos 3 and 4). The geotubes are made of a woven synthetic material that allows water to escape through pores while retaining and densifying the solids.

Seepage from the area was collected in a perimeter ditch and directed back toward the Berkeley Pit (Photo 5). Filling the geotubes occurred more quickly than anticipated and the material has already reached approximately 30-50% solids, with about 140 tons located on the drainage pad. The geotubes will be cut open to obtain samples that will be contained in barrels and transported to West Virginia (Photo 6). In addition to analyzing the bulk composition of the material, it is important to better understand the processing methods necessary to separate the various REE/CM components. Further testing and conclusions are pending.

If further research and development proceeds, MR would likely investigate alternative pH endpoints or densification methods to optimize recovery. Further pH adjustment (>10) may also be needed for the treated water that would ultimately go to the concentrator. **Similar to the recovery of precipitated copper, the extraction of REE/CM from water treatment sludge would constitute the production of "minerals in commercial quantities for sale, beneficiation, refining, or other processing or disposition" (definition of mining, 82-4-301, MCA). Depending on the outcomes of feasibility testing, DEQ would like to further discuss potential permit implications for such a recovery system, as the operation, reclamation, and financial assurance for the system may also be addressed through the Butte Mine Flooding Operable Unit (BMFOU) water treatment agreements.**

The ongoing construction in HSB was observed and discussed on the way to the YDTI. DEQ approved Minor Amendment 011 on 7/14/2022 for the construction of the HSB RDS at the southern toe of YDTI. The RDS design includes 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 BMFOU remedy. Construction of the foundation drainage layer and rock drains is ongoing, while the old precipitation plant is being decommissioned. As a component of Minor Amendment 011, the seepage that emanates on a bench above HSB ("Seep 10") will eventually be diverted around the future HSB RDS. Instead of flowing directly to the HSB area, seepage will be routed into a lined channel and pipe system that is currently being constructed.

YDTI- Tailings Management and Reclamation

The YDTI was accessed near Booster Station 3, along a portion of the East-West Embankment. A wide beach area is important for separation of the tailings pond from the embankments, thus contributing to the safety and stability of the facility. There are now 28 tailings discharge points around the facility, which 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 7 and 8). During this site visit, there were very few surfaces across the beach that were not saturated and no fugitive dust was observed. The placement of magnesium chloride storage tanks and bladders positioned around YDTI also allows for more rapid filling and deployment of the tracked vehicles used for dust suppression (Photo 9).

Along the northwest part of the permit area, contractors for Butte-Silver Bow have finished relocating a pipeline that conveys water from Moulton Reservoir to the municipal water treatment plant to the north of Walkerville. MR contractors were salvaging soil along the northwest portion of YDTI, at the north end of the West Embankment. This material is being staged for placement along the downstream (west) slope of the West Embankment (Photos 10-12). Vegetation and organic debris that was removed during soil salvage has been placed in large piles and will be converted into mulch to be used as compost or organic soil amendment (Photo 11). As concurrent reclamation occurs, MR would like to implement different test plots to evaluate methods for the placement and amendment of cover soil and the success of revegetation. **DEQ requests more information about the proposed test plots and the variables to be evaluated. If new methods are ultimately identified and proposed for completing the final reclamation, the Reclamation Plan must be revised accordingly. If test plot areas fail to meet the requirements for comparable stability and utility to adjacent lands (82-4-336(9), MCA), then additional reclamation work would**

be required prior to bond release and closure. The testing regime for coversoil should be implemented for this material during placement (see Reclamation Plan, 2023), rather than the details specified for Central Zone alluvium. Testing would indicate whether any soil amendments may be necessary to support revegetation (e.g. lime, compost, fertilizer).

YDTI Water Management and Superfund Overlap

The YDTI pond elevation is influenced by surface water inflows, seasonal precipitation and evaporation, tailings slurry deposition, and the rate of YDTI water being treated at the Polishing Plant and discharged offsite as part of the Pilot Project for the BMFOU remedy. Through the end of Q2-2023, over 7.7 billion gallons have been treated and discharged since September 2019. Similar to the previous DEQ inspection, the current pond appears smaller and more distant than observed in quite some time. Modeling information from the Amendment 010 application (2017) indicates that the current tailings pond volume (~16,000-17,000 ac-ft) has not occurred since 2010-2012.

This is a notable reduction from the maximum volume that was observed prior to initiation of the Pilot Project (>34,400 acre-ft). The current water management strategies will continue for the foreseeable future to achieve the operational pond volume approved through Amendment 010 (15,000 acre-ft). This also aligns with plans proposed under the BMFOU Pilot Project to demonstrate the management of the tailings pond and evaluate various treatment scenarios. **Any proposed changes to the closure/post-closure water management strategies for the YDTI that are evaluated and approved by BMFOU parties should also be incorporated into the operating permit, likely as part of the next major amendment.**

While leaving the YDTI, the West Embankment Drain (WED) extraction pond was observed (Photo 13). This water is pumped back into YDTI through a floating barge. As part of resolving a stipulation for Amendment 010, MR engaged with BMFOU parties to evaluate the post-mining management of this seepage. In consultation with DEQ, EPA provided a letter on September 12, 2022 which confirms that the water collected by the WED after the cessation of mining would occur within the East Camp system and the agencies agreed that this water would be managed as part of the BMFOU remedy, rather than under the operating permit and reclamation bond.

The inspection concluded around 3:45 PM, with a wrap-up of the concepts that were discussed during the inspection. There were no issues identified that need immediate attention, although DEQ would like additional information about the reclamation test plots on the West Embankment.

Signature of Inspector(s):	Wayne Jepson Timothy Matthews	Date:	10/10/2023 10/16/2023
Signature of Reviewer:	Eric Dahlgren	Date:	10/16/2023
Copy reports to:	Permittee (c/o Mark Thompson, Montana Resources); eFile 00030.3		

Photo 1- Around the Continental Pit, graders and other equipment engaged in haul road maintenance. **Photo 2**- The geotubes are being tested near the HSB water treatment plant.

Photos 3 and 4- The piping and valve system used to dischage precipitated sludge into the geotubes, which are made of woven synthetic materials.

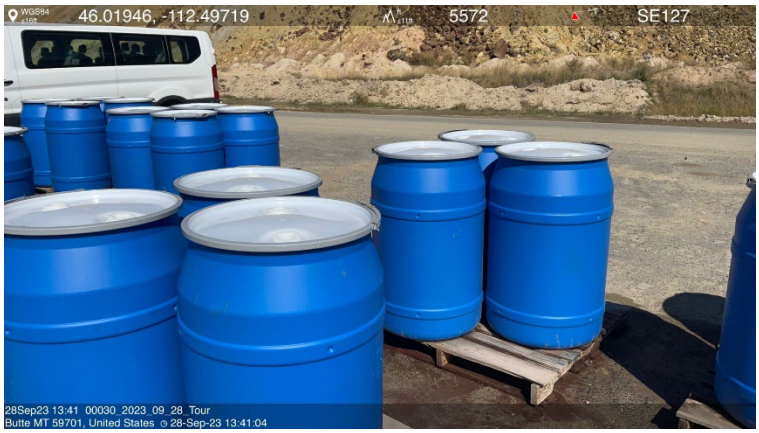

Photo 5- A drainage ditch was constructed around the gravel pad to contain water seeping out the geotubes. **Photo 6-** Sludge samples will be taken out of the geotubes and transported to West Virginia for further analysis.

Photos 7 and 8- Additional tailings discharge lines allow greater flexibility for selectively applying tailings slurry in areas that might become dry and prone to blowing dust, and to control the uniform development of the beach and pond areas. The internal face of the embankment has been covered with alluvium and graded. The rocks and vegetation in Photo 8 are the remaining exposure of "Rocky Knob."

Photo 9- Storage bladders for magnesium chloride are placed around YDTI to allow rapid filling and deployment for tracked vehicles as part of dust suppression efforts. **Photo 10-** Soil has been salvaged from the north end of the West Embankment and it's being placed on the downstream face of the embankment.

Photo 11- Equipment is placing and pushing soil along the West Embankment. **Photo 12-** Looking at the outer slope of the West Embankment, drain rock is visible at the bottom. Soil stockpiles in the distance have vegetation established and serve as visual barriers.

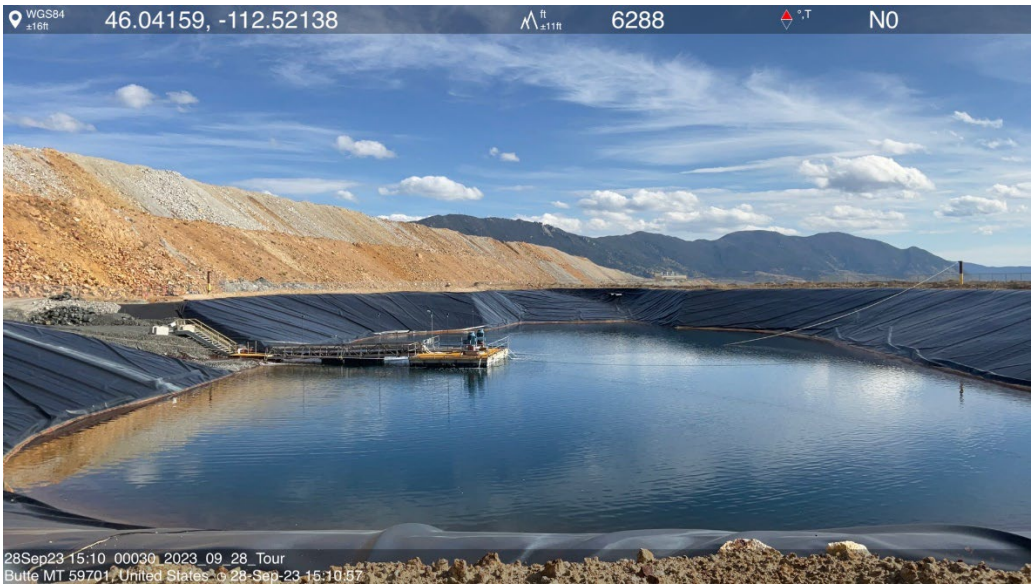

Photo 13- The extraction pond at the end point of the WED. This seepage from the West Embankment is being pumped back into YDTI during operations (via floating barge), and during post-closure conditions it will be managed with other water under BMFOU requirements.