

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

Permittee: Montana Resources, LLC			Inspection Date: June 25, 2024		
Operating Permit #: 00030		Project: Montana Resources- Continental Mine Complex		County: Butte-Silver Bow	
Nearest City or Town(s): Butte					
Inspector(s): Conor Fox and Ben Johnson (AQB), Garrett Smith (MB)			Permittee Rep(s): Jeremy Fleege		
Agencies w/overlapping permit jurisdiction:		<input type="checkbox"/> USFS	<input type="checkbox"/> BLM	<input checked="" type="checkbox"/> Other (EPA)	<input type="checkbox"/> None
Minerals: Copper, molybdenum, minor silver					
Status:		<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Inactive	<input type="checkbox"/> Suspended	<input type="checkbox"/> Other
Weather: Mostly sunny, high temp 84°F					
Type of Operation:			Purpose of Inspection:		
<input checked="" type="checkbox"/>	Open Pit		<input type="checkbox"/>	Initial (Pre-permitting)	
<input type="checkbox"/>	Underground		<input checked="" type="checkbox"/>	Regular Compliance	
<input type="checkbox"/>	Placer		<input type="checkbox"/>	Amendment # MR#	
<input checked="" type="checkbox"/>	Leach- <i>Leach pads near HSB not receiving solution</i>		<input type="checkbox"/>	Complaint Received	
<input checked="" type="checkbox"/>	Tailings Storage Facility: [ <input checked="" type="checkbox"/> ] Active or [ <input type="checkbox"/> ] Inactive		<input type="checkbox"/>	Bond Release	
<input type="checkbox"/>	Mill		<input checked="" type="checkbox"/>	Other (tour, data collection, baseline, TSF, etc.)- <i>Combined with AQB oversight of source testing</i>	
<input type="checkbox"/>	Other: (surface rock picking, trenching or excavation)		<input type="checkbox"/>	NON issued	

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

**GENERAL:**

	Yes	No	N/O	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mining-related disturbances within permitted and bonded areas
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Incremental bonding requirements have been submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Following approved mining plan and permit conditions
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Following approved monitoring plans
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reclamation concurrent with mining: <i>Ongoing reclamation on TSF West Embankment</i>

**MATERIAL HANDLING:**

	Yes	No	N/O	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soil salvage according to plan
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soil stockpiles properly maintained: <i>Soil salvaged from N/NW of TSF West Embankment, some direct-hauled and placed on embankment</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Special handling/stockpiling of materials consistent with plan

**FACILITIES:**

	Yes	No	N/O	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Construction reports properly filed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Acceptable liner integrity
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tailing impoundment/heap leach/dump design as approved

	X						Road construction as approved
WATER CONTROLS:							
	Yes		No		N/O		N/A
	X						Erosion-control measures concurrent with mining, BMPs in place: <i>Maintenance and repairs to follow Erosion Control Plan as needed.</i>
	X						Erosion/sedimentation mitigations acceptable
	X						Culverts installed and maintained as approved
	X						Diversions maintained and functioning as approved: <i>Diversions and berms were enhanced following brief water release in Nov. 2023</i>
	X						Process/storage/settling pond(s) constructed, operating, and maintained
	X						Acid rock drainage controlled
	X						Adequate freeboard in all solution storage and process facilities
AIR QUALITY:							
	Yes		No		N/O		N/A
	X						Acceptable air quality: <i>No significant fugitive dust observed. Water is sprayed on the roads and multiple strategies are used on the tailings</i>
OTHER:							
	Yes		No		N/O		N/A
	X						Noxious weeds controlled
	X						Wildlife mitigations in place and functioning
							X Cultural resource mitigations properly implemented
			X				Water sample(s) taken
			X				Materials sample(s) taken
	X						Photos taken
	X						Are revisions or amendments anticipated in the next year? <i>Future amendment for TSF expansion, potential disposal of offsite waste (BPSOU), potential developments for critical mineral recovery</i>
			X				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 at Montana Resources (MR) offices at ~10:50 AM. With representatives from the Air Quality and Mining Bureaus, the site inspection had a dual focus: 1) to oversee source testing being conducted by Bison Engineering (MR contractor) as a requirement for the Montana Air Quality Permit (MAQP 1749-14); and 2) to review the status of mining activities in the Continental Pit, Horseshoe Bend (HSB) area, and the Yankee Doodle Tailings Storage Facility (TSF). A preliminary meeting was held to review the goals for the inspection. **Compliance assistance and recommendations are provided in bold.**

#### Processing Facilities- Source Testing

The inspection began around the crushing, milling, and concentrator facilities located on the southern end of the site (Photos 1 through 3). Although the facilities are critical for mining operations, these are pre-1971 processing facilities that are exempt from the Hard Rock Mining Operating Permit (Attorney General Opinion, 1977). However, the MAQP includes these facilities and the permit requires that emission sources be tested on a 4-year interval. Bison Engineering was contracted to conduct sampling over multiple days. Two baghouses associated with the fine ore bins were being tested during this inspection, so the sampling was focused on particulate matter and the efficiency of filtration systems. Additional details are provided in a separate inspection report issued by DEQ-AQB.

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

On the way to the HSB area, the new copper precipitation plant was observed (Photos 4 and 5). This plant was approved as permit revision 22-001 on 10/26/2022, and MR noted that it was commissioned in late spring 2024. The new plant is functioning well, operating on a similar scale as the old plant that was recently demolished and removed from the HSB footprint. The process of cementing copper on scrap iron is not technically sophisticated, but it remains effective to remove copper from water in the Berkeley Pit and HSB seepage sources, before the water is treated or managed in other ways.

The construction of layered rock drains and seepage conveyance features continues in the HSB area (Photos 6 through 10). DEQ approved Minor Amendment 011 on 7/14/2022 for the construction of the HSB Rock Disposal Site (RDS) at the southern toe of the Yankee Doodle TSF. 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 Butte Mine Flooding Operable Unit (BMFOU) remedy. The old precipitation plant has been completely demolished and removed (Photos 15 and 16), but the placement of non-ore rock into the RDS will not occur until drain construction is complete (likely by 2025). As a component of Minor Amendment 011, the "Seep 10" that emanates on a bench above HSB has also been diverted into a channel, pond, and pipeline, to be routed around the future HSB RDS (Photos 13, 14, and 17). The outlet weir connected to a pipeline is continuously monitored for flow and sampled semi-annually for water quality.

The HSB water treatment plant was then observed prior to leaving the area. The clarifiers were empty for cleaning and maintenance (Photo 11). MR is currently coordinating with a research group from West Virginia to evaluate the potential to recover rare earth elements (REE) or other critical minerals (CM) from the precipitated sludge produced by water treatment. The geotubes that were used for preliminary testing in 2023 are still located to the south of the treatment plant, they will eventually be removed when material is no longer needed for analysis (Photo 12). See the DEQ inspection report from 9/28/2023 for additional details. 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 development of project funding and additional investigations, DEQ recommends further discussion about the potential permit implications for recovery and/or reprocessing systems. The operation, reclamation, and financial assurance for such systems should be considered with regard to overlapping BMFOU water treatment requirements.**

### TSF- Tailings Management and Reclamation

The TSF was accessed near Booster Station 3, along a portion of the East-West 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. There are now 28 tailings discharge points around the TSF perimeter, which allow greater flexibility for selectively applying slurry in areas that might become dry and prone to blowing dust, and to control the sequential development of the beach and pond areas (Photos 19 through 23). During this site visit, there were very few surfaces across the beach that were not saturated, and no blowing dust was observed. The placement of magnesium chloride storage tanks and bladders around the TSF also allows for more rapid filling and deployment of the tracked vehicles used for dust suppression (Photos 20 and 21). The new access road to the pond and pumping barge is being utilized (Photos 22 and 23) and the placement of rock along the North-South Embankment to construct a "step-out" and access ramp is ongoing (Photo 24).

In late 2023, grading and soil placement occurred over approximately 21.7 acres on the downstream face of the West Embankment. A small portion of the area (2.7 acres) was covered with variable depths of topsoil and organic amendments, as test plots for investigating alternative reclamation strategies. All areas were seeded in spring 2024 and will be monitored over the upcoming growing seasons. **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 (i.e. alluvium or soil placement) in order to comply with the approved Reclamation Plan and to be eligible for bond release.**

Continental Pit and E East Layback

As documented in 2022 and 2023 inspections, MR observed areas of instability on the D East highwall in the Continental Pit during fall 2022. Revision MR22-002 was approved on 10/26/2022 for additional disturbance and overburden removal to the east of the highwall (termed "E East"), to create a shallower slope on the rock face and limit future instability (Photos 25 and 26). The blasting plan was later modified in revision 23-003 (approved 9/27/2023) to state that no blasting would occur within 500 feet of the Interstate 15 right-of-way without prior approval from DEQ in consultation with the Montana Department of Transportation (MDT). Disturbance and overburden removal have expanded in this area, but blasting has not yet occurred within a distance that requires additional coordination and approval from DEQ and MDT (Photos 27 through 34). **MR anticipates that blasting within this buffer distance may occur within the next year, so DEQ recommends proactive communication and preparation for any modified blasting methods or traffic control that may be needed.**

Other Permit Topics

- As described in recent news articles, plans continue to evolve for the disposal of material to be removed under Butte Priority Soils Operable Unit (BPSOU) activities. Potential repository locations are being evaluated by a siting committee, which include sub-aqueous disposal in the Berkeley Pit, a dry repository near Shields Avenue that would be removed from the mine permit boundary and transferred to Atlantic Richfield, and an additional location (on Atlantic Richfield property) for disposal of material with organic or hydrocarbon contaminants. **DEQ requests additional information and discussion with MR as these plans develop, to facilitate timely processing for any associated permit actions that may be required.**
- The "Pilot Project" conducted under BMFOU has resulted in a notable reduction in the volume of the TSF pond since 2019. The current management strategies will continue to maintain the operational pond volume approved through Amendment 010 (~15,000 acre-ft). This aligns with plans proposed under the BMFOU Pilot Project to demonstrate the management of the pond and evaluate treatment scenarios. **Any proposed changes to the management strategies for the TSF pond that are evaluated and approved by BMFOU parties should also be incorporated into the mine permit, likely through the next major amendment.**
- The next amendment to raise the TSF embankments would require an updated Design Document and Tailings Operation, Maintenance, and Surveillance (TOMS) Manual. The TOMS Manual must include an emergency preparedness and response plan based on the failure modes and effects analysis or other appropriate risk assessment (82-4-379(3)(i), MCA). **DEQ currently has an Emergency Action Plan from 2011 for the facility, but a new version will be needed to reflect modifications to the TSF and updated risk assessments. As part of the next amendment submittal, DEQ recommends the development of an Emergency Action Plan that addresses this requirement, while protecting any potentially sensitive information.**

The inspection concluded around 2:15 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 anticipates additional discussion about the topics in bold.

Signature of Inspector(s):		Date:	7/5/2024
Signature of Reviewer:		Date:	7/8/2024
Copy reports to:	Permittee (c/o Mark Thompson, Montana Resources); File 00030.3		

**Photos:** See attached photo log

Hard Rock Mining Section Inspection  
Photo Log

Permit: 00030 2024-06-25-inspect

Inspector(s): Garrett Smith

Date: 06/25/2024



Photo #: 1

File: image-20240625-171706.jpg

Location: -112.51328, 46.00807

Date, Time: 2024/06/25, 11:17:07

Description: View of crusher facility from office access road



Photo #: 2

File: image-20240625-172252.jpg

Location: -112.50157, 46.00824

Date, Time: 2024/06/25, 11:22:53

Description: Source testing is being conducted for Air Quality Permit



Photo #: 3

File: image-20240625-172314.jpg

Location: -112.5015, 46.00827

Date, Time: 2024/06/25, 11:23:14

Description: Two stacks/filtration systems are being tested simultaneously.



Photo #: 4

File: image-20240625-181541.jpg

Location: -112.49924, 46.02116

Date, Time: 2024/06/25, 12:15:41

Description: The new copper precipitation plant is operational



Photo #: 5

File: image-20240625-181551.jpg

Location: -112.49926, 46.02116

Date, Time: 2024/06/25, 12:15:51

Description: The new copper precipitation plant is operational



Photo #: 6

File: image-20240625-182133.jpg

Location: -112.5025, 46.02722

Date, Time: 2024/06/25, 12:21:33

Description: Seepage observed within the newly constructed rock drains in the Horseshoe Bend area





Photo #: 7

File: image-20240625-182150.jpg

Location: -112.50209, 46.0277

Date, Time: 2024/06/25, 12:21:50

Description: Construction of rock drains in the Horseshoe Bend area is ongoing



Photo #: 8

File: image-20240625-182242.jpg

Location: -112.50208, 46.02771

Date, Time: 2024/06/25, 12:22:42

Description: Construction of rock drains in the Horseshoe Bend area is ongoing



Photo #: 9

File: image-20240625-182255.jpg

Location: -112.50209, 46.02771

Date, Time: 2024/06/25, 12:22:55

Description: Construction of rock drains in the Horseshoe Bend area is ongoing, this shows a cross-section of the drain layers



Photo #: 10

File: image-20240625-182347.jpg

Location: -112.50208, 46.02768

Date, Time: 2024/06/25, 12:23:47

Description: Seepage from the rock drains is conveyed away from the Horseshoe Bend area through a channel



Photo #: 11

File: image-20240625-182912.jpg

Location: -112.49803, 46.0206

Date, Time: 2024/06/25, 12:29:12

Description: The clarifiers at the HSB Water Treatment Plant were empty for cleaning and maintenance.



Photo #: 12

File: image-20240625-183322.jpg

Location: -112.49734, 46.01951

Date, Time: 2024/06/25, 12:33:22

Description: Geo-tubes used for condensing treatment plant sludge (fall 2023 testing) are being stored south of the HSB area



Photo #: 13

File: image-20240625-184204.jpg

Location: -112.5084, 46.02938

Date, Time: 2024/06/25, 12:42:04

Description: A newly constructed lined channel conveys flow away from the Seep 10 bench



Photo #: 14

File: image-20240625-184213.jpg

Location: -112.50839, 46.02938

Date, Time: 2024/06/25, 12:42:14

Description: A newly constructed lined channel conveys flow away from the Seep 10 bench, flow is measured at the outlet to this collection pond



Photo #: 15

File: image-20240625-184930.jpg

Location: -112.50973, 46.0331

Date, Time: 2024/06/25, 12:49:30

Description: Overview of the HSB area



Photo #: 16

File: image-20240625-184944.jpg

Location: -112.50973, 46.03312

Date, Time: 2024/06/25, 12:49:44

Description: Overview of the HSB area, with active mining in the Continental Pit in the distance



Photo #: 17

File: image-20240625-184956.jpg

Location: -112.50974, 46.03312

Date, Time: 2024/06/25, 12:49:56

Description: Overview of HSB area and Berkeley Pit in the distance, the Seep 10 conveyance system is in the lower left foreground.



Photo #: 18

File: image-20240625-185107.jpg

Location: -112.50972, 46.0331

Date, Time: 2024/06/25, 12:51:07

Description: View of active mining in the Continental Pit, from the HSB overlook



Photo #: 19

File: image-20240625-185932.jpg

Location: -112.51203, 46.0383

Date, Time: 2024/06/25, 12:59:32

Description: TSF- the upstream faces of embankments have been graded and covered with alluvium/fine material. Multiple discharge locations are effective at wetting the tailings beach surfaces





Photo #: 20

File: image-20240625-190005.jpg

Location: -112.50605, 46.03605

Date, Time: 2024/06/25, 13:00:05

Description: TSF- the upstream faces of embankments have been graded and covered with alluvium/fine material. View of the West Embankment, with two tracked vehicles on the beach surface to apply dust suppressant



Photo #: 21

File: image-20240625-190016.jpg

Location: -112.50605, 46.03605

Date, Time: 2024/06/25, 13:00:16

Description: View of the West Embankment and the upper/remaining portion of Rocky Knob outcrop, a tracked vehicle is directly to the right of this feature



Photo #: 22

File: image-20240625-190029.jpg

Location: -112.50604, 46.03605

Date, Time: 2024/06/25, 13:00:29

Description: TSF- the upstream faces of embankments have been graded and covered with alluvium/fine material. Multiple discharge locations are effective at wetting the tailings beach surfaces. View of the North/South Embankment and the barge access road.



Photo #: 23

File: image-20240625-190204.jpg

Location: -112.50602, 46.03605

Date, Time: 2024/06/25, 13:02:04

Description: Multiple discharge locations are effective at wetting the tailings beach surfaces. The supernatant pond is visible in the distance



Photo #: 24

File: image-20240625-191802.jpg

Location: -112.494, 46.03446

Date, Time: 2024/06/25, 13:18:03

Description: Step out and access ramp construction on the North/South Embankment



Photo #: 25

File: image-20240625-192327.jpg

Location: -112.49315, 46.03383

Date, Time: 2024/06/25, 13:23:27

Description: Progress of mining in Continental Pit



Photo #: 26

File: image-20240625-192400.jpg

Location: -112.47136, 46.01983

Date, Time: 2024/06/25, 13:24:00

Description: Progress of mining in Continental Pit



Photo #: 27

File: image-20240625-192935.jpg

Location: -112.46552, 46.0116

Date, Time: 2024/06/25, 13:29:35

Description: Shovel is being moved to a new location along the E East layback (ongoing maintenance)



Photo #: 28

File: image-20240625-192956.jpg

Location: -112.46539, 46.01169

Date, Time: 2024/06/25, 13:29:56

Description: Shovel is being moved to a new location along the E East layback (ongoing maintenance)



Photo #: 29

File: image-20240625-193057.jpg

Location: -112.46529, 46.01186

Date, Time: 2024/06/25, 13:30:57

Description: Progress of E East layback



Photo #: 30

File: image-20240625-193324.jpg

Location: -112.46544, 46.01203

Date, Time: 2024/06/25, 13:33:24

Description: Active mining within Continental Pit, as viewed from E East



Photo #: 31

File: image-20240625-193336.jpg

Location: -112.46543, 46.01203

Date, Time: 2024/06/25, 13:33:37

Description: View of Berkeley Pit and Central Zone area, as seen from E East



Photo #: 32

File: image-20240625-193511.jpg

Location: -112.46531, 46.01202

Date, Time: 2024/06/25, 13:35:11

Description: Reclamation and vegetation between E East and permit boundary/interstate



Photo #: 33

File: image-20240625-193519.jpg

Location: -112.46531, 46.01202

Date, Time: 2024/06/25, 13:35:19

Description: Reclamation and vegetation between E East and permit boundary/interstate



Photo #: 34

File: image-20240625-193709.jpg

Location: -112.4654, 46.01202

Date, Time: 2024/06/25, 13:37:09

Description: Progress of E East layback



Photo #: 35

File: image-20240625-194858.jpg

Location: -112.49381, 46.00576

Date, Time: 2024/06/25, 13:48:58

Description: Constructed berm and pipeline corridor to maintain storm water and/or process solution capture (see 11/29/2023 inspection for details)





Photo #: 36

File: image-20240625-195422.jpg

Location: -112.51294, 46.01133

Date, Time: 2024/06/25, 13:54:22

Description: Berkeley Pit, as seen from bird monitoring station



Photo #: 37

File: image-20240625-195430.jpg

Location: -112.51294, 46.01133

Date, Time: 2024/06/25, 13:54:30

Description: Berkeley Pit, as seen from bird monitoring station

