

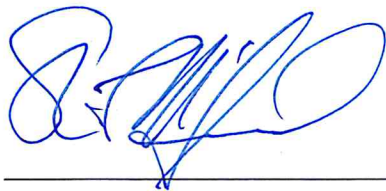
**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**AIR, ENERGY, AND MINING DIVISION**

**RECORD OF DECISION**

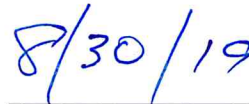
**For Continental Mine  
Montana Resources, LLP  
Amendment to Permits 00030 and 00030A  
Silver Bow County, Montana  
August 2019**

The Final Environmental Impact Statement (EIS) for the Montana Resources, LLP proposed amendment to Permits No. 00030 and No. 00030A can be obtained by contacting Montana Department of Environmental Quality (DEQ) Montana Environmental Policy Act (MEPA) Coordinator Craig Jones at 406-444-0514 or from DEQ's web site: <http://deq.mt.gov/public/eis> Additional printed or electronic copies (on compact disc) of this Record of Decision (ROD) and the Final EIS are available upon request. The supporting project record is available for review at the DEQ, Hard Rock Mining Bureau, located at 1520 East Sixth Avenue, PO Box 200901, Helena, MT 59620-0901. For additional information concerning these decisions, contact Craig Jones, Director's Office, DEQ, 1520 E. Sixth Avenue, Helena, MT, 406-444-0514.



Shaun McGrath, Director

State of Montana  
Department of Environmental Quality



Date

## Section 1 – Background

### 1.1 Introduction

Montana Resources, LLP (MR) operates an open pit copper-molybdenum mine called the Continental Mine adjacent to the city of Butte, Montana in Silver Bow County. The Continental Mine produces copper sulfide concentrate, molybdenum disulfide concentrate, and copper precipitate (cement copper) for sale in the United States and world markets. MR operates the Continental Mine under Hard Rock Mining (HRM) Operating Permits No. 00030, 00030A, 00041, and 00108. The Continental Pit, the site of active mine operations, is currently permitted to produce ore in excess of 20 years; however, ore reserves may exceed those reported in MR's Operations Plan (February 2018).

An EIS was prepared for the proposed permit amendment submitted by MR for the Continental Mine. On October 6, 2017, MR submitted an application to DEQ to amend HRM Operating Permit No. 00030 (Amendment 3) and HRM Operating Permit No. 00030A (Amendment 10). The amendment addresses proposed changes to the Yankee Doodle Tailings Impoundment (YDTI) at the Continental Mine.

DEQ prepared a Draft and Final EIS to present the analysis of possible environmental consequences of five alternatives: the No Action Alternative, the Proposed Action: On-Site Tailings Storage and Water Containment, the Accelerated Drawdown at Closure Alternative, the West Embankment Drain (WED) Pumpback Elimination at Closure Alternative, and the Alternative Capping Methods Alternative. The five alternatives are described in detail in Chapter 2 of the EIS.

#### **MR Continental Mine: YDTI Amendment**

DEQ received an amendment application from MR on October 6, 2017. After several DEQ reviews and MR deficiency responses that addressed DEQ's concerns, DEQ determined the application was complete and compliant with the requirements of the Metal Mine Reclamation Act (MMRA). On August 31, 2018, DEQ issued a draft permit amendment. The draft permit triggered the Montana Environmental Policy Act (MEPA) process. Issuance of the draft permit amendment as a final permit amendment is the proposed state action subject to an environmental review under MEPA.

The purpose of MR's proposed operating permit amendment is to increase the capacity of the YDTI by raising the elevation of the West Embankment to match the presently permitted elevations of the other two YDTI embankments (6,450 feet) and extending the northern boundary of the impoundment. The proposed elevation raise is supported by a design document that addresses statutory requirements detailed in Section 82-4-376, *et seq.*, Montana Code Annotated (MCA). Changes to MR's operating permits that would result from this proposed operating permit amendment are described in detail in Chapter 2 of the EIS.

### 1.2 Project Area Description

The land covered by HRM Operating Permits No. 00030 and 00030A makes up the western, central, and northern portions of the active mine operation, which is directly adjacent to the east and north boundaries of the Butte city limits. Much of the Continental Pit area and associated rock dumps occur in the two other HRM Operating Permit areas (No. 00041 and No. 00108). A legal site

description and maps of the current facilities, permit areas, and land ownership boundaries are shown in the EIS. The proposed amendment would increase the total area of HRM Operating Permit No. 00030A by approximately 237 acres, but only 99 of these acres would be disturbed to accommodate the West Embankment raise and YDTI expansion. Although the proposed amendment would affect mine facilities that are located within HRM Operating Permit No. 00030, it would not authorize the disturbance of any additional land under HRM Operating Permit No. 00030.

### **Superfund and the Butte Mine Flooding Operable Unit (BMFOU)**

The BMFOU is a subsection of the U.S. Environmental Protection Agency's (USEPA) Silver Bow Creek/Butte Area Superfund site that includes the Berkeley Pit and the YDTI. The following text describes some of the regulatory actions and documents that have affected management of the BMFOU since its establishment in the 1980s. The background information on the site history and current regulatory context is necessary for evaluation of the proposed amendment and any alternatives or stipulations evaluated in the EIS. The EIS does not attempt to describe all aspects of the management of the BMFOU, the interagency planning and management commitments, or the complex history and development of the Butte Mining Complex. The references section of the EIS includes bibliographic information for documents cited in the EIS should the reader wish to examine the primary sources.

For general context, the USEPA regulates how the responsible parties manage the waters that enter and may eventually leave the Berkeley Pit. This requires control of ground water levels in and around the BMFOU to ensure that mine-affected waters are managed and treated, if necessary, to meet water quality standards before they are discharged. The monitoring and management of ground water in the BMFOU, including the Continental Mine site, and long-term treatment of waters that leave the mine site (whether from the Berkeley or Continental pits or Horseshoe Bend) are regulated by the USEPA under Superfund. DEQ's Hard Rock Mining Bureau consults and coordinates with USEPA, but the HRM operating permits do not address water management that falls under Superfund. In 2002, a consent decree was finalized that clarified the responsibilities for water monitoring and management, with oversight by USEPA.

In 1982, the USEPA proposed that Silver Bow Creek be added to the National Priority List (NPL), and it was listed as a Superfund site in 1983. The Butte Area was added to the Silver Bow Creek site in 1987. A total of four contiguous areas in the upper Clark Fork River Basin have been designated as Superfund sites by the USEPA pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). These sites are the Silver Bow Creek/Butte Area Site, the Anaconda Smelter Site, the Milltown Reservoir/Clark Fork River Site, and the Montana Pole and Treating Plant Site. The Silver Bow Creek/Butte Area Superfund Site is currently further separated into seven Operable Units (OUs). Details on the OUs most relevant to the proposed amendment are provided below, with more information found in Chapter 1 of the EIS.

- The BMFOU includes most of MR's mine permit area. The boundaries of the BMFOU are the Continental Divide to the east, Silver Bow Creek to the south, Missoula Gulch to the west, and the Yankee Doodle Creek and Moulton Reservoir watersheds to the north. This area is divided hydrologically into "East Camp" and "West Camp" flow systems.

- Butte Priority Soils OU (BPSOU) is a five-square mile area that includes the town of Walkerville, along with the part of the Butte Hill that is north of Silver Bow Creek, west of the Berkeley Pit, and east of Big Butte. The BPSOU also includes a section of land extending south from Silver Bow Creek to Timber Butte. The BPSOU includes residential yards, mine dumps, contaminated railroad beds, and stormwater drainages on the Butte Hill and in Walkerville.
- The Butte Active Mine Area OU (BAMAOU) is contained within the BMFOU and the boundary is established to coincide with the operating permit area for the mine operations. USEPA has deferred authority for mine permitting decisions, such as this amendment, to DEQ.

The Berkeley Pit is filling with water originating from the surrounding East Camp bedrock aquifer, which includes several thousand miles of flooded underground mine workings, as well as the surrounding alluvial aquifer, and additional surface inflows. The Horseshoe Bend area is a discharge point where several million gallons per day of contaminated alluvial ground water discharge at the base of the tailings impoundment. This discharge historically flowed over the surface to the Berkeley Pit, but USEPA ordered the capture and use of Horseshoe Bend flow in the mining operation from April 15, 1996 until July 1, 2000, when the mining operation was suspended.

Following the suspension of mining, the Horseshoe Bend flow was no longer treated and integrated into the tailings circuit, so the contaminated Horseshoe Bend water was directed back to the Berkeley Pit. Under the requirements in the 1994 ROD, this discharge to the pit triggered the final design process for a Water Treatment Plant at Horseshoe Bend (the HsB Water Treatment Plant), which was approved by USEPA in 2002. The HsB Water Treatment Plant is a lime precipitation high density sludge water treatment plant capable of treating average flows of 5 million gallons per day (MGD) and peak flows of 7 MGD. The HsB Water Treatment Plant was designed to be capable of treating Horseshoe Bend water, Continental Pit water, and Berkeley Pit water when it becomes necessary.

### **2002 Consent Decree**

A consent decree is an agreement or settlement that resolves a dispute between at least two parties without admission of guilt (in a criminal case) or liability (in a civil case). A consent decree is typically memorialized in a legal document, approved by a judge. The consent decree documents the agreement reached between the parties.

In 2002, a consent decree was established between USEPA, DEQ, and the Potentially Responsible Parties (PRPs) to address a regulatory enforcement action initiated by USEPA. The 2002 Consent Decree requires the PRPs (identified therein as Atlantic Richfield- "AR" and the MR Group) to conduct all or part of a cleanup action at a Superfund site; cease or correct actions or processes that are polluting the environment; or otherwise comply with USEPA initiated regulatory enforcement actions to resolve the contamination at the Superfund site involved (see details in EIS Chapter 1).

Presently, because all bedrock ground water in the East Camp area flows toward the Berkeley Pit,

contaminated mine water is being contained. The East Camp is largely encompassed within the southern portion of the BMFOU. The West Camp area is to the southwest of the Berkeley Pit. However, the hydraulic gradient could change if ground water levels continue to rise beyond critical elevation levels, and contaminated water could flow out of the East and West Camps into the surrounding alluvial ground water and eventually to Silver Bow Creek. To prevent this from occurring, USEPA and DEQ determined that the water levels in the BMFOU boundary must not rise above the critical water level (CWL) of 5,410 feet for the East Camp and 5,435 feet for the West Camp.

### **2002 Explanation of Significant Differences**

Also in 2002, the USEPA and DEQ evaluated the actions prescribed in a 1994 ROD for the BMFOU and updated the ROD where significant differences were identified. The significant differences were caused by new numeric water quality standards, changes in existing permits, or transfers of responsibility among the Operable Units. The remedy (remedial actions) selected in the 1994 ROD, as amended by the 2002 Explanation of Significant Differences (ESD), included components for controlling inflows to the Berkeley Pit, as well as criteria for the eventual treatment and discharge of water from the Berkeley Pit, Continental Pit, and Horseshoe Bend systems. See additional details in EIS Chapter 1.

In addition to the changes in how water is managed in the area, the ESD included changes that would accommodate potential wet closure of the YDTI, the transfer of authority for sludge disposal areas from DEQ to the USEPA, and USEPA transferred the authority for YDTI dam stability monitoring to DEQ via the MMRA permitting process. Other changes in responsibility and water management established that Continental Pit water that would accumulate post-mining would be treated in the HsB Water Treatment Plant and allowed HsB Water Treatment Plant sludges to be placed in the Berkeley Pit without offsetting water withdrawals.

EPA issued an additional decision document with the concurrence of DEQ which adjusted boundaries between USEPA's BMFOU and the BAMAOU and announced USEPA's intent to refrain from taking Superfund action at the BAMAOU and to defer to DEQ mine permit actions (like this amendment) for environmental cleanup of that area. USEPA reserved the right to exercise CERCLA authority at the site should the reclamation plan not be implemented by MR and/or enforced by DEQ, or the bonding prove inadequate to cover the cost of reclamation required by the permit (Response Decision Deferral Document, USEPA and DEQ, 2001).

### **Integration of the Proposed Amendments**

DEQ examines amendment applications for consistency and compliance with the MMRA (Section 82-4-301, *et seq.*, MCA), the Montana Water Quality Act (Section 75-5-101, *et seq.*, MCA), the Clean Air Act of Montana (Section 75-2-101, *et seq.*, MCA), and other relevant legislation and regulations. In addition, the Superfund status of the BMFOU and DEQ's position as a party in the 2002 Consent Decree requires that any actions proposed at the Continental Mine must be consistent with the 2002 Consent Decree and other decision documents that direct management within the BMFOU. Furthermore, actions that have the potential to affect conditions at facilities within the BMFOU such as the Horseshoe Bend area or the Berkeley Pit must be coordinated with USEPA.

### **1.3 DEQ's Responsibilities and Purpose of the ROD**

DEQ administers the MMRA (Section 82-4-301, *et seq.*, MCA) and the administrative rules adopted under the MMRA. DEQ also administers the Montana Water Quality Act (WQA) (Section 75-5-101, *et seq.*, MCA) and the administrative rules adopted under the WQA.

MEPA (Section 75-1-101, *et seq.*, MCA) requires an environmental review of actions taken by the State of Montana that may significantly affect the quality of the human environment. The environmental review culminating in the issuance of the EIS on August 13, 2019 was conducted to fulfill MEPA. The purpose of this ROD is to set forth DEQ's decision on MR's application to amend its operating permit and the reason for the decision. The ROD documents the alternatives considered, including a discussion of the advantages and disadvantages of the alternatives and DEQ's application of the decision criteria set forth in the MMRA.

DEQ has identified the Proposed Action as the preferred alternative in the Final EIS, with an added stipulation to promote dialogue between BMFOU Consent Decree parties about alternative post-closure water management strategies.

## **Section 2 - Public Involvement**

### **2.1 Public Involvement**

MEPA provides two opportunities for public review and comment on an EIS. The first opportunity occurs at the initiation of a project during scoping and the second opportunity occurs during the public comment period after the environmental analysis has been made available in the draft document.

The purpose of scoping is to gather input from the public, agencies, and organizations on the issues of concern and potential alternatives that would meet the purpose and need for a project. The scoping period for this EIS began on September 14, 2018 and ended on October 15, 2018. DEQ published legal notice of the scoping period and meeting in the Montana Standard on September 16, 23, 30, and October 7 and 14, 2018. The legal notice was also published on DEQ's website beginning on September 12, 2018.

DEQ held a public scoping meeting and open house in Butte on October 4, 2018. Approximately 100 people attended the meeting. DEQ provided a court reporter for transcribing oral comments during the meeting and accepted written comments at the meeting, as well as comments submitted via email and postal mail prior to the deadline. The transcript of the meeting and written comments is included in the Administrative Record for the project.

### **2.2 Issues of Concern**

The primary issues of concern raised by the public or DEQ related to the Proposed Action and addressed through the alternative analysis process include:

- Water management;
- Air quality;
- Reclamation schedule;

- Stability of the YDTI;
- Socioeconomic effects and the life of the mine; and
- Implications for the BMFOU.

### **2.3 Public Comment Period**

The Draft EIS for the MR Amendment was released and the comment period for the EIS began on Friday, March 22, 2019. DEQ held a public meeting on April 10, 2019 in Butte. The comment period was originally set to end on Monday, April 22, 2019 but was extended to Thursday, May 2 after a request for an extension was received. Approximately 620 written comments were received from 600 entities during the comment period. Some individuals submitted multiple comments and some comments were form letters submitted by multiple individuals.

DEQ reviewed the comments received and responded to all substantive comments in Chapter 9 of the EIS. Some responses required changes or updates to be made in the EIS. These changes are noted in the responses to comments and the reader is directed to the section in the EIS where changes have been made. A list of sources for all of the written and oral comments received is provided in the Appendix (Chapter 11) of the EIS.

## **Section 3 - Alternatives Considered**

Chapter 2 of the Final EIS describes the alternatives evaluated in the environmental review, the alternatives screening process, and rationale for alternatives considered but not analyzed in detail. The potential environmental impacts of the following alternatives were analyzed in detail in Chapter 2 of the Final EIS.

- No Action Alternative
- Proposed Action Alternative: On-Site Tailings Storage and Water Containment
- Accelerated Drawdown at Closure Alternative
- WED Pumpback Elimination at Closure Alternative
- Alternative Capping Methods

DEQ considered, but dismissed from further analysis, the following alternatives. The rationale for not considering these alternatives in detail is set forth in Section 2.9 of the EIS.

- Dry Closure of YDTI Through Upstream Diversions for Tributaries
- Off-Site Tailings Storage
- Tailings Storage in Berkeley Pit
- Alternative Tailings Management Strategies
- Filtered Tailings
- Thickened Tailings
- Alternative Post Closure Topography

## Section 4 - Decision and Rationale for Decision

DEQ's review of an application for an operating permit amendment is governed by Section 82-4-337, MCA. That law requires DEQ to make an initial determination as to whether the permit amendment application contains all necessary information and whether the proposed amendment satisfies the substantive requirements of the MMRA. DEQ determined that MR's permit amendment application was complete and compliant on August 31, 2018 and issued a draft permit amendment. The analysis contained in the Final EIS does not change DEQ's determination that the proposal contained in the permit amendment application, which is the Proposed Action, complies with the substantive requirements of the MMRA.

Administrative Rules of Montana (ARM) 17.4.617(9) requires an agency to state a preferred alternative in the Draft EIS, if one has been identified, and to give its reason for the preference. DEQ identified the WED Pumpback Elimination at Closure Alternative as the agency's preferred alternative in the Draft EIS.

The WED Pumpback Elimination at Closure Alternative has attributes to more quickly reduce the volume of water stored in the impoundment, thereby further reducing the risk of facility failure and inundation. In addition, the WED Pumpback Elimination at Closure Alternative would allow impoundment reclamation to occur approximately seven years sooner than under the Proposed Action. The alternative would also eliminate the post-closure pumping of seepage collected in the WED Extraction Pond back into the impoundment, thereby eliminating the need to add lime to the WED seepage to mitigate acidification of the tailings pond. Maintaining the WED as a drain would also keep a more robust groundwater divide between the tailings impoundment and groundwater resources to the west of the West Ridge. This alternative presents a different scenario for YDTI water management at closure, which necessitates recognition of USEPA's authority over long-term water management and treatment at the site under the BMFOU. Discussions and coordination with all parties involved in the 2002 BMFOU Consent Decree would be needed to 1) review the options and feasibility for handling and treating this water, 2) discuss the potential use of existing or upgraded facilities and infrastructure (e.g. HsB Water Treatment Plant) to treat this water, and 3) to amend the agreement accordingly to allow for such a change.

Based upon comments received on the Draft EIS and review of relevant CERCLA documents, DEQ recognizes that it lacks the authority to unilaterally require MR, or any other party, to release hazardous substances from the YDTI as a condition of the mine permit, where the released material must be treated in the BMFOU remedial action. Although USEPA deferred its authority over the BAMAOU to the DEQ Hard Rock Mining Bureau (Response Decision Deferral Document, USEPA and DEQ, 2001), the USEPA is the agency with authority to review, approve, and authorize changes to the current BMFOU remedy. The Draft EIS noted the need for consultation and approval by BMFOU stakeholders regarding any post-closure water management alternatives, but details of a related stipulation were not developed until after feedback was received by stakeholders.

Comments on the Draft EIS were received separately from MR and AR, but similar themes were noted by DEQ from both parties with regard to the Draft EIS preferred alternative. Both MR and



AR acknowledged the potential advantages of the WED Pumpback Elimination at Closure Alternative but questioned whether the alternative could be evaluated by the necessary parties and incorporated into the BMFOU Consent Decree in a sufficient timeframe to meet MR's operational needs. Both MR and AR confirmed that they are willing to meet with USEPA, DEQ, and other BMFOU Consent Decree parties to consider alternative water management activities that meet the requirements for the BMFOU and the MMRA.

The concept of eliminating WED pumpback at closure would not affect the sequence of mining nor the timeframe of active operations, but would instead shorten the post-mining reclamation timeline and modify the management of impoundment water following mine closure. Contemporaneous with the BMFOU water treatment pilot testing being conducted, an opportunity exists during active mine operations for BMFOU parties to review other post-closure water management methods, like the WED Pumpback Elimination at Closure Alternative. The BMFOU water treatment pilot testing project is anticipated to test various treatment and discharge scenarios over a period of 2-4 years. Water treatment pilot testing may inform decisions about post-closure water management activities under the BMFOU Consent Decree requirements. Following the water treatment pilot tests, the BMFOU remedial evaluation should be more advanced and the interplay between YDTI reclamation work and the BMFOU remedial action should be better understood.

From a holistic perspective of site management within the BAMAOU and BMFOU, the Consent Decree parties should evaluate the practicability of implementing an alternative method for handling WED seepage as part of the BMFOU remedy at mine closure, meaningfully consider implementing the alternative, and potentially negotiate and enact the necessary changes within the Consent Decree to implement the alternative. Changes to water management activities should consider: 1) the quantity and quality of water anticipated post-closure in the WED and YDTI pond under a range of climatic conditions, 2) the practicability of diverting or pumping flow away from the WED to a storage area or to a water treatment facility operated under the BMFOU, 3) the practicability of treating this water to acceptable standards prior to off-site discharge, and 4) any implications for the existing remedial actions for the BMFOU or other adjacent operable units.

Therefore, DEQ has identified the Proposed Action as the preferred alternative in the Final EIS, with an added stipulation to promote dialogue between BMFOU Consent Decree parties about alternative post-closure water management strategies. The mine permit will be managed following the operation and reclamation plans described within the Proposed Action, unless further modifications are made following consultation with BMFOU parties and approval by USEPA. Under the MMRA, DEQ would require that any future modifications to the reclamation plan provide "sufficient measures to ensure public safety and to prevent the pollution of air or water and the degradation of adjacent lands" (82-4-336(10), MCA). The applicant (MR) was consulted about the stipulation, in accordance with 82-4-337(2)(b), MCA. The final stipulation adopted as part of this ROD is as follows:

*No later than September 1, 2022, Montana Resources, LLP (MR) shall conduct at least one meeting with parties to the BMFOU Consent Decree to discuss and evaluate the feasibility of eliminating the post-closure pumpback of water collected by the WED system, by handling and treating the WED seepage through the use of existing or upgraded water*

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*treatment facilities and infrastructure. No later than September 30, 2022, MR shall submit a report to DEQ Hard Rock Mining Bureau, which details MR's efforts to conduct the meeting(s), and the outcome, if any, reached by BMFOU parties. Based upon the outcome and a consensus by the BMFOU parties, the mine permit may be modified accordingly through a future revision or amendment. If any BMFOU parties are unwilling to participate in the discussions or it is determined that alternative WED seepage management methods are unacceptable, then MR shall meet this stipulation requirement by submitting documentation of the efforts made to convene all parties.*

## **Section 5 - Findings Required by Laws and Policies**

DEQ is responsible for issuing and amending operating permits under the MMRA. The regulatory authority of DEQ and USEPA and permits issued by DEQ are described below.

### **5.1 MEPA**

MEPA Section 75-1-101, et seq., MCA requires State agencies to conduct an environmental review of actions taken by the State of Montana that may significantly affect the quality of the human environment. MEPA and the administrative rules promulgated under MEPA define the process to be followed when conducting an environmental review. The Draft and Final EIS that DEQ prepared in regard to MR's proposed amendment comply with the procedural requirements of MEPA.

MEPA requires an evaluation of regulatory restrictions imposed on private property rights as a result of major actions of state agencies, including an analysis of alternatives that reduce, minimize, or eliminate the regulation of private property (§ 75-1-201(1)(b)(iv)(D), MCA). The analysis includes alternatives and mitigation measures that are designed to protect environmental, cultural, visual, and social resources, but may also add to the cost of the project. Alternatives and mitigation measures either required by state or federal laws and regulations to meet minimum environmental standards or consented to by the Proponent do not need to be evaluated for private property rights implications.

### **5.2 MMRA**

#### **Procedural Compliance**

The procedure for DEQ's review of an application for a major amendment to an operating permit is the same as that applicable to an application for an operating permit, as set forth in Section 82-4-337, MCA. Pursuant to Section 82-4-337(1)(d), MCA, when DEQ determines that an application is complete and compliant, it is required to declare in writing that the application is complete and compliant and issue a draft permit amendment. Under Section 82-4-337(1)(f), MCA, issuance of the draft permit as a final permit is the proposed state action that is subject to review under MEPA.

Finally, Section 82-4-337(2)(b), MCA, requires DEQ to consult with the applicant before placing stipulations in a draft or final permit or amendment. Permit stipulations in a draft or final permit or amendment may address only compliance issues within the substantive requirements of the MMRA, unless the applicant consents to additional stipulations. For a stipulation imposed without the applicant's consent, DEQ is required to provide the applicant in writing the reason for

the stipulation, and, for a stipulation imposed in the final permit that was not contained in the draft permit, the reason that the stipulation was not contained in the draft permit.

On August 31, 2018, DEQ issued a written declaration that determined MR permit amendment application was complete and issued a draft permit amendment. As indicated above, Section 82-4-337(2), MCA, gives DEQ the authority to include stipulations in a final permit amendment that were not included in the draft permit amendment. Pursuant to this authority, DEQ is including a stipulation in the final permit amendment that states, "No later than September 1, 2022, MR shall conduct at least one meeting with parties to the BMFOU Consent Decree to discuss and evaluate the feasibility of eliminating the post-closure pumpback of water collected by the WED system, by handling and treating the WED seepage through the use of existing or upgraded water treatment facilities and infrastructure." A complete description of the stipulation is provided in Section 4.

### **Substantive Compliance**

DEQ may not approve a reclamation plan unless it is consistent with the requirements and standards set forth in Section 82-4-336, MCA. The reclamation standards particularly relevant to DEQ's consideration of MR's amendment application are set forth in Sections 82-4-336(8), (9)(a), (10), and (12), MCA.

An existing reclamation plan for the current permitted mine operations will be updated to include the YDTI and associated facilities modifications. Reclamation of the YDTI under the Proposed Action (i.e. the selected alternative) would incorporate additional acreage due to the tailings impoundment expansion. The current YDTI closure plan includes three reclamation components, the embankment, the tailings beach, and tailings pond.

Modifications to the current reclamation plan under the selected alternative would include the construction of the West Embankment to a crest elevation of 6,450 feet, additional impoundment acreage, a closure spillway, post-closure water management of WED seepage, and eventual WED decommissioning. Under the selected alternative, reclamation would be expected to begin at the end of 2031 when mining operations cease.

Reclamation of the North Rock Disposal Site (RDS) and Great Northern RDS would not change substantially from other permitted RDSs. Reclamation methods would include reducing slopes to gradients less than 2.7H:1V, regrading to mitigate water ponding, constructing benches or runoff collection ditches at 100-foot intervals on regraded slopes, redistribution of 20-inches of alluvium on slopes and 28-inches on tops and benches. The alluvium would be tested, and soil amendments would be added if necessary. Final grading would be made with non-noxious, nonflammable, noncombustible solids.

Areas once serving as soil stockpiles would be reclaimed by ripping the surface to relieve compaction and revegetating. Areas used as alluvium stockpiles would either be reclaimed as part of the North RDS, or ripped if needed, capped, and seeded. Other areas would be ripped where compacted, covered with stockpiled or direct-haul material, and revegetated. All roads not necessary for post-closure management would be regraded to blend with adjacent areas, ripped to relieve compaction, capped with 24-inches of alluvium, and revegetated. Stable road cuts in

rock would not be regraded.

#### *WED*

At the time of reclamation, the discharge pipeline from the WED system Extraction Pond to the YDTI would be extended progressively as the closure pond retreats and the tailings beach is reclaimed. The pumpback flows would continue during the closure period for approximately 20 years to mitigate the potential ground water impacts to the west of the West Embankment through hydrologic control of the ground water and tailings seepage into the WED. Potential acidification of the tailings pond would be mitigated by adding lime to the WED seepage pumpback. Water that would be continually returned to the supernatant pond from the WED would eventually evaporate or seep out of the impoundment at Horseshoe Bend.

#### *Embankment Reclamation*

The modification to the embankment reclamation would include regrading downstream slopes flatter than current reclamation (2H:1V) with final regrading of 2.7H:1V. The lower portion of the North-South Embankment would be covered by the North RDS. A portion of the East-West Embankment located upstream of the Precipitation Plant would be constructed with a 2H:1V downstream slope. The West Embankment would be constructed with a final slope of 3H:1V except near the WED Extraction Pond. A small segment near the WED extraction pond would be graded to 2.5H:1V. Swales and ditches would be constructed at 100-foot intervals on the downstream, regraded slopes to reduce erosion and facilitate drainage of the reclaimed areas. Structures would include grass-lined swales, riprap lined ditches, and plunge pools at the lower reaches.

West Embankment capping would include 6 inches of soil over 36 inches of non-acid generating alluvium. The volume of the capping material for the West Embankment is estimated to be about 19,000 cubic feet. The East-West Embankment face would be capped with 20 inches of alluvium on 2.7H:1V slopes and 36 inches on 2H:1V slopes. Reclamation material amendments would be based on testing during reclamation. The North-South Embankment would be covered and reclaimed with the North RDS. The embankment crest would be capped with 28 inches of suitable or amended alluvium unless mine scheduling allows for direct-haul of the final 28 inches of the crest using suitable leached cap. The embankment area covered by the North RDS would be reclaimed at a 2.7H:1V slope, consistent with the North RDS reclamation, and redistributing 20 inches of alluvium on the slopes.

#### *YDTI Reclamation*

A partial wet closure for the tailings impoundment is planned for the north portion under the current permits. Under the selected alternative, closure of the YDTI would be expected to begin when mining ceases in 2031. The impoundment would include a pond with an adjacent area that is periodically inundated with seasonal pond water level fluctuations. During closure activities, the YDTI pond would begin to retreat until the pond reaches equilibrium, leaving a volume of approximately 1,000 acre-feet in 2062.

Under the selected alternative, an impoundment area would be created that is 13 percent larger than under the No Action Alternative. In addition, as described in Section 2.4.2, a larger beach

area with a smaller pond area would be created under the selected alternative than under the No Action Alternative. Closure would include dewatering of the impoundment via seepage to the WED and Horseshoe Bend, as well as through evaporation. The tailings beach or dry area (approximately 1,122 acres) would be reclaimed in the first 5 years post-closure, and a Transition Zone would be incrementally exposed by dewatering and shrinking the supernatant pond. The tailings beach would remain dry and the Transition Zone would continue to retain water beneath the drying surface.

The Transition Zone resembles a mudflat and consists of tailings slimes that have settled out onto the bottom of the pond, rather than the coarser materials found in the beach tailings. Slimes are composed of finer silt and clay particles while the beach is composed of coarse-grained, sand-like particles. As the dewatering transitions, the slimes closest to the supernatant pond would remain saturated with water due to their inherent moisture holding capacity while the slimes nearest the beach would “crust” over as they dry. The beach, Transition Zone, and water level would be observed multiple times per day in accordance with the air quality permit to assess the potential for fugitive dust, and if dust is detected, MR would be required to implement its dust control plan. Further mitigations would include the placement of a 6-inch rock cover, leached cap (rock which used to contain sulfide ore but has since been depleted due to weathering), or similar material incrementally on the exposed beach as the water level drops. This would be followed by the placement of capping material and revegetation of the Transition Zone. The formation of dust on other areas could be controlled by maintaining and using rubber wheeled equipment to apply dust suppressant as needed.

The beach area would consist of drier tailings material that are susceptible to wind erosion. If alluvium cannot be spread promptly, the tailings beach areas would be covered with a 6-inch layer of rock, leached cap or similar material and seeded for revegetation. Reclamation of the tailings beach areas would be similar to the No Action Alternative, which includes placement of a 28-inch thick amended alluvium cap and revegetation. The quantity of available salvaged soil would provide a 6-inch upper soil layer for 731 acres of the permanent reclamation cap. Reclamation of the remaining 963 acres of beach would consist of placement of the 28-inch thick cap using alluvium with the top 6 inches amended as necessary followed by revegetation.

Application of soil amendments would be in accordance with the DEQ-approved 2002 Minor Amendment (MR- 02-001) for the Woodville Dump reclamation. Reclamation would be accomplished incrementally over an estimated 40-year period following mine closure as the tailings water recedes, exposing more Transition Zone for reclamation until the pond volume reaches approximately 1,000 acre-feet at equilibrium.

Water balance modeling results indicate that the YDTI supernatant pond volume will decrease and reach an equilibrium volume of approximately 1,000 acre-feet under average climatic conditions. The pond volume may be as high as approximately 2,500 acre-feet under wet climate conditions and as low as 500 acre-feet under dry climatic conditions (Knight Piesold 2018b). Fluctuations in shoreline elevations total approximately 11 feet and range from a low of 6,363 feet to a high of 6,374 feet. Under wet climatic conditions, the pond would extend up onto the Transition Zone by about three-quarters of a mile compared to the pond under dry climatic conditions. Any alteration to the Transition Zone surface, if any, would be dependent upon the length of time it was

inundated by water or exposed to the air.

#### *Soils and Reclamation Cover Material*

The mine site has an estimated 63 million tons of material known as leached cap, which is mineralized rock that has been depleted of most metals and sulfides due to weathering. Leached cap is a potential resource for permanent reclamation cover material (Montana Resources 2018b). An additional 275,000 cubic yards of soil is stored in the Moulton Road and Bumtown stockpiles, and approximately 67,000 cubic yards of soils are yet to be salvaged from new disturbance areas. Any shortages of soil needed for reclamation would be taken from the Central Zone Alluvium (area between the Berkeley and Continental Pits). A total of 609,000 cubic yards of soil would be used for primary reclamation of the West Embankment and a portion of the beach. Alluvium used for reclamation would also be sourced from areas between the Berkeley and Continental Pits. Leached cap would be sourced from the Continental Pit (Montana Resources 2018b).

### **5.3 Water Quality Act**

DEQ administers the Montana Water Quality Act (WQA) and the administrative rules adopted under the WQA. DEQ may not approve a reclamation plan unless it provides sufficient measures to prevent the pollution of water. The reclamation bond that a mine operator must submit before DEQ issues a permit or approves a permit amendment must be sufficient to ensure compliance with the WQA, which provides a regulatory framework for protecting, maintaining, restoring and improving the quality of water for beneficial uses. Pursuant to the WQA, DEQ has developed water quality classifications and standards, as well as a permit system to control discharges into state waters. Mining operations must comply with Montana's regulations and standards for surface water and ground water. The selected alternative does not allow for discharge of mine water into state waters.

Concurrent with the BMFOU water treatment pilot testing being conducted, an opportunity exists during active mine operations for BMFOU parties to review other post-closure water management methods, like the WED Pumpback Elimination at Closure Alternative. The BMFOU water treatment pilot testing project is anticipated to test various treatment and discharge scenarios over a period of 2-4 years. Water treatment pilot testing may inform decisions about post-closure water management activities under the BMFOU Consent Decree requirements. Following the water treatment pilot tests, the BMFOU remedial evaluation should be more advanced and the interplay between YDTI reclamation work and the BMFOU remedial action will be better understood. A stipulation in the ROD identifies a timeframe for dialogue between BMFOU Consent Decree parties about alternative post-closure water management strategies.

### **5.4 Clean Air Act of Montana**

The selected alternative would occur under Montana Air Quality Permit (MAQP) #1749-12 issued by DEQ's Air Quality Bureau on January 8, 2004. Sources of potential air quality impacts exist at the mine site where a majority of the activities occur. MR is in compliance with the Clean Air Act of Montana. There would not be significant changes to air quality under the amendments to HRM Operating Permit No. 00030 and No. 00030A.

### **5.5 MEPA Cumulative Effects Assessment**

Chapter 4 of the EIS provides a cumulative effects analysis. MEPA requires that the Proposed

Action be evaluated collectively with other past and present actions related to the Proposed Action by location or generic type (ARM 17.4.603(7)). Related future actions must also be considered when these actions are under concurrent evaluation by any state agency through pre-impact statement studies, separate impact statement evaluations, or permit processing procedures. At the time of publication of this EIS, the following projects and actions were considered related State future actions:

- Continued management of the BMFOU;
- The water treatment pilot study, for treating water from the Berkeley Pit and YDTI; and
- The State's continued oversight for monitoring and management of water with USEPA under the 2002 CERCLA Consent Decree.

There are no related future actions under concurrent consideration, and no reasonably foreseeable future actions that, when considered in conjunction with past and present actions, are likely to result in additional significant impacts. Should future actions be proposed that have or may have cumulative effects, additional analysis pursuant to the applicable requirements of MEPA will be conducted.

## **5.6 Design Documents, Independent Review Process, and Engineer of Record**

Section 82-4-336, MCA, requires that an operator proposing to expand an existing tailings storage facility shall submit to DEQ a design document. In accordance with 82-4-377, MCA, an Independent Review Panel (IRP) consisting of three engineers is contracted with the operator or permit applicant to 1) review the design document, 2) review the underlying analysis, 3) review assumptions for consistency, and 4) assess the practicable application of current technology in the proposed design of a mine tailings storage facility.

The IRP was tasked with reviewing the design documents for the YDTI including the proposed changes to the West Embankment and increased operating capacity. The responsibility of the IRP is to provide an evaluation indicating whether the proposed YDTI expansion is designed, and will be operated, monitored, and closed, using the most applicable, appropriate, and current technologies and techniques practicable, given site-specific conditions and concerns. The panel submits its review and any recommended modifications to the operator or permit applicant and DEQ. The panel's determination is conclusive. The Engineer of Record (EOR) is required to modify the design document to address the recommendations of the panel and certify the completed design document.

Section 82-4-376(2)(e), MCA, specifically requires the design document to include:

“An evaluation indicating that the proposed tailings storage facility will be designed, operated, monitored, and closed using the most applicable, appropriate, and current technologies and techniques practicable given site-specific conditions and concerns.”

The MMRA further defines the word “practicable” to mean the following:

“Available and capable of being implemented after taking into consideration cost, existing technology, and logistics in light of the overall project purposes.” (82-4-303(25), MCA)

The alternative assessment completed as part of the design documents by Knight Piesold on MR's behalf fulfills the requirements of the legislation. The assessment compares the alternatives for continued tailings storage in order to provide a transparent rationale for the selection of certain alternatives (Knight Piesold 2017a).

The IRP determined that the design document for expansion of the YDTI addresses all MCA requirements. Based on the selection of appropriate parameters and sound technical evaluations, the IRP accepted the adequacy of the design.

### **5.7 Other Agency Roles - US Environmental Protection Agency (Superfund)**

Removal and cleanup actions have been completed to address immediate threats to human health and the environment in Butte. Cleanup, operation and maintenance, sampling, and monitoring actions are ongoing. Throughout the Superfund cleanup in Butte, USEPA has completed four Five-Year Reviews to determine how the remedy is working and if it remains protective of human health and the environment. The last Five-Year Review was completed in 2016. USEPA is the lead agency for overseeing and enforcing the cleanup at the Butte Area Superfund Site with the exception of the Streamside Tailings Operable Unit (SSTOU). DEQ is the support agency representing the State of Montana for all OUs except the SSTOU, where it is the lead agency. USEPA is responsible for conducting the site-wide Five-Year Review which compares monitoring results with the remedy prescriptions and assesses efficacy. The PRPs finance and implement cleanup at the Site, with the exception of the SSTOU, where DEQ is implementing the remedy using funds provided by the PRPs. DEQ reviews the Five-Year Reviews and provides input to USEPA.

USEPA and DEQ published an Explanation of Significant Differences for the BMFOU ROD in 2002 that modified some aspects of the ROD, but retained other aspects and CERCLA requirements. USEPA and DEQ were co-plaintiffs in the 2002 Consent Decree and work together in the regulation of the Butte Area Superfund site. Therefore, MR's proposed amendment and the action alternatives were evaluated for consistency with existing agreements and regulatory stipulations under the BMFOU Consent Decree.

## **Section 6 – Appeal of DEQ's Decision**

This decision is subject to a court appeal by the applicant and other parties for 90 days after issuance of the ROD under Section 82-4-349(1), MCA. Any action or proceeding challenging a final agency decision alleging failure by DEQ to comply with or inadequate compliance with a requirement of MEPA must be brought within 60 days after issuance of the ROD pursuant to Section 75-1-201(5)(a)(ii), MCA. An applicant for a permit amendment may request an administrative hearing on a denial of the application by submitting a written request for a hearing within 30 days of receipt of this ROD pursuant to Section 82-4-353(2), MCA. The request must state the reason that the hearing is requested.