

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
Permitting & Compliance Division**

**RECORD OF DECISION**

for

Montana Tunnels Mining, Inc.'s Permit Amendment 008  
to Operating Permit 00113  
Jefferson County, Montana  
October 27, 2008

**I. Introduction and Background**

Montana Tunnels Mining, Inc. (Montana Tunnels), located in Jefferson County, Montana, currently mines ore containing gold, zinc, lead, and silver from an open pit (L-Pit mine pit) under Operating Permit 00113, issued by the State of Montana in 1986 under the Montana Metal Mine Reclamation Act ([MMRA]; 82-4-301 *et seq.*, MCA), and under Plan of Operations No. MTM 82856, issued by the BLM<sup>1</sup>.

Montana Tunnels has applied to DEQ and BLM for a major amendment to its operating and reclamation plans, to expand the existing L-Pit to access and mine additional ore resources (M-Pit Expansion). The proposed mine expansion would extend operations by about 5 years beyond the current operating plan. An estimated 24 to 28 million additional tons of ore would be removed.

Under the proposed M-Pit Mine Expansion, Montana Tunnels would increase the permitted pit disturbance area, deepen the mine pit, expand waste rock disposal areas, raise the tailings storage facility embankment, realign a segment of the Jefferson County mine access road, divert two stream channels, and construct new soil stockpiles. Clancy Creek would be diverted around the expanded pit during operations using a combination of a pipe and an open-flow channel.

Upon cessation of mining, the M-Pit would be reclaimed as a pit lake, as is allowed under the existing reclamation plan, with steep highwalls above the water level. A portion of the flow in Clancy Creek adjacent to the mine pit would continue to flow in a pipe and a portion would be diverted into the pit. Additional storm water would also be routed to the mine pit to aid the formation of the pit lake. The pit lake would reach equilibrium about two centuries after mining ceases at elevation 5,625 feet, or about 25 feet below the elevation of Clancy Creek (5,650 feet), and would not have a surface discharge.

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<sup>1</sup> BLM has the responsibility and authority to manage the surface and subsurface resources on public lands. BLM will be issuing a separate Record of Decision documenting its decisions regarding the expansion of the open pit at Montana Tunnels.

Montana Tunnels also proposes to donate several buildings, including the mill, warehouse and office buildings, laboratory, and two outside storage buildings, to the Jefferson Local Development Corporation for economic development use after mining.

The currently approved reclamation plan which, as indicated above, allows the pit to fill with water to form a pit lake after completion of mining, was treated as the No Action Alternative. The M-Pit Expansion proposed by Montana Tunnels was considered as the Proposed Action Alternative. DEQ also considered the Agency Modified Alternative which includes specific modifications to the proposed M-Pit Expansion developed by DEQ and BLM. These modifications include management of tailings storage seepage after closure, control of windblown dust from the tailings surface during closure, creation of a natural and more functional dendritic drainage pattern on the reclaimed surface of the waste rock storage area, development of a contingency plan and operational geochemical verification program to handle potentially acid-generating waste rock, establishment of a reconstructed open-flow channel for Clancy Creek, and implementation of measures to ensure Clancy Creek flows do not enter the mine pit after closure.

DEQ must select the reclamation alternative and mitigation measures to be implemented at Montana Tunnels based on the reclamation standards set forth in the Metal Mine Reclamation Act, Section 82-4-301, *et seq.*, MCA.

Section 82-4-336(9)(b), MCA, provides reclamation standards applicable to open pits. That statute requires open pits and rock faces to be reclaimed to a condition:

- (i) of stability structurally competent to withstand geologic and climatic conditions without significant failure that would be a threat to public safety and the environment;
- (ii) that affords some utility to humans or the environment;
- (iii) that mitigates postreclamation visual contrasts between reclamation lands and adjacent lands; and,
- (iv) that mitigates or prevents undesirable offsite environmental impacts.

Section 82-4-336(9)(c), MCA, provides that “[t]he use of backfilling as a reclamation measure is neither required nor prohibited in all cases. A department decision to require any backfill measure must be based on whether and to what extent the backfilling is appropriate under the site-specific circumstances and conditions in order to achieve the standards described in subsection (9)(b).”

Pit backfill was considered as an issue in the EIS, but not studied in detail. As described on page 1-14 of the draft EIS, the proposed M-Pit reclaimed as a pit lake would be structurally stable, would afford some utility to the environment, would mitigate visual contrasts after reclamation, and would not cause undesirable offsite environmental impacts. Because the standards in Section 82-4-336(9)(b), MCA, would be achieved without requiring backfilling of the pit, pit backfill was not carried forward in the analysis.

## II. Decisions

After considering the information in the EIS about the proposal, issues, alternatives, potential impacts, and management constraints, DEQ has selected the Agency Modified Alternative, which was identified as the preferred alternative in the draft and final EISs. The Agency Modified Alternative as documented in this Record of Decision (ROD) is approved for implementation as described in this record.

Mitigation measures to avoid or reduce environmental impacts will be stipulated in Amendment 008 to the operating permit before this decision can be implemented by Montana Tunnels. This approval is made by DEQ under MMRA. The Agency Modified Alternative is described in detail in Chapter 2 of the EIS.

## III. Amendment 008 Stipulations

The following stipulations will be attached to the operating permit as a part of Amendment 008. All other stipulations previously attached to Operating Permit 00113 remain in full force and effect unless specifically modified in this section of this ROD. Montana Tunnels must comply with the stipulations and the stipulations are enforceable elements of the operating permit.

These stipulations are based on modifications to the Proposed Action Alternative contained in the Agency Modified Alternative. As explained in the EIS, these stipulations mitigate specific impacts identified in Chapter 3 of the EIS. Following each stipulation is a brief rationale for its adoption.

### Mine Pit

#### Stipulation 008-1

*Montana Tunnels shall implement operational M-Pit mining measures to achieve and maintain stability of the highwall and long-term Clancy Creek stability after closure. Stability requirements include the use of low-damage blasting practices, aggressive groundwater depressurization, and implementation of a proactive geotechnical monitoring program.*

**Rationale:** This measure will reduce the potential for highwall failures during mining and after closure.

#### Stipulation 008-2

*Groundwater depressurization will be required along the northwest pit highwall during operations and after closure. A combination of vertical pumping wells and horizontal drains will be used to remove groundwater. The minimum groundwater depressurization depth will be 100 feet.*

Rationale: This measure will reduce the potential for highwall failures during mining and after closure.

### **Tailings Storage Facility**

#### Stipulation 008-3

*If water quality from the tailings storage facility combined drains does not meet groundwater quality standards by the end of the closure period, Montana Tunnels shall maintain the south pond and liner system, continue pumping untreated water into the pit, or treat or otherwise manage water.*

Rationale: Although groundwater quality is expected to be good, this measure will ensure the discharge meets groundwater quality standards.

#### Stipulation 008-4

*If water in the tailings storage facility combined drains meets all groundwater quality standards, Montana Tunnels shall bury the south pond at reclamation and continue to monitor groundwater quality during the process of tailings consolidation.*

Rationale: Although groundwater quality is expected to be good, this measure will avoid any surface water discharge and protect groundwater quality.

#### Stipulation 008-5

*Montana Tunnels shall limit wind-blown dust from the tailings surface using an irrigation system to maintain a wetted tailings surface or other dust abatement technology, as appropriate, until such time that vegetation has been established or dust production is otherwise controlled.*

Rationale: This measure will protect air quality.

#### Stipulation 008-6

*During reclamation of the tailings storage facility surface, the placement of cap material will result in lateral displacement of underlying slimes. It may be necessary to implement a site specific dewatering plan to reduce the fluidity of the slimes to a level where the capping material can be placed without displacement of the slimes. If dewatering of the slimes cannot be achieved without delays to the capping plan, (1) an agency approved geotextile layer will be added to the cap design to create a structural bridge over less stable areas of the tailings, or (2) tailings slimes will be pumped into the mine pit. The choice of mitigation would be based on effectiveness of implementation.*

Rationale: This measure will ensure that placement of the reclamation cap on the tailings storage facility is completed as rapidly as possible.

Stipulation 008-7

*Differential settlement of the tailings would occur after the initial cap is installed. Additional capping material on low areas of the reclaimed surface would be needed to compensate for this settlement. Montana Tunnels shall establish a 100-foot by 100-foot survey grid on the tailings storage facility surface after operations cease and before the cap rock is placed. Then as the cap rock is placed, the grid will be checked to ensure the required amount of cap rock and the desired grade are achieved. Montana Tunnels will have to wait until the majority of settlement occurs, about five years, before the 24 inches of soil is placed. The grid will be checked again to verify the desired grade. Any long-term continued settlement would require additional soil to be placed to reestablish the grade. Montana Tunnels shall report the results of the survey in the annual report to the agencies and provide documentation that the reclamation gradient has been reestablished on the tailings storage facility surface.*

Rationale: This measure will maintain the desired drainage pattern of the reclaimed tailings storage facility surface.

**Waste Rock Storage Areas**

Stipulation 008-8

*Montana Tunnels shall use a maximum lift height of 50 feet during construction of the waste rock storage area to improve compaction and facilitate construction of cells to encapsulate acid-generating waste rock.*

Rationale: This measure protects groundwater and surface water by improving the reclamation potential of the waste rock storage area slopes and limiting the slope lengths that have to be graded and reclaimed.

Stipulation 008-9

*Montana Tunnels shall use a dendritic drainage pattern on the reclaimed waste rock storage areas, eliminating benches. Waste rock storage areas will be constructed with a concave slope, steeper at the top and less steep at the bottom*

Rationale: This measure will provide a more natural looking and functioning system, mitigate impacts to soils and vegetation, and improve reclamation success. This measure also will limit impacts to groundwater and surface water by minimizing the potential for erosion failure of the benches on reclaimed waste rock dump slopes and minimizing long-term maintenance of the surface water drainage channels.

## Clancy Creek Relocation and Wetlands

### Stipulation 008-10

*The hillside above the existing Clancy Creek channel in the vicinity of the mine pit (36.9 acres) will be laid back at the beginning of the M-Pit Mine Expansion. After excavation of the layback and the stream channel bench is complete, an open-flow channel will be constructed within the bench and around the M-Pit that will mimic the present Clancy Creek channel. The new channel will be lined to limit seepage.*

*The closure layback bench will be 300 feet wide, from layback toe to pit rim, with a 50-foot wide rockfall protection zone, a single track roadway, a 50-foot wide channel, a 200-foot wide buffer zone to the pit rim, and appropriate groundwater cutoff and collection measures for the reconstructed Clancy Creek channel.*

*The Clancy Creek diversion channel will be designed to accommodate the flow from a 1 in 20-year return period 24-hour storm event equal to 350 cubic feet per second (cfs). In addition, the diversion channel will be designed to help mitigate damage from high volume flood events through the use of a 125-foot wide inclined floodplain capable of passing up to 1,700 cfs from a severe flood event.*

**Rationale:** The overall goal is to create a stable stream channel that would convey the design flow.

### Stipulation 008-11

*Montana Tunnels shall provide 3.0 acres of replacement wetlands including: (1) 1.08 acres of forested wetlands along a 910-foot long historic section of upper Clancy Creek just downstream of the existing open pit, and (2) at least 0.22 acre of emergent wetlands and no less than 1.7 acres of scrub-shrub wetlands in a 4.0-acre area on Corbin Flats in the Spring Creek drainage.*

**Rationale:** This measure would compensate for the disturbance of 2.63 acres of existing wetlands.

### Stipulation 008-12

*Once vegetation for the constructed open-flow channel and wetlands mitigation area has begun to establish itself, flow in the existing Clancy Creek channel will be routed into the new channel at a diversion point on Clancy Creek upstream of the mine pit. The hillside layback, channel construction, wetlands mitigation, slope reclamation, and rerouting of the existing Clancy Creek will begin immediately upon initiation of M-Pit activities, and will be completed in less than 2 years. The restored channel area will be fenced to discourage livestock grazing and other channel disturbances in order to preserve habitat in the long term.*

Rationale: This measure would promptly restore Clancy Creek and ensure that associated disturbance is quickly reclaimed.

Stipulation 008-13

*Fish rescue efforts will be made prior to construction of the Clancy Creek Channel.*

Rationale: This measure will decrease the potential for fish, especially westslope cutthroat trout, to be harmed or killed during construction of the Clancy Creek channel.

**Geochemical Verification Program**

Stipulation 008-14

*Montana Tunnels shall develop a contingency plan and operational geochemical verification program to handle potentially acid-generating waste rock based on kinetic test results and ongoing monitoring of waste material mined from the M-Pit Mine Expansion. Selective handling criteria based on these test results must meet timely material handling requirements in the M-Pit mine plan.*

Rationale: This measure will ensure that potentially acid-generating waste rock is properly handled to avoid surface water and groundwater contamination.

Stipulation 008-15

*Montana Tunnels shall continue to test the geochemistry of the ore, tailings, and waste rock during operations. The predictions of the existing geochemical model(s) will be verified based on operational geochemical data and testing. Geochemical models will be rerun with newly collected operational data to verify existing model results.*

Rationale: This measure will allow the geochemical models to be recalibrated, if needed, based on additional data.

Stipulation 008-16

*Montana Tunnels shall monitor tailings storage facility seepage water quality for selected geochemical parameters during tailings consolidation and dewatering to evaluate the potential for oxidation of tailings material and future acid rock drainage. Tailings consolidation would occur during the five-year closure period and is anticipated to continue for several decades thereafter.*

Rationale: Although impacts are not expected, this measure will protect groundwater quality.

#### Stipulation 008-17

*Montana Tunnels shall collect operational geochemical data and conduct testing on material from the layback required to construct the Clancy Creek closure channel.*

**Rationale:** This measure will be used to assess potential long-term Clancy Creek water quality issues.

### **Operational and Post-Operational Water Quality Verification Program**

#### Stipulation 008-18

*Montana Tunnels shall conduct an operational verification program to monitor tailings storage facility leachate quality and pit water quality during the five-year closure period to verify estimates of seepage and pit lake water quality. The operational verification program will include quarterly measurement of flow from the tailings storage facility combined drains and flow into the mine pit. Water quality samples from the combined drains and pit lake will be collected using the laboratory analytical list provided in Table 3.6-3 and pit lake elevations provided in Table 2.2-3 of the draft EIS. Flow and water quality data will be compared to model predictions to verify model results and screen for field conditions that vary from model predictions by more than 10 percent. The existing models will be calibrated using newly collected operational data. The calibrated models will be rerun, and, if necessary, pit water or tailings storage facility leachate will be managed or treated.*

*All water quality and geochemical data will be evaluated at the end of the five-year closure period, and the monitoring program requirements will be adjusted by DEQ and BLM, as needed. The monitoring program will continue to be implemented for a time period determined appropriate by DEQ and BLM.*

**Rationale:** Although impacts are not expected, this measure is needed to limit impacts to groundwater and surface water by identifying potential problematic waste rock and ore, prevent impacts to water quality and wetlands, and identify trends in flow and quality in case other mitigations are needed.

#### Stipulation 008-19

*At the end of the five-year closure period, Montana Tunnels shall breach the south pond liner and bury the south pond only if pond water quality meets standards effective at the time. If the operational verification program indicates tailings storage facility seepage is worse than predicted, the pond liner will not be breached and tailings storage facility seepage will continue to be pumped into the pit or treated, if necessary. Additionally, a recovery well system will be operated to prevent contaminant migration in groundwater, if necessary.*



Rationale: Although impacts are not expected, this measure will protect water quality.

Stipulation 008-20

*Montana Tunnels shall install a new line of alluvial monitoring wells across a constriction immediately below where these valleys meet, approximately 2,500 feet downgradient of the south pond. The purpose of these wells would be to document compliance with groundwater standards and/or to establish baseline groundwater quality conditions for the M-Pit Expansion which Montana Tunnels would not be allowed to exceed. Deterioration in water quality at these monitoring wells would trigger enhanced pumpback or other remedial actions at the Montana Tunnels site in order to maintain existing water quality conditions. This location would also be immediately upgradient of the confluence of the upper Spring Creek watershed with the Comet Creek watershed (containing the historic Wickes Smelter site and other potential sources of contaminants). Another monitoring well would be installed near the mouth of this drainage to document the chemistry of water leaving the Comet Creek watershed (again, there is no surface water flow in the lower part of this drainage; all water moves through the alluvium).*

*In addition to the monitoring wells located within the Spring Creek alluvium 2,500 feet downgradient of the mine, Montana Tunnels shall install a line of wells approximately 5,000 feet farther downgradient that will document the quality of groundwater flowing toward the springs that constitute the beginning of surface flow within Spring Creek.*

Rationale: Although an impact to Spring Creek is not expected, these wells will be located approximately 2,500 feet upgradient of the springs and will provide early warning of any increasing levels of contaminants that might exceed surface water quality standards in Spring Creek.

### **Fisheries and Aquatics Resources**

Stipulation 008-21

*The Montana Tunnels diversion structure on Clancy Creek will be enhanced to ensure it remains a barrier to fish migration in the future.*

Rationale: This measure will help reduce hybridization between westslope cutthroat trout and non-native trout species.

### **Cultural Resources**

Stipulation 008-22

*If the M-Pit expansion adversely impacts site 24JF1825, a Memorandum of Understanding (MOU) between Montana Tunnels, the BLM, and the Montana State Historic Preservation Office will be developed to mitigate those impacts.*

Rationale: Although an impact to site 24JF1825 is not expected, this measure will allow the agencies to address any unexpected impacts to that cultural resource.

### **Administrative Stipulations**

#### Stipulation 008-23

*The current format of the annual report must be expanded to include requirements in the following stipulations:*

- 1. Differential settlement of the tailings (Stipulation 008-7).*
- 2. Operational geochemical verification program (Stipulation 008-14).*
- 3. Operational and post-operational water quality verification program (Stipulation 008-18).*
- 4. Spring Creek alluvium monitoring wells (Stipulation 008-20).*
- 5. Reporting on status of all stipulations attached to Operating Permit 00113 in the annual report.*

Rationale: This measure clarifies what additional data and information Montana Tunnels is required to provide in its annual report as a result of DEQ's approval of the mine expansion. The need for the specific monitoring requirements is addressed under each of the cross-referenced stipulations.

#### Stipulation 008-24

*When Montana Tunnels files its next annual report in June of 2009, Montana Tunnels must submit a revised operating and reclamation plan that reflects all of the changes required in the EIS and this ROD. The revised document must include appropriate sections in the current operating plan that are currently cross-referenced in the Amendment Application.*

Rationale: Submittal of an updated consolidated plan will ensure that the permitted plan is clearly spelled out in one document rather than in a number of separate reports and plans, which may not be consistent with each other.

#### Stipulation 008-25

*Wherever in the stipulations Montana Tunnels is required to develop a study, plan, design, specification, or other document or documentation, that study, plan, design, specification, or other document or documentation must be submitted to DEQ, with copies to the BLM, for approval. Wherever approval is required, this approval requirement means that:*

- 1. if approval is not granted, the study, plan, design, specification, or other document or documentation may not be implemented, and no action may be undertaken pursuant to the study, plan, design, specification, or other document or documentation, and*
- 2. if approval is granted, Montana Tunnels must conduct its operations in accordance with the study, plan, design, specification, or other document or documentation.*

Rationale: Based on agency experience, this stipulation is intended to clarify which limits will be used by the agencies in determining compliance.

### **Mitigation Measures Considered but not Stipulated**

Mitigation Measure 7 from the EIS cannot be required under MMRA.

#### **A. Other Rights and Permits**

Approval of the permit amendment does not convey or create any real property rights or use rights.

Montana Tunnels' Storm Water Pollution Prevention Plan was approved under the General Permit for Storm Water Discharge Associated with Mining and Oil and Gas Activities. No changes in this permit result from this decision.

Montana Tunnels holds Air Quality Permit #1986-10 and must continue to comply with its requirements. No modifications to this permit have resulted from the decision.

Montana Tunnels is responsible for obtaining any property rights, easements, mineral rights, or water rights necessary to implement the selected alternative. Montana Tunnels is responsible for obtaining any other local, state, or federal permits, licenses, or reviews that might be necessary to implement the selected alternative.

During implementation of this decision, Montana Tunnels may propose waivers, exceptions, or modifications to the mining and reclamation plans and associated stipulations or conditions. Such changes could be appropriate to allow the use of alternate mitigation methods that might be developed in the future or to respond to an improved understanding of site conditions gained through operational experience.

Any proposed change to the operating procedures, schedule, reclamation design, or mitigation measures will be reviewed by the agencies and accepted if the change would provide resource protection equal to or greater than the original requirement and would not result in significant impacts not identified in the EIS. Proposed changes that would not achieve the same level of resource protection, or would result in previously undisclosed significant impacts would require supplemental analysis under MEPA prior to determining their acceptability.

## **B. Reclamation Bond**

Montana Tunnels is required to post and maintain a reclamation bond in an amount that would enable DEQ to implement the reclamation and other plans as stipulated above and in prior amendments. DEQ has decided to issue this ROD after fifteen days have expired from the date of transmitting the EIS to the Governor and the Environmental Quality Council pursuant to ARM 17.4.620(5). This fifteen-day period is insufficient for DEQ to determine any change in the estimated cost to the state to reclaim the mine site resulting from selection of the Agency Modified Alternative and the mitigation measures set forth in this decision.

Within 60 days of the date of this decision, DEQ will request Montana Tunnels to submit a bond reflecting any change in the cost to the state to ensure compliance with the Montana Clean Air and Water Quality Acts, the MMRA, administrative rules adopted under the MMRA, and Montana Tunnels' permit that results from selection of the Agency Modified Alternative and the mitigation measures set forth in this decision. Section 82-4-338(1), MCA, requires Montana Tunnels to file with DEQ a bond in the sum determined by DEQ.

The bond calculations will be on file and available at DEQ upon request.

## **V. Issues and Alternatives**

The EIS and this ROD have been prepared in response to Montana Tunnels' application and issues and concerns identified through public comment. Alternatives were developed to address significant issues. These issues and alternatives are presented in detail in the EIS. A preferred alternative was identified in the draft EIS and was selected following completion of the final EIS. This decision takes into account impacts of the various alternatives as well as public comment and the potential for the alternatives to resolve the issues.

### **A. Public Scoping and Comment**

DEQ published a legal notice in local newspapers and issued a press release in September 2004 when the application was received. A news release announcing the project and the scoping meeting was published on December 15, 2004. The scoping meeting was held on January 6, 2005, in Clancy, Montana. About 100 people attended the scoping meeting. A Notice of Intent to prepare the draft EIS was published in the Federal Register on February 22, 2005. The Notice of Intent asked that scoping comments be sent to BLM and DEQ by March 24, 2005. DEQ and BLM received 76 letters and emails.

The draft EIS for the Proposed M-Pit Mine Expansion at the Montana Tunnels Mine in Jefferson County, MT was published in February 2008 and addressed issues and concerns raised during the public scoping period. Public comments concerning the adequacy and accuracy of the draft EIS and the preliminary Army Corps of Engineers

Section 404(b)(1) showing were accepted until April 15, 2008. A public hearing to receive oral and written comments was held in Clancy, Montana, on April 2, 2008, during the 60-day comment period. Approximately 488 comments were received on the draft EIS. Chapter 10 of this final EIS contains a list of all commentors, a summary of substantive public comments and responses, and changes to the draft EIS based on the comments received during the public comment period.

All written and oral comments were reviewed and considered during preparation of the final EIS. Comments that presented new data, questioned facts or analysis, or raised questions or issues bearing directly on the alternatives or environmental analysis received a response in the final EIS. Comments expressing personal opinions were considered but received no response.

## **B. Alternatives Considered in Detail**

Chapter 2 of the EIS describes the alternatives analyzed and the alternatives excluded from detailed analysis. The alternatives listed below were analyzed in detail in Chapter 3 of the EIS:

- No Action Alternative (L-Pit)
- Proposed Action Alternative (M-Pit)
- Agency Modified Alternative

## **C. Environmentally Preferred Alternative**

The No Action Alternative is the environmentally preferred alternative. The pit would not be expanded, so no more land would be disturbed. Clancy Creek and the aquatic habitat it supports would not be disturbed. There would be no direct impacts to wetlands. There would be no further disturbance to wildlife habitat.

# **VI. Rationale for the Decision**

## **A. Rationale for the Selected Alternative**

DEQ has selected for permitting the preferred alternative, the Agency Modified Alternative, after considering the potential impacts of all of the alternatives. DEQ recognizes that none of the alternatives, including the selected alternative, completely avoids environmental impact.

Under all alternatives, no highwall failure that would threaten public safety or the environment will occur, and some wildlife habitat will be provided. The proposed M-Pit reclaimed as a pit lake would be structurally stable, would afford some utility to the environment, would mitigate visual contrasts after reclamation, and would not cause undesirable offsite environmental impacts. Under the Agency Modified Alternative,

Clancy Creek will be relocated and will not be directed into the pit. The waste rock storage areas will be shaped to look more natural, with a combination of concave slopes and dendritic drainage patterns. Erosion will be controlled by storm water diversions, the shaping of the waste rock storage area slopes, and revegetation. Pit lake water will not become stagnant, because of seasonal turnover of the water. The remaining pit highwalls will not cause the formation of objectionable effluents on exposure to moisture. Vegetative cover will support the expected future land use, and county standards for noxious weed control will be met. Public safety will be protected by restricting access to the reclaimed mine site. There will be no degradation of adjacent lands. Shaping, soil placement, and revegetation of waste rock storage area slopes and the tailings storage facility surface will limit precipitation infiltration and prevent objectionable groundwater discharges after mining. Geochemical verification of waste rock and water monitoring will be established to protect water quality.

## **B. Selected Alternative Compliance with Legal and Policy Mandates**

This section explains how the selected alternative satisfies the agency's statutory, regulatory, and policy mandates.

### Metal Mine Reclamation Act

In enacting the Metal Mine Reclamation Act, the Montana Legislature found that it is not practical to extract minerals without disturbing the surface of the earth and without producing waste material and that the very character of many types of mining precludes complete restoration of the land to its original condition. The Montana Legislature found that the reclamation standards set forth in the Metal Mine Reclamation Act allow for exploration and mining of valuable materials while adequately providing for the subsequent beneficial use of the lands to be reclaimed.

The following reclamation standards set forth in Section 82-4-336, MCA, apply to open pits and rock faces:

- (9)(b) With regard to open pits and rock faces, the reclamation plan must provide sufficient measures for reclamation to a condition:
  - (i) of stability structurally competent to withstand geologic and climatic conditions without significant failure that would be a threat to public safety or the environment;
  - (ii) that affords some utility to humans or the environment;
  - (iii) that mitigates postreclamation visual contrasts between reclamation lands and adjacent lands; and
  - (iv) that mitigates or prevents undesirable offsite environmental impacts.
- (c) The use of backfilling as a reclamation measure is neither required nor prohibited in all cases. A department decision to require any backfill measure must be based on whether and to what extent the backfilling is appropriate under the site-specific circumstances and conditions in order to achieve the standards described in subsection (9)(b).

Section 82-4-336(11), MCA, requires DEQ to approve a reclamation plan if it adequately provides for the accomplishment of the requirements and standards set forth in Section 82-4-336, MCA.

The Proposed Action Alternative and the Agency Modified Alternative satisfy the reclamation standards set forth in Section 82-4-336(9)(b), MCA. With the implementation of groundwater depressurization and controlled blasting techniques required under both alternatives, no highwall failure that would threaten public safety or the environment would occur. The quality of the pit lake is expected to be good, providing a resting area for migrating birds. Birds and bats may use the pit lake as a drinking water source and feed on insects attracted to the pit lake. Some birds and bats may also use the pit highwalls for nesting or roosting. The pit lake will cover most of the highwalls. The pit highwalls above the pit lake would naturally weather and ravel into the pit, resembling naturally occurring talus slopes. The highwalls would also be seeded, further reducing visual contrasts. No offsite environmental impacts would result from either alternative. Because these standards can be achieved without backfilling the pit, DEQ has no authority under Section 82-4-336(9)(c), MCA, to require pit backfill as a reclamation measure.

The Agency Modified Alternative will establish a new channel for Clancy Creek so that the creek's aquatic and fishery habitat and function will be recreated. The Proposed Action would divert part of Clancy Creek's flow around the pit through a pipe and part of the flow into the pit. Habitat and function would be permanently destroyed.

The Agency Modified Alternative will require the waste rock dumps to be built with 50-foot lifts. The side slopes will be graded to concave profiles with dendritic drainage patterns. Construction and grading will improve compaction, stability, erosion control, and visual appearance over the Proposed Action.

The geochemical verification program under the Agency Modified Alternative will provide a means of detecting any unexpected acid-generating potential that might develop over time, and the selective handling requirements will ensure that any potentially acid-generating material is properly disposed.

#### Montana Water Quality Act

The selected alternative will comply with waste load allocations developed for Montana Tunnels for the TMDLs for the Lake Helena watershed.

#### Montana Pollutant Discharge Elimination System

Montana Tunnels holds MPDES permit No. MT0028428 and has an approved Storm Water Pollution Prevention Plan. The MPDES permit expired on October 31, 2002, but was administratively extended after an application for a new MPDES permit from Montana Tunnels was determined to be complete. The new MPDES permit will include

waste load allocations, required by Section 75-5-703(6)(b), MCA, and developed in the “Framework Water Quality Restoration Plan and Total Maximum Daily Load for the Lake Helena Watershed Planning Area” document, approved by EPA on October 2, 2006. The administratively extended MPDES permit remains effective until the new permit is finalized and signed.

#### Clean Air Act of Montana

Montana Tunnels holds Air Quality Permit #1986-10. Emissions from mining activity have been within ambient air quality standards. Since the level of mining activity will not change under the selected alternative, predicted emission levels will not exceed air quality standards.

#### Montana Hard Rock Mining Impact Act

Montana Tunnels has a Hard Rock Mining Impact Plan pursuant to the Hard Rock Mining Impact Act. No changes to the plan are needed for this permitting action.

#### MEPA Cumulative Impacts Assessments

Chapter 4 of the EIS provides a cumulative impacts analysis. 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 impacts, additional analysis pursuant to the applicable requirements of MEPA would be conducted.

#### Private Property Assessment Act

Imposition of the Agency Modified Alternative and the stipulations described above does not have taking or damaging implications.

### **VII. Monitoring and Compliance**

This section summarizes the project monitoring that will be conducted. The purpose of monitoring is to ensure compliance with the terms and conditions of the approved mining and reclamation plans, to detect problems early, and to provide a basis for directing remediation of unanticipated problems.

#### **A. Agency Monitoring**

Agency staff will continue to conduct compliance inspections at least quarterly under the authority of MMRA. These inspections will be comprehensive mine-wide inspections. Inspections will consist of examination of disturbed areas, verification sampling at water quality monitoring points, and geochemical sampling of mine products, construction



materials, and reclamation materials. Revegetation will be examined annually. More frequent inspections could be conducted during periods of intense activity in particular areas of the mine, or when compliance problems have been noted and corrective measures are being implemented. Additional inspections for compliance with the Montana Water Quality Act and the Clean Air Act of Montana will also be conducted. The results of these inspections will be available in agency files.

## **B. Operator Monitoring Reports**

The following monitoring reports are required from Montana Tunnels under the selected alternative and/or the existing permit. All reports are to be submitted to DEQ and will be available in the agency's files.

### Geochemical Verification Plan

Montana Tunnels will develop a contingency plan and operational geochemical verification program to handle unexpected potentially acid-generating waste rock based on kinetic test results and ongoing monitoring of waste material mined from the M-Pit Mine Expansion. Selective handling criteria based on these test results must meet timely material handling requirements in the proposed M-Pit mine plan.

Montana Tunnels will continue to test the geochemistry of the ore, tailings, and waste rock during operations. The predictions of the existing geochemical models would be verified based on operational geochemical data and testing. Geochemical models will be rerun with newly collected operational data to verify existing model results.

Montana Tunnels will monitor tailings storage facility seepage water quality for selected geochemical parameters during tailings consolidation and dewatering (tailings consolidation would occur during the five-year closure period and is anticipated to continue for several decades thereafter) to evaluate the potential for oxidation of tailings material and future acid rock drainage.

Montana Tunnels will collect operational geochemical data and conduct testing on material from the layback required to construct the Clancy Creek closure channel to assess potential long-term Clancy Creek water quality issues.

Montana Tunnels will monitor tailings water discharged to the pit and post-mining pit lake water quality during the five-year closure period to verify tailings storage facility seepage water quality predictions and verify impacts related to pit lake water quality. All water quality and geochemical data will be evaluated at the end of the five-year closure period, and the monitoring program requirements will be adjusted by DEQ and BLM, as needed. The monitoring program will continue to be implemented for a time period determined appropriate by DEQ and BLM.

### Monitoring Wells on Spring Creek

In addition to the monitoring wells located within the Spring Creek alluvium 2,500 feet downgradient of the Montana Tunnels Mine, a line of wells will be installed

approximately 5,000 feet farther downgradient, which will document the quality of groundwater flowing toward the springs which constitute the beginning of surface flow within Spring Creek. These wells will be located approximately 2,500 feet upgradient of the springs and will provide early warning of increasing levels of contaminants that might exceed surface water quality standards in Spring Creek.

Annual Water Resources Monitoring Report

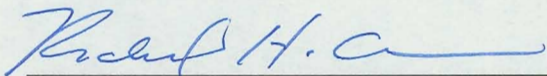
This report is submitted yearly and includes the results of all water resources monitoring specified in the operating plan for the entire year. This report also includes a summary of past annual monitoring results and trend analysis.

Annual Operating and Reclamation Status Report

This is the annual report required by MMRA. The annual report describes overall mining and reclamation status. This report will include Montana Tunnels' tracking of the status and progress in complying with the agency-imposed stipulations.

**VIII. Appeals of DEQ Decisions**

Under Montana state law, this record is subject to court appeal by the applicant and other parties for 90 days after issuance of the operating permit amendment. An action alleging failure to comply with the Montana Environmental Policy Act must be brought within 60 days after issuance of the operating permit amendment. An applicant for a permit amendment may request an administrative hearing on a denial of the application within 30 days of written notice of the denial. Notice of permit issuance will be published in the *Boulder Monitor*, *Whitehall Ledger*, *Helena Independent Record*, and the *Butte Montana Standard*.



Richard H. Opper, Director  
State of Montana  
Department of Environmental Quality

10/27/08

Date

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