



Montana Department of  
**ENVIRONMENTAL QUALITY**

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October 6, 2009

Eric Klepfer  
Klepfer Mining Service, LLC  
13058 Sherwood Ct.  
Hayden Lake, ID 83835

Dear Mr. Klepfer:

Montana Air Quality Permit #4449-00 is deemed final as of October 6, 2009, by the Department of Environmental Quality (Department). This permit is for an underground exploration project. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh  
Air Permitting Program Supervisor  
Air Resources Management Bureau  
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Ed Warner  
Environmental Engineer  
Air Resources Management Bureau  
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VW:EW  
Enclosure

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**Permitting and Compliance Division**  
**Air Resources Management Bureau**  
**P.O. Box 200901, Helena, Montana 59620**  
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**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

*Issued To:* Timberline Resources Corporation

*Montana Air Quality Permit Number:* 4449-00

*Preliminary Determination Issued:* August 31, 2009

*Department Decision Issued:* September 18, 2009

*Permit Final:* October 6, 2009

1. *Legal Description of Site:* The TRC BHP will be located in Sections 31 and 32, Township 1 North, Range 7 West, in Silver Bow County.
2. *Description of Project:* The TRC BHP is an underground exploration project consisting of drifting, ore recovery for bulk sampling, and development rock removal and storage.
3. *Objectives of Project:* The objective of the BHP is for TRC to gain a better understanding of the resources through underground drilling, technical investigations to support mine planning, and bulk sampling for metallurgical testing. The project could persist for up to two years and may eventually transition to a fully operational mine project.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because TRC demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4449-00.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

This permitting action would have a minor effect on terrestrial and aquatic life and habitats in the project area. The project would be located on private land owned by TRC. The current land use is agricultural. The Department has determined that any impacts from emissions or deposition of pollutants would be minor due to dispersion characteristics of the pollutants, the atmosphere, and the conditions that would be placed in MAQP #4449-00.

B. Water Quality, Quantity and Distribution

This project would have a minor effect on the water quality, water quantity, and distribution; however, there would be no discharge to groundwater or surface water associated with this project. Water for the project is planned to come from several sources. TRC currently holds five water rights that were originally part of the historic Highlands Mine and Pony Placer Claim. These water rights are current and may be used for mining purposes.

It is expected that the underground development work will encounter groundwater. The proposed underground workings are predicted to produce between 10 and 110 gallons per minute of groundwater inflow. The produced water is not anticipated to be acidic. Water being produced at the nearby historic Highland Mine Adit is nonacidic and sampling indicates that this mine water is in compliance with water quality standards for all parameters tested. Further geochemical testing is being conducted to confirm the low potential for acid rock drainage to develop as a result of the mining activity. If the new exploration decline intercepts historic workings underground, there is the potential for water in the new workings to drain via the historic Highland Mine Adit which flows to the Basin Creek Reservoir that is a water supply for the city of Butte. Discharge from the Highland Mine Adit would be monitored to determine whether exploration activities result in changes of flow or quality of this adit discharge.

Water from the underground workings would be pumped through a series of underground sumps to settle out sediment from mine activities. The water from the underground sumps would be pumped to the mine ponds located below the development rock storage area. Two ponds would be built with a combined capacity of approximately 2.5 million gallons.

Water from the mine and waste rock stockpile area would report to the sediment pond, which would have a capacity of approximately 1.5 million gallons. Run-off from the waste pile would be gravity fed to the ponds while the mine water would be pumped up the decline through a pipe to the pond. The pond would be the secondary sediment removal process in the circuit. Water would decant from the sediment pond and flow to the recycle water pond, which would have a capacity of approximately 1.0 million gallons.

The ponds would be lined and would be connected together with either a decant pipe and/or an overflow/spillway structure constructed between the two ponds. Flocculent or other similar chemicals may be added in the ponds and/or the sumps to assist in settling sediment. Pond levels would be maintained to ensure an available capacity for a 25-year 24-hour storm event at all times.

Water from the recycle pond would either be sent to the land application disposal (LAD) areas or returned to a re-circulated water tank for re-use. Water from the underground sumps could also be pumped up the ventilation raise and sent directly to the LAD area located on patented land. LAD methods would involve the application of the water via a drip irrigation system. The irrigation system would rotate the application of water between the different cells of the LAD area to minimize surface pooling. If it becomes necessary, a spray irrigation system would be installed during the warmest months to maximize evaporation.

Two 10,000 gallon capacity water tanks are planned for the project. One tank would be used for potable water and make-up water when needed. A second tank would be re-circulated water from the mine pond that would be used for mine activities such as dust control and drill water.

An on-site wastewater system would be constructed to manage wastewater generated from the office trailer and mine dry. The location may change slightly based on field leach tests and the final design approved. The sewage treatment system would be sized to meet the full operational project staffing levels of the project.

#### C. Geology and Soil Quality, Stability and Moisture

The project would have a minor affect on the geology and soil quality, stability, and moisture. The project would be entirely located on patented private land owned by TRC. Similar types of exploration and mining activities have been occurring at the location for many years.

#### D. Vegetation Cover, Quantity, and Quality

The project would have a minor affect on the local vegetation. The impacts from emissions or deposition of pollutants would be minor due to dispersion characteristics of the pollutants, the atmosphere, and the conditions that would be placed in MAQP #4449-00. Reclaimed areas would be seeded with native seed mixture and would be applied in the late fall or early spring to reduce the invasion of noxious weeds.

Clearing and grubbing of the vegetation in the disturbance area would be completed prior to construction activities. This would include the removing of trees, shrubs, and other similar vegetation. Merchantable timber would be salvaged and sold as appropriate. The remaining limbs and other similar material would be piled as appropriate in slash piles. The facility locations would be selected to minimize tree removal where possible. Slash piles would be burned or disposed of in accordance with applicable laws and/or used for sediment control as sediment filter material.

#### E. Aesthetics

The project would have a minor affect on the local aesthetics. Similar types of exploration and mining activities have been occurring at the location for many years. The project would be entirely located on patented private land owned by TRC. The project area is located on the Continental Divide about 20 miles southwest of Butte in a rural setting. It is shielded from view from the north by a ridge running east to west along the divide. The surface activities on Nevin Hill are visible from Red Mountain in the Butte Highlands, but the portal location itself would not be visible from this vantage point. The majority of the exploration activities would take place underground and would not be audible. Noise from the generators may be audible to passersby from the Fish Creek road and the Highlands road, but there are no houses close enough that noise from these power plants would be a disturbance.

#### F. Air Quality

The area surrounding the proposed project is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria air pollutants. The proposed site location is not within the Butte PM<sub>10</sub> nonattainment area. The Department believes that concentrations of the criteria pollutants in the area are at or near background levels and well below any NAAQS levels. Emissions of air pollutants would occur as a result of the current permit action. MAQP #4449-00 would contain conditions limiting opacity and diesel generator operations and require, as necessary, the use of water, chemical dust suppressants, or water spray bars to control dust from vehicle traffic and process equipment. If the facility operates in compliance with all applicable permit requirements, then the effects would be minor.

#### G. Unique Endangered, Fragile, or Limited Environmental Resources

The development of the BHP would impact the unique endangered, fragile, or limited environmental resources because emissions of PM<sub>10</sub>, NO<sub>x</sub>, CO, VOC, and SO<sub>x</sub> would increase in the area because of the operation of the facility. However, the Department believes that any impacts would be minor due to the relatively small amount of the above listed pollutants emitted, dispersion characteristics of the pollutants and the atmosphere, and conditions placed in MAQP #4449-00, including, but not limited to, BACT requirements discussed in Section V of the permit analysis for this permit.

The Montana Natural Heritage Program (MNHP) identified occurrences of 12 plant and animal species of concern within the vicinity of the proposed project location. The Canada lynx is a threatened species of concern identified by the MNHP with the remaining species of concern being classified as sensitive or without classification. Sensitive animal species of concern are the Brewer's Sparrow, Westslope Cutthroat Trout, Gray Wolf, and Wolverine. Sensitive plant species of concern are the Sapphire Rockcress, Small-flowered Pennycress, Lemhi Beardtongue, and Hall's Rush. Unclassified animals are the Grasshopper Sparrow and Black Rosy-Finch. The unclassified plant is the Slender Fleabane.

#### H. Demands on Environmental Resource of Water, Air and Energy

The BHP would have a minor impact on the environmental resources of water, air, and energy. As discussed in Section 7.B. of this EA, the project would utilize water from local water rights and encountered groundwater. Energy for the project would be provided by diesel-fired generator/engines. Line power is available near the site; however, this line does not have sufficient power to support all the exploration activities.

I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society, State Historical Preservation Office (SHPO) in an effort to identify any historical and archaeological sites that may be present in the area of operation. Search results concluded that there are several previously recorded sites near the designated project area. The proposed site is in the area of the historic Highland Mine; however, few if any of the original structures remain and the proposed new portal and waste rock dump would not be located near the historic shafts and adits.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the physical and biological environment in the immediate area would be minor due to the abundant mining activity that has occurred there in the past century. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #4449-00. From an air quality perspective, the potential emissions expected from operating the facility at its maximum throughput on a continuous basis would not violate ambient air quality standards. Therefore, the MAQP is written to reflect the expected emissions from operating continuously at the maximum rate. TRC may be restricted on annual throughput by other government jurisdictions which would limit ore production to a level less than described in the MAQP.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The project would result in minor, if any, disruption to the local social structures and mores. The property on which the project will occur is private land owned by TRC. While the proposed location is near several historic mine sites, few if any of the original structures remain and the proposed new portal and waste rock dump would not be located near the historic shafts and adits.

B. Cultural Uniqueness and Diversity

The Department believes that the proposed project will have no impact to the cultural uniqueness and diversity of the surrounding area because the project would be located on private land and the activities occurring there would be similar to previous exploratory adits and mines that have been located in the area.

C. Local and State Tax Base and Tax Revenue

The project would have a minor effect on the local and state tax base and revenue due to the taxes generated from the purchase of supplies and the mine payroll (see Section G – Quantity and Distribution of Employment).

D. Agricultural or Industrial Production

The project would result in a minor impact to the agricultural production because potential grazing land will be cleared for the project. A fence would also be constructed around the ventilation raise to secure this mine entry consistent with mining safety regulations. In addition to providing security, this would also prevent cattle from grazing in the enclosed area. Industrial production of the local community would not be affected by the proposed project.

E. Human Health

There would be minor effects on human health due to the slight increase in emissions of air pollutants. However, MAQP #4449-00 incorporates conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. In addition, the project would occur in a remote area with limited population; therefore, effects on human health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The project would not have an impact to the access to recreational and wilderness activities because no road closures will occur and the site would be located on private property. The project would have a minor impact on the quality of recreational and wilderness activities due to the slight increase in emissions of air pollutants and the noise generated by the equipment.

G. Quantity and Distribution of Employment

The project would employ an estimated 50 to 55 employees full time. The planned work schedule would consist of two 12-hour shifts, seven days per week, with four crews. Additional personnel would include the project engineer, site superintendent, chief geologist, field geologists, environmental technician, head mechanic, head electrician, drillers, and surface labor.

H. Distribution of Population

There are no plans to house workers onsite. Workers would be expected to stay in Butte, Anaconda, Whitehall, Divide, and surrounding communities using available housing, rental units, campgrounds, and trailer parks without the need to construct additional houses or apartments. Therefore, the effect on the distribution of population would be minor.

I. Demands for Government Services

Government services would be required for acquiring the appropriate permits from government agencies. In addition, the permitted source of emissions would be subject to periodic inspections by government personnel. The project would use existing roads to access the site. Access to the site would be via Highway 2, Roosevelt Road, Highlands Road, and Fish Creek Road. To minimize potential conflicts with road use through the residential areas, TRC would restrict vendor use and deliveries to daylight hours and weekdays whenever possible. Under this restriction, deliveries and vendors would be required to pre-schedule trips to the site and would be limited to 8 A.M. to 3 P.M. during weekdays and emergency deliveries only on the weekends. Demands for government services would be minor.

J. Industrial and Commercial Activity

Operation of the project would result in a minor increase in the industrial activity in the area. The exploratory adit would create some additional industrial activity in the area. However, the Department believes the impacts would be minor because of the relatively small size of the project.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals. The state standards would protect the proposed site and the environment surrounding the site. The proposed project location is outside of the Butte PM<sub>10</sub> nonattainment area and no effects to the nonattainment area are expected from this project.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social environment in the immediate area. As previously stated, the proposed permit would result in a slight increase in employment in the area, and a slight increase in industrial process in the area. The Department believes that TRC would be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #4449-00.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of an underground exploration project. MAQP #4449-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable air quality rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program, Montana Department of Environmental Quality – Hard Rock Program.

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program, Montana Department of Environmental Quality – Hard Rock Program.

EA prepared by: Ed Warner

Date: August 13, 2009