

CHECKLIST ENVIRONMENTAL ASSESSMENT

COMPANY NAME: Timberline

Project: Butte Highlands

PERMIT OR LICENSE: 00680

LOCATION: 1N/7W/Section 31, 32.

County: Silver Bow

PROPERTY OWNERSHIP: Federal State Private

TYPE AND PURPOSE OF ACTION: Timberline is requesting to amend its exploration license to authorize the construction of exploration drifts to better define the resource identified during previous surface exploration efforts. The Butte Highlands Project is located along the Continental Divide approximately thirteen miles south of Butte, Montana, in the Butte Highlands Mountains on patented mining claims within the Beaverhead-Deerlodge National Forest. The site is accessed off Highway 2 by Roosevelt, Highland and Fish Creek Roads. The project area covers headwaters of Fish Creek, Basin Creek, and Moose Creek.

Timberline is currently authorized to conduct exploration activities disturbing 1.5 acres. The acreage proposed to be disturbed under the amendment totals approximately 49.97 acres (20.2 acres for surface facilities and 27.42 acres for Land Application Disposal (LAD) sites). Their plan will involve construction of exploration drifts approximately 14 feet wide by 16 feet high and 6,700 feet in length. The resource definition drilling program anticipates 120 drill holes from 10-15 drill stations located throughout the drifts, the drill holes will average 500 feet in length for a total of 60,000 feet of core drilling. Timberline anticipates collecting bulk samples totaling approximately 10,000 tons which will be hauled to a currently unidentified off-site process facility. Driving the drifts, exploration drilling and bulk ore sampling will take approximately one year.

Timberline also proposes four surface drill holes to test groundwater conditions in various areas of the planned underground workings. Other surface disturbances include a ventilation raise area, a facilities area (shop area, on site power generation facility, fuel storage, explosives storage), sediment and recycle water ponds, waste storage areas, a growth medium stockpile and three LAD areas. Disturbances associated with the exploration project would be confined to private lands owned by Timberline, primarily the Pony Placer and Red Mountain claims.

Reclamation Plan: Timberline anticipates exploration activities to advance to the Operating Permit stage; however, a general reclamation plan is included for closure following the exploration phase and includes retaining the current land uses of grazing, logging, recreation, wildlife habitat and other similar rural land uses. Timberline will retain certain roads and structures on the property to provide access and to support reclamation activities while recontouring the remaining roads and removing any buildings not required during reclamation. The initial plan would involve resloping the waste rock dump, breaking up any concrete pads, plugging and backfilling the portal to match adjacent topography, regrading the ponds so that they no longer hold water, scarifying the yard area, retaining a sediment control program until the site has demonstrated stability and covering any and all disturbed areas with soil that would be seeded with a native seed mix.

N = Not present or No Impact will occur.

Y = Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?	[N] The project area lies within a sequence of rocks ranging from Proterozoic Belt Supergroup to Cambrian sediments on the margins of the Cretaceous Boulder Batholith. Regionally the Proterozoic rocks include fine grained clastic and carbonate rocks of the Missoula Group and Helena Formation overlying Archean basement schist and gneiss of the Cherry Creek Series. Paleozoic clastic and carbonate rocks overlie the Belt rocks. From the bottom up these include the Flathead, Wolsey, Meagher, Park, Pilgrim, Dry Creek, Jefferson, Three Forks, Madison, Amsden, Quadrant and Phosphoria formations. All these strata have been intruded by a variety of intrusive rocks which are all part of or related to the Boulder Batholith. The intrusive rocks are all Cretaceous or younger in age and include large plutons, small stocks, dikes and sills of varying composition. Diorite is common within the border phase intrusive rocks but often grades to gabbro. The primary mineralization type at the Butte Highlands Project can be classified as a magnesian gold skarn. The overall skarn mineralogy is dominated by forsteritic olivine, pyroxene and serpentine. This deposit is unusual in its distinct

IMPACTS ON THE PHYSICAL ENVIRONMENT

	<p>lack of iron oxides and sulfides. The skarn formation tends to favor the Wolsey Shale and particularly the contact zone between Wolsey and overlying Meagher Limestone. Faulting with clay development is sometimes associated with higher grade gold mineralization at or near the contact zone. This may be due to bedding plane slip features at that contact. The mineralization appears to be somewhat stratiform within the Wolsey. There are often repetitions of mineralized skarn ± fine grained hornfels with marble sequences. There are several limited areas within the Meagher Formation that contain minor sulfide replacement style mineralization. These areas are small and likely occur along structural zones. The mineralization is usually completely oxidized. Research shows that the soils in the area are clayey loam and sand that have an absorption rate of 0.10 to 1.0 inches/hour.</p>
<p>2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] The proposed adit would be a decline which would begin to intercept ground water at some depth. A test borehole drilled 1167 feet into the deposit began to make water at about 600' depth, and ultimately yielded 12 gallons per minute at its total depth. The proposed underground workings are predicted to produce between 10 and 110 gallons per minute of groundwater inflow. The predicted inflow could be greater if the adit encounters fault/fracture zones.</p> <p>The produced water is not anticipated to be acidic. The sulfide content of the geologic units to be encountered by the drifts is low. Water draining from the nearby historic Highland Mine is nonacidic. Further geochemical testing is being conducted to confirm the low potential for acid rock drainage (ARD) to develop as a result of the mining activity.</p> <p>Water pumped from the mine workings is likely to be turbid and to contain elevated nitrate from blasting agent residues. Proposed treatment includes settling to remove suspended sediment from the water, followed by land application on the Pony Placer and Red Mountain claims to treat for nitrate and other contaminants in the water. Land application areas would be monitored via ground water monitoring wells and monitoring of Moose Creek downgradient of the Land Application Disposal (LAD) areas. Timberline will install a portable water treatment facility to treat water in the event that monitoring below the LADs indicates a change in groundwater quality.</p> <p>As indicated above, one indicator of potential mine water quality is the discharge from the existing Highland Mine Adit. This adit discharges approximately 100 gallons per minute into the headwaters of Basin Creek. Sampling indicates that the mine water is in compliance with water quality standards for all parameters tested. The water flows into Basin Creek Reservoir, a water supply for the city of Butte. 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 after mine closure. Discharge from the Highland Mine Adit will be monitored to determine whether exploration activities result in changes of flow or quality of this adit discharge.</p> <p>Water from the underground workings will be pumped through a series of underground sumps to settle out sediment from mine activities. Hydrocarbon booms or oil skimming capability may be added to the underground sump to remove any hydrocarbon contamination. Water from the underground sumps will be pumped to the mine ponds located below the development rock storage area. Two ponds will be built with a combined capacity of approximately 2.5 million gallons. At a dewatering rate of 100 gallons per minute, this results in approximately 2 weeks of storage capacity in the ponds. Water from the mine and waste rock stockpile area will report to the Sediment Pond, which will have a capacity of approximately 1.5 million gallons. Run-off from the waste pile will be gravity fed to the ponds while the mine water will be pumped up the decline through a pipe to the pond. This pond</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

will be the secondary sediment removal process in the circuit. Water will decant from the Sediment Pond and flow to the Recycle Water Pond, which will have a capacity of approximately 1.0 million gallons. The ponds will be lined and will be connected together with 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.

Water from the second pond, the recycle water pond, will either be sent to the land application disposal areas or returned to the re-circulated water tank for re-use. Water from the underground sumps could also be pumped up the ventilation raise and sent directly to a land application disposal area. The mine ponds will be designed to hold the 25 yr-24 hr storm event from the waste rock area. The catchment area is approximately 400,000 ft². The amount of rain for this storm event is approximately 2.5 inches of precipitation in a 24 hour period. With a run-off coefficient of 90 the storm storage required is approximately 561,000 gallons. The total pond capacity is 2.5 million gallons of water. Pond levels will be maintained to ensure the 561,000 gallons of storm capacity is available at all times.

Initially, mine water quantity is expected to be quite low with the majority of the water recycled back for mine use purposes. At some point, excess water will be present and will be disposed of using LAD methods. Under the LAD plan, water would be sent from the mine pond and delivered to one of three LAD areas at the project. Approximately 28 acres of LAD areas are planned with LAD 1 and LAD 2 located on the Pony Placer Claim and LAD 3 located on the Red Mountain Patented Claim. LAD 1 and 2 will be the primary land application sites and LAD 3 will be a secondary area.

Water would be delivered to LAD 1 and 2 via a pipeline that would be located on the surface. This main distribution line would go under the Fish Creek Road to gain access to the LAD 1 and 2 sites. A pipeline would run from the underground sump, up the ventilation raise and along the ventilation access road to the LAD 3 area. The system will also be constructed to provide for drain-down during non-operational periods.

Each LAD area is divided into cells with dimensions of 200 feet by 200 feet. Application of water would be rotated between cells and LAD areas to ensure the application rates and time periods are low to reduce surface ponding. A drip irrigation system is planned to apply water in each cell. If it becomes necessary, a spray irrigation system would be installed during the warmest months to maximize evaporation. The drip irrigation system application design criteria will target 0.10 inches/hour rate for a total application depth of 12 inches. Literature suggests that clay, loam, and sand infiltration (absorption) rates can range from 0.10 to 1.0 inches/hour rate. A 5-day rotation is planned for each cell operated. Because a drip irrigation system is planned, winter disposal will be possible. All drip lines intended to be used during the winter months would be buried.

This rate of use is extremely low and would likely meet the evapotranspiration rate for the site. A groundwater monitoring well would be located below each LAD area and monitored for any water quality changes. The site would be visually inspected to ensure surface ponding and run-off is not occurring. It is expected that seasonal adjustments will be required to the amount/time water is applied to each cell(s) in an LAD. Because the mine discharge rate is expected to be low during the initial development, there will be an opportunity to better understand application rates and cell rotation.

A development rock storage area will be located near the mine portal. The storage area will be sized to hold approximately 150,000 tons of mine development rock. The base will be prepared and compacted prior to placing any waste material. In addition, the initial excavated rock from the decline, which is anticipated to be a high calcium

IMPACTS ON THE PHYSICAL ENVIRONMENT

	<p>carbonate content rock, will be placed over the full base of the storage area as a net neutralizing/buffering material. The majority of waste rock is low in sulfide content and high in calcium. The net neutralizing potential is equal to or greater than the acid generating potential of the waste rock. Timberline will implement a waste rock characterization/monitoring plan that will include geologic mapping, estimating by lithology, collecting representative rock samples, documentation of the sample collection process, characterization of waste rock (as appropriate) including metal content, acid/base accounting, net neutralizing and net acid potential and static/kinetic testing. In addition, Timberline will take a minimum of one sample per rock unit and/or one sample per 1000 feet of development, segregate ARD rock where possible by placing it back underground, develop an encapsulation plan if significant ARD waste is encountered and sample run-off from the waste pile. Run-off from the development rock pile will be collected at the toe of the facility in a diversion ditch where it will be directed to the sediment pond. The diversion ditch will incorporate BMPs to reduce sediment addition into the mine pond. Run-off from the development rock area will be either reused in the mine operations and/or disposed at the LADs.</p> <p>An on-site wastewater (sewer) system will 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 will be sized to meet the full operational project staffing levels of the project.</p> <p>The fuel/lube storage area will also house the wash pad. The pad will slope to a perimeter curb on the outside and toward one end. The fuel/lube area will report to a hydrocarbon containment sump which will be sized for 110% containment of the largest individual tank located in the facility. The wash pad will slope into a sediment sump that can be cleaned with a piece of mobile equipment. The sediment sump overflows into a hydrocarbon skimming and sediment settling sump. The underflow from this sump will report to a “grey” water sump that will be pumped into a wash pad water recycle system for further cleaning prior to reuse. The water may either be utilized for wash pad water, or it may be included into the mine-wide recycle system. Wash pad sediments and oil-skimming residues will be disposed of in accordance with environmental regulations.</p> <p>Timberline will implement measures to manage explosives and minimize the potential release of elevated nitrates to waste rock and mine water.</p>
<p>3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>[Y] If approved, minor quantities of diesel emissions and dust would be emitted during operation. Timberline has applied for an air quality permit.</p>
<p>4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?</p>	<p>[N] Reclaimed areas would be seeded with native seed mixture recommended by the Department, which would be applied in the late fall or early spring to reduce the invasion of noxious weeds. There are 3 species listed by the Forest Service and BLM as sensitive in Silver Bow County. They are Idaho Sedge, Sapphire Rockcress, and Lemhi Beardtongue. One other species is listed by the BLM as sensitive in Silver Bow County and that species is the Small-flowered Pennycress, none of which are known to occur in the project area.</p>
<p>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>[N] Moose, elk, deer and birds of various species inhabit the vicinity, and the proposed activity may cause some displacement of their movements. Fish Creek has a native Westslope Cutthroat Trout fishery, but again, there would be little impact to any surface water in this or the other drainages associated with this project and regular surface water monitoring would determine if any degradation occurs.</p>
<p>6. UNIQUE, ENDANGERED, FRAGILE OR</p>	

IMPACTS ON THE PHYSICAL ENVIRONMENT

<p>LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>[Y] A search of the NRIS database revealed that the Canada Lynx is the only threatened species listed in Township 1N Range 7W Sections 31 and 32, with the Grey Wolf, Wolverine, Western Toad and Westslope Cutthroat Trout listed as sensitive species for that location. No sightings of Lynx have been reported, but there may be suitable habitat on Red Mountain to the south. No wetlands occur on the site and no species of special concern turned up in the NRIS search for the location.</p>
<p>7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?</p>	<p>[N] The 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.</p>
<p>8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?</p>	<p>[N] The project area is located on the Continental Divide about 14 miles south 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. 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. Measures could be taken to reduce the audible impact by installing shrouds on the equipment and machinery, if necessary. Lighting may need to be shrouded as well, in order to reduce the source of light pollution emanating from the site.</p>
<p>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?</p>	<p>[N] Two generators are planned for the project. One generator, a 545 kW unit would be the primary source of power. A second unit would provide backup power and would be a 320 kW unit. The 545 kW generator would be housed in a van trailer complete with a "day" fuel tank of approximately 500 gallons. The 320 kW generator is skid mounted and also has a "day" fuel tank with approximately 250 gallons of fuel on board. Fuel would be transferred from the fuel storage area to the generator day tanks as needed via a retractable, pressurized hose reel. Power would be distributed throughout the property and the lines would be buried to the portal and other facilities. Line power is available near the site; however, this line does not have sufficient power to support all the exploration activities.</p>
<p>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?</p>	<p>[N] Merchantable timber would be salvaged and sold as appropriate thus reducing the risk of fire from the numerous beetle-killed trees in the vicinity.</p>

IMPACTS ON THE HUMAN POPULATION

<p>11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?</p>	<p>[N] The project would actually reduce the risk of fire by salvaging and selling merchantable timber. A fence and gate would be constructed on the mine access road near the office to discourage entry to the site facility and mine workings.</p>
<p>12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?</p>	<p>[N] A fence would also be constructed around the ventilation raise to secure this mine entry consistent with MSHA regulations. In addition to providing security, this would also prevent cattle from grazing the enclosed areas.</p>
<p>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.</p>	<p>[N] The planned work schedule would consist of two shifts, at 12-hours per shift, 7 days per week, with 4 crews. Each crew would consist of 5-6 employees for a total of 16 miners. Additional personnel would include the project engineer, site superintendent, chief geologist, field geologists, environmental technician, head mechanic, head electrician, drillers, and surface labor for a total of 50 to 55 people.</p>
<p>14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?</p>	<p>[Y] There would be minor increments of state and local taxes generated by purchase of supplies and the mine payroll.</p>
<p>15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to</p>	<p>[N] The project would use existing roads to access the project. The proposed underground portal and surface facilities are located on private land (Pony Placer</p>

IMPACTS ON THE HUMAN POPULATION

existing roads? Will other services (fire protection, police, schools, etc.) be needed?	<p>Claim). 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, Timberline would restrict vendor use and deliveries to daylight hours and week days whenever possible. Under this restriction, deliveries and vendors must pre-schedule trips to the site and would be limited to 8 A.M. to 3 P.M. during week days. Only emergency deliveries would occur during weekends. Other ancillary roads would be required to support exploration activities. During bulk sampling activities, an alternative route would be used to haul sample material. The time period required to haul the 10,000 ton bulk sample is relatively short. Haulage would only occur during daylight hours. This would occur when alternative routes are snow free. The use of the alternative routes would reduce potential conflicts with residences along the Roosevelt/Highland route. The roads are controlled by the USFS and/or Silver Bow County and Timberline would use the routes as directed by these agencies.</p> <p>Alternate routes would be determined at the time of transfer given weather and the time of year. A route to the interstate through Moose Creek would be considered as well as a route north through Rocker. Hauling through Fish Creek Road would not be practical for heavy hauling of machines or material as the road is not improved or maintained.</p>
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N]
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] An agreement would need to be reached with the USFS to determine whether or not Timberline would maintain a parking area during the winter for recreationists.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] There are no plans to house workers on site. 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.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	[Y]
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	[N] In 1995, the Montana Legislature amended MEPA to require state agencies to evaluate in their environmental documents any regulatory restrictions proposed to be imposed on the use of private property. Section 75-1-201(1)(b)(iv)(D), MCA. Alternatives and mitigation measures designed to make the project meet minimum environmental standards with implementation methods specifically required by federal or state laws and regulations are excluded from evaluation under the implementing guidelines for Section 75-1-201(1)(1)(b)(iv)(D), MCA.

IMPACTS ON THE HUMAN POPULATION	
	Approval of the amendment to Timberline's exploration license facilitates Timberline's proposed exploration for minerals on land that it owns. The conditions imposed by the Department in amending the exploration license are designed to make the project meet minimum environmental standards or have been proposed and/or agreed to by Timberline. Thus, the conditions do not constitute a compensable taking of private property.
23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.	[N/A]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]

25. Alternatives Considered:

No Action: Under the no action alternative, the DEQ would deny the application and Timberline would have the option of terminating the project or propose another alternative.

Approval: Approval would allow continuation of the exploration project as proposed.

Approval with modification: No unresolved issues were identified which would require modification of the proposal. If geochemical testing or water quality monitoring indicate that long-term seepage from the waste rock dump has the potential to degrade ground water or surface water quality, then DEQ would require that the waste rock dump be reclaimed using a low permeability cover that would prevent infiltration of precipitation through the material.

26. Public Involvement: There were several articles in newspapers around the State following a press release by Timberline on 2/17/09 which was picked up by the Associated Press and distributed to the Billings Gazette, Montana Standard and Helena Independent Record. DEQ received no public inquiries following publication of newspaper accounts of the project. Given the lack of public interest and the absence of complex or serious environmental issues associated with this project, additional public review is not warranted.

27. Other Governmental Agencies with Jurisdiction: USFS roads will be used to access the site, Butte/Silver Bow County

28. Magnitude and Significance of Potential Impacts: There would be no significant impacts associated with this proposal.

29. Cumulative Effects: None

Recommendation for Further Environmental Analysis:

EIS More Detailed EA No Further Analysis

EA Checklist Prepared By: Robert Cronholm
Program Supervisor

Signature: Robert Cronholm

Date: August 18, 2009