SUMMARY DOCUMENT
WHARF RESOURCES (U.S.A), INC.
MINE PERMIT AMENDMENT APPLICATION
AMERICAN EAGLE PUSHBACK

Pursuant to ARSD 74:29:03:09, the Department of Environment and Natural Resources, in consultation with Wharf Resources, has prepared a summary document for the mine permit amendment application for Large Scale Mine Permit No. 464. The application is for the American Eagle Pushback, an expansion of the American Eagle Project at the Wharf Mine.

Applicant: Wharf Resources (U.S.A) Inc.
10928 Wharf Road
Lead, South Dakota 57754

Type of Mining: Large scale heap leach operation for gold

Legal Description: Section 35; T5N, R2E

General Location: Approximately four miles west of Lead, Lawrence County, South Dakota

Local Contact: Ken Nelson, Wharf Resources

Background:

Wharf Resources operates the Wharf Mine, a surface gold mine and heap leaching operation approximately four miles west of Lead, South Dakota, in the historic Bald Mountain Mining District. Wharf has been operating under South Dakota Large Scale Mine Permit No. 356 since December 1982. In 1986 Wharf was granted two additional Large Scale Mine Permits (Nos. 434 and 435). Large Scale Mine Permit No. 464 was granted to Wharf in 1998.

On July 22, 2009, the Minerals and Mining Program of the Department of Environment and Natural Resources received a mine permit amendment application from Wharf Resources for the American Eagle Pushback Project. Supplemental information was submitted on December 18, 2009, January 19, 2010, and January 26, 2010. The application was determined to be procedurally complete on January 26, 2010.

Operating Plan:

American Eagle Pit. The American Eagle Pushback Project would involve westward expansion of the existing American Eagle Pit, which is an open pit, truck and shovel operation. The proposed expansion area includes approximately 4.22 acres of American Eagle Pit expansion, and approximately 13.78 acres of new disturbance associated with ore and topsoil stockpiles. The total American Eagle Project will affect approximately 78 acres under the current modeling, though this amendment only covers 18 acres of land. The other 60 acres were approved under a previous technical revision (April 30, 2007) and a previous amendment (September 17, 2007). From this area, a total of 27.5 million tons of material will be removed during the mining

process. Of this, 6 million tons will be ore and 20.5 million tons will be waste rock. The waste rock from the proposed expansion area will be used to backfill the American Eagle and Deep Portland pits. The proposed 18 acre expansion would increase the mine life approximately six months, extending overall mine life into 2013.

Topsoil. Topsoil will be salvaged from disturbed areas where practical and placed in the Polo topsoil stockpile, along the crest of the highwall, or in the proposed topsoil stockpile, just northwest of the American Eagle Pit. Approximately 400 cubic yards of topsoil can be salvaged from the American Eagle Pushback amendment area. Total topsoil reserves would be enough to cover the remaining unreclaimed areas of the mine with about 5.5 inches of topsoil.

Other Facilities. The existing mine access road (i.e., the portion of the Richmond Hill Road that runs through Wharf's property) will be re-routed around the proposed American Eagle Pit expansion. However, this re-routing of the road was previously approved under a Technical Revision to Mine Permits 356 and 464 (November 10, 2009).

Reclamation:

Post Mine Land Use: The American Eagle Pushback Project would have the same post mine land use as the existing mine, which is woodland grazing (rangeland).

General Reclamation Plans: Wharf plans to conduct concurrent reclamation during the project. Overburden and non-mineralized rock excavated from the pit would be used to backfill the Deep Portland and American Eagle pits. Since this may be one of the last areas mined, the remaining American Eagle spent ore may remain on the leach pads and would be neutralized and reclaimed in place. Wharf's reclamation plan also calls for the voluntary planting of trees.

Reclamation Costs: Wharf's current reclamation bond is $15.5 million and its current postclosure bond is $8.1 million. Wharf also has submitted a $523,500 cyanide spill bond. In its December 18, 2009 submission, Wharf estimated the total reclamation cost for the American Eagle Layback to be $62,600. Wharf will be required to submit the additional reclamation bond to cover costs to reclaim the American Eagle area prior to the commencement of mining.

A portion of the reclamation bond and most of the postclosure bond cover treatment costs for nitrate and selenium. The bond estimate for the American Eagle Project does not include these treatment costs. The water treatment portion of the bond will be recalculated by the department to include additional treatment costs for nitrates and selenium in the additional spent ore and waste rock generated by the American Eagle Project.

Environmental Concerns:

Acid Rock Drainage: An environmental concern associated with the proposed project is the potential for acid rock drainage. Geologic cross-sections of the pit indicate that Wharf will excavate through Tertiary porphyry rock into the Lower Deadwood Formation and will avoid the sulfide bearing rocks of the underlying Precambrian basement.

By avoiding sulfide zones, and with proper mitigation of exposed sulfide rocks, low permeability capping systems for the pit area would not be necessary to protect water quality. The current acid mine drainage mitigation plan will be followed for the American Eagle Pushback expansion. The current mining operation has similar geology and mineralogy as other pits within the Wharf Mine and historic mines within the area. The Wharf Mine has not encountered acid producing conditions in over 20 years of operation and historic mines within the Wharf Mine area also have not been a source of acid mine drainage.

Nitrate: There may be some increase in the nitrates within groundwater and surface waters flowing away from the Deep Portland, American Eagle, and Trojan Pits, which would primarily affect the Cleopatra Creek and False Bottom Creek drainages. This nitrate would be due to the presence of explosives residue (ammonium nitrate/fuel oil or ANFO) within the waste rock used for pit backfill. While Wharf has modified blasting practices in the past to minimize the amount of nitrates remaining, the residue cannot be completely prevented. If nitrate levels within these areas become a concern Wharf can institute either in-situ biological treatment methods or route water to the biological treatment facility located within Ross Valley for treatment of nitrates.

Another source of nitrate is from the degradation of cyanide in spent ore. Most of the spent ore from the American Eagle Pushback expansion will remain on the heap leach pads at the end of mining where it will be neutralized in place. After neutralization, the heaps will be regraded, with the heap slopes reduced to 3:1 (H:V). Some spent ore will be pushed off of containment during regrading. The spent ore will need to be fully rinsed and nitrates treated prior to regrading to prevent the loss of nitrate to ground or surface waters. As with the waste rock depositories, Wharf may treat the nitrates in its heap piles by using either in-situ biological treatment methods or by routing pad effluent water to the Ross Valley biological treatment facility.

Ammonia: Ammonia has also become a greater concern since the use of biological treatment has become the primary method of water treatment at the mine site. Ammonia is a byproduct of the biological treatment and becomes a greater problem during times when the biomass used to treat the water is mismanaged during the course of treatment. By carefully managing the biological treatment circuit, Wharf can maintain control of the ammonia concentrations found within the water.

Cyanide: Although cyanide in spent ore is neutralized prior to off-loading from the leach pads, residual cyanide is present in Wharf spent ore. Cyanide is analyzed by two methods. The first method, called total cyanide, measures all the chemical forms of cyanide in the water. This would include cyanide that is chemically bonded to certain metals, such as iron. Strongly bonded cyanide metal complexes are not toxic, so the total cyanide method is measuring both toxic and non-toxic forms of cyanide. The second method, called weak acid dissociable (WAD) cyanide, is more representative of the amount of toxic cyanide in water, as it does not measure strongly bonded, non-toxic cyanide metal complexes. EPA approves of the WAD cyanide method, and the state acute surface water standard for cyanide is 0.022 mg/l cyanide as measured by WAD cyanide method. The residual left in Wharf's spent ore is mainly in the form of the non-toxic, strongly bonded cyanide metal complexes.

Based on site history, Wharf's discharge should be less than 0.022 mg/l WAD cyanide.

There is also a possibility of a direct discharge of cyanide solutions from the process facility into surface waters. In August 1995, Wharf discharged inadequately treated cyanide solution into Ross Valley and subsequently into Annie Creek. The discharge caused several violations of mining and water pollution control laws. Wharf has subsequently taken many mitigative steps to prevent the reoccurrence of such a direct discharge of process solutions.

Threatened and Endangered Species. No state or federally listed threatened or endangered species, plant or wildlife, are known to inhabit the area. According to research done previously for the area under the State Mine Permit No. 464 there are nine South Dakota Natural Heritage sensitive plant species in or directly adjacent to the area under State Mine Permit No. 464. Seventeen wildlife species (all avian) were also recorded within this area. Where possible, Wharf Resources would be required to avoid any of these sensitive species.

Other Environmental Concerns: Other concerns associated with the proposed amendment are more general to the mining industry as a whole, and are listed as follows:

1. There is the potential that storm events could cause erosion at the site, and sedimentation in nearby drainages. Sedimentation and erosion controls would need to be installed and maintained throughout the life of the mine.

2. Additional dust may be generated from the proposed operation, both from blasting and truck traffic. There are many residences (Terry Valley) and the Terry Peak ski area near the mine area, so air quality impacts are a concern. Dust from truck traffic can be mitigated by proper watering of haul roads.

Other Concerns:

Aesthetics: Due to the proximity of the proposed area to the Terry Peak ski area to the south and Perkins Road to the west and north, there are concerns regarding aesthetics. As Wharf plans to stay north of the Foley Ridge/Green Mountain ridge line, the view of the majority of the operation would be screened from the ski area. Trees along the edge of the highwalls will also remain during the operation in order to provide more screening of operations within the pit. Aesthetics would also be improved by backfilling and reclaiming as soon as possible since those lands can be viewed from Terry Peak.

Noise: Noise from the operation could impact nearby residences and the Terry Peak ski area. However, noise impacts associated with the American Eagle Pushback expansion should not be any greater than noise impacts associated with current operations

Current Status – January 26, 2010:

On January 26, 2010, the application was determined to be procedurally complete. The department and the other review agencies are presently conducting a technical review of the application. At this time, no parties have indicated that they will intervene in the proceedings.

Also, as of this date, the department has not decided whether to intervene in the proceedings. A hearing date has not been set, however if a hearing is to be held, it would be scheduled for May, 2010. The department's recommendation will be tentatively issued on March 4, 2010.

Copies of the mine permit amendment application are available for public inspection at the Lawrence County Register of Deeds Office, Lawrence County Courthouse, Deadwood, South Dakota, and the Minerals and Mining Program, Department of Environment and Natural Resources, 523 East Capitol, Pierre, South Dakota.

For more information, contact the Minerals and Mining Program, Joe Foss building, 523 East Capitol, Pierre, South Dakota, or call (605) 773-4201.