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**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 29, 2011

Ron Waterland, Environmental Manager
Wharf Resources (USA), Inc.
10928 Wharf Road
Lead, South Dakota 57754-9710

Re: Technical Review Comments on the Ground Water Discharge Plan Application
for Wharf Resources (USA), Inc., American Eagle Spent Ore and Waste Rock Depository,
Lawrence County, South Dakota

Dear Mr. Waterland:

The South Dakota Department of Environment and Natural Resources is continuing with the technical evaluation of the permit application. As we discussed on the telephone last week, the Department has identified the following list of technical items that need to be addressed to complete our technical review:

1. The permit application is not clear if additional waste rock will be disposed in the existing Trojan Pit and Trojan Backfill areas. Figure 1 (in the application) and Figure 8-1 (in Environmental Resource Management report) show the Trojan Pit and Trojan Backfill areas are included in the proposed waste rock disposal area. The mine expansion permit application also states additional waste rock will be placed into these areas and Ron Waterland stated at the audit meeting on June 30, 2011, that additional waste rock will be deposited in these areas. The geochemical model includes waste rock in these areas, but the model data in Appendix B states additional waste rock will not be placed into the Trojan Backfill after 2005 and the Trojan Pit after 2010. If additional waste rock is to be placed into these areas, the model needs to be updated to reflect the additional nitrate and arsenic loading. If additional waste rock is not going to be placed into these areas, the eastern boundary of the POP zone will need to be either justified for being greater than $\frac{1}{4}$ mile from the disposal area, or modified. Please clarify if, when, and how many tons of additional waste rock will be placed into the Trojan Pit and Trojan Backfill.

2. Table 6-3 states that the spent ore moisture content after drain down is 4%. However, the individual model run data outlined in Appendix B shows the moisture content used in the models for spent ore was 6%. Historically, spent ore has never been offloaded with less than 6% moisture content. Please verify whether the moisture content of the spent ore at the time of disposal in American Eagle will be 4% or 6%.
3. The application indicates the arsenic content of the spent ore placed into the American Eagle Depository is 1.6 mg/l. However the arsenic content of the waste rock could not be located in the application. What is the arsenic content of the waste rock?
4. The application states 10 million tons of waste rock will be disposed in American Eagle. Although we understand that not all of the waste rock generated will be placed in American Eagle, this amount seems small when compared to the tonnage of waste rock that will be generated according to the Mine Permit application. Please verify the tonnage for waste rock being placed into American Eagle, including any additional waste rock to be deposited in Trojan Pit or Trojan Backfill (see item 1).
5. The application states in Section 6.2, based on the model simulations with nitrate concentrations of 35 mg/L in the spent ore and 35.6 mg/L in the waste rock, an estimated 50.5 tons of nitrate loading will occur within the proposed POP zone. Our calculations, based on the model data listed in Table 6-3 and the tonnages of spent ore and waste rock, indicate that 50.5 tons stated in the application, may not be the correct amount. As these calculations will be used to set up a nitrate loading limit, please verify the estimated 50.5 tons of nitrate loading and provide details regarding how this amount was determined.

By Wharf Resources addressing these comments to the Department's satisfaction, the Department will be able to complete the technical evaluation. If you have any questions regarding this letter, please feel free to contact me at 605-773-5337 or 605-773-3296.

Sincerely,



Matt Hicks, Senior Hydrologist
Ground Water Quality Program

Cc: Mike Cepak, Minerals and Mining Program, Pierre, SD