



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 25, 2011

Ron Waterland
Environmental Manager
Wharf Resources (USA), Inc.
10928 Wharf Road
Lead, SD 57754

Re: Wharf Resources Large Scale Mine Permit Application

Dear Mr. Waterland:

Staff review continues on Wharf Resources' permit application for the Wharf Expansion Project which was submitted February 18, 2011. Based on this review, the department has generated the following comments which are in addition to our initial comments included in the letter sent to Wharf on March 21, 2011.

Procedural Completeness Issues

1. SDCL 45-6B-6(2) and (3), SDCL 45-6B-10(2) and ARSD 74:29:02:03. The following are additional comments on the Impacted Land Map in Exhibit 3 and in the land ownership tables in Appendix 3:
 - a. The following claims shown in Table 1 of Appendix 3 are not shown on Exhibit 3:
 - Elk Mountain Group Nos. 1, 2, and 3 (MS #1107, page 11);
 - Coxey Fraction, Hamden, Walton, and Harvey Fraction (MS #1229, page 14);
 - Imperial (MS #1979, page 14);
 - Buffalo, Link, May, and Deadwood (MS #1283, page 14);
 - Snorter (MS #1643 page 15);
 - Lloyd (MS #1468, page 15);
 - Government Lots 7, 8, 9, and 10 (page 15);
 - Mohawk and Lots 1 through 5, Oxford Subd. (MS #1065, page 15); and
 - Lone Jack and Lone Point (MS #1073, page 16).
 - b. The following claims shown in Table 2 of Appendix 3 are not shown on Exhibit 3:
 - Tract 1 of South Lyon (MS #935, page 2);
 - Margurite No. 2 (MS #2006, page 9);

Lot 5, Oxford Sub. (MS #1065, page 10);
Little Eagle, Perry, and Long Valley 1 and 2 (MS #1378, page 10);
Dolphin (MS #1453 page 11);
Frost (MS #1567, page 11); and
Govt. Lot 5, Section 6; T4N-R3E (page 11).

- c. There is a claim between the Mogul, Peabody, Daisy Fraction, Little Bird, Minnie, and Garland claims, in NE1/4 Section 12; T4N-R2E, that is not labeled on the map. I have enclosed the portion of the map showing the missing claim name. Please submit a revised map showing the claim name.
- d. Regarding MS #898 on page 11 in Table 1, the claim “Tract B, Hardscrabble, Vulgar” is shown as “Tract B, Hardscrabble, Vulgar Fraction” in Exhibit 3. Which claim name is correct?
- e. Regarding MS #1404 on page 2 in Table 2, the claim “Lot 1 of Vulcan MS 1404” should be changed to “Vulcan MS 1404” since Lot 1 is inside the inside the proposed permit boundary
- f. Please submit copies of surface and/or mineral leases for claims Wharf controls, but does not own.
- g. It would be helpful if the owner address lists for Tables 1 and 2 would be separated into surface and mineral owners for each table.
2. SDCL 45-6B-7(9) and ARSD 74:29:02:11. In Section 3.3.2.1, Wharf needs to address any elevated parameters in the three additional wells drilled (SM-11, SM-12, and SM-13) that are discussed in this section. Also, Wharf needs to discuss the source of elevated sulfates identified in the final dye test report for the Golden Reward Mine and the mitigation plan for the elevated sulfates.
3. SDCL 45-6B-32. In Section 1, Item 4, page 1, please address whether the proposed operation will affect the stability of the Terry Cemetery and buildings in the path of the new haul road since these facilities are within 200 feet of the affected land.
4. SDCL 45-6B-40 and ARSD 74:29:07:07. Was the topsoil on reclaimed areas to be redisturbed at the Golden Reward and Wharf Mines included in the topsoil salvage estimates? If not, please submit a revised topsoil salvage estimate which includes the redisturbed reclaimed areas. Also, the soils map in Exhibit 13 should be mentioned in Section 3.2.1.
5. ARSD 74:29:07:05 and ARSD 74:29:07:14 (3) and (4): In Section 3.1.3.6, pages 29 and 30, Wharf needs to submit results from the following tests mentioned in this section once they are completed:

100 additional ABA samples within the four potential special handling areas;

Two additional humidity cell tests in the Deadwood lower contact;
30 additional whole rock samples and updated sample locations at the Golden Reward Mine;
13 additional MWMT samples in Deadwood lower contact at Wharf and Golden Reward Mines including sample location map; and
Additional geochemical sample locations and results for 3 areas within in the proposed disturbance boundary.

Technical Review Comments

1. Terry Cemetery. Please show on a map the proposed access routes to the Terry Cemetery both during mining activities and after final reclamation. Also, please submit a stability analysis of the current highwall just to the west of the cemetery and address whether it will need to be buttressed with backfill to provide long term stability for the cemetery. Finally, please address the impacts to the cemetery from blasting during mining activities.
2. SDCL 45-6B-10(4), and ARSD 74:29:02:12. The department has the following additional comments on the exhibits in Appendix 2 of the mine permit application:

Exhibits 2, 8, 9, 10, 11, 12, 21, 22, 23, and 28 – Should the elevation of the Bald Mountain Peak be 6600 feet instead of 6300 feet? USGS quadrangle maps show the elevation as 6600 feet.

Exhibit 2 - This map shows both the expansion area shaded in green and the proposed disturbed area outlined in dark purple. Is the green shaded area or the purple outlined area the proposed permitted affected area? Ideally, the green shaded area and the purple outlined area should be the same. It would be helpful if Wharf submitted a map showing the current and proposed permitted affected area for both the Golden Reward and Wharf Mines.

The total expansion area acreage in the green shaded areas is 398.73 acres. This is more than 279 acres Wharf states it will affect in Section 2.0 on page 15 of the mine permit application. Why are there more expansion area acres shown in Exhibit 2 than will be affected? These numbers should be the same.

It appears the proposed permit boundary overlaps the current permit boundary for the Wharf Mine. Are the two permit boundaries supposed to overlap?

Exhibit 21 – The pit areas outlined on the map do not match the green shaded expansion areas shown in Exhibit 2. The maps submitted with the mine permit boundary need to consistently show the same affected, reclaimed, permitted affected, and permit boundary acreage. Please submit a revised map showing the correct pit and permitted affected acreage.

To the east of the Golden Reward pits, there is a large section of the proposed disturbed area where only a small topsoil stockpile is shown. No other mine related facilities are shown. Also, there is a large section of the haul road corridor where no mine facilities are shown to the north of the haul road. Finally, the map does not show any mine facilities for the expansion area to the north of the process area. Wharf needs to submit a revised map showing additional mine facilities that will be needed during the mining operation or reducing the proposed disturbance limit boundary.

There is an area outlined in tan just to the southwest of the Green Mountain Pit that has mine pit disturbance, but it is not labeled. Is this a part of the Green Mountain or Portland Ridgeline Pits? If not, what is the name of this pit? .

Finally, there is a portion of the topsoil stockpile shown inside the pit boundary for the Liberty and Harmony pits. Should this stockpile be shown outside the pit boundary?

Exhibit 22 – The yellow line indicating existing gas lines in the map legend is not shown on the map. Please submit a revised map showing the gas line

Exhibit 23 – The total post mine land use acreage shown on the map is 485.10 acres. This is more than 279 acres Wharf states it will affect in Section 2.0 on page 15 of the mine permit application. Why are there more post mine land use acres shown in Exhibit 23 than will be affected? These numbers should be the same.

Also, this map does not show the overlapped permit boundary between the proposed expansion area and the Wharf Mine.

3. Section 1.2, page 11. In paragraph 3 on this page, Wharf states no spent ore is scheduled to be deposited within the new expansion area. However, in Section 5.3.4, Wharf states final spent ore from the leach pads will be placed into the Portland Ridgeline Pit. Since it appears spent ore will be placed within the new expansion area, the statement on page 11 needs to be revised.
4. Table 1-3, page 14. In this table, please change mine license #90 to #400 to #90-400. Also, Wharf needs to change the date on the permit amendment adding 18 acres for the American Eagle pushback from 1/26/09 to 4/6/10.
5. Section 3.1.3.1, page 21. In paragraph 2 of this section, Wharf states no Precambrian rock is scheduled or planned to be mined. However, the cross section in Exhibit 6 shows portions of the Green Mountain Pit extending up to 50 feet into the Precambrian formation which suggests Wharf will be mining Precambrian rock. Please clarify whether Wharf plans to mine any Precambrian rock.

6. Table 3-1, page 22. The table shows 2 million tons of waste rock will be placed in the Spent Ore Rehandle area. Please clarify if the Spent Ore Rehandle area is going to be used for waste rock, spent ore, or rehandled spent ore. If the area will be used for spent ore and waste rock, please indicate the source and amount of spent ore and waste rock to be placed in the rehandle area.
7. Section 3.6, page 46. Please submit a summary of the major grass, tree and shrub species and the vegetative cover at the reclaimed Golden Reward Mine from the Cedar Creek report that was part of the release petition
8. Section 5.3.4, page 85. In the first paragraph on this page, Wharf states the southwest portion of the Portland Ridgeline Pit will be mined to the 6,300 foot elevation and the 6,000 foot elevation everywhere else in the pit. However, cross-section A-A' in Exhibit 5 shows the depth of the southwestern portion at 6,200 feet and the remaining portions at a depth of 5,900 feet. What are the correct depths of the Portland Ridgeline Pit?

Also, in the same paragraph, Wharf state there will be a maximum 40 foot highwall remaining after final reclamation of the Portland Ridgeline Pit. However, in the next paragraph, Wharf states the height of the remaining highwall will be 200 feet. Please clarify the correct final height of the remaining highwall after final reclamation for the Portland Ridgeline Pit.

Finally, in the second paragraph, Wharf states mining along the Portland Ridgeline Pit will encounter previously deposited spent ore which will be required to be rehandled. It is our understanding that the previous Portland Pit was backfilled with waste rock and not spent ore. Where is this spent ore located? Does Wharf plan to remove any of the spent ore on the lined denitrification pad area during mining?

9. Section 5.5, page 90. In this section, Warf needs to acknowledge the potential for an additional leach pad in the expansion area to the north of the process area
10. Section 6.5.3, page 103. Since Wharf is proposing four postmine land uses, the statement that rangeland/woodland grazing is the primary and secondary land use needs to be corrected. Also, Wharf needs to address the establishment of woody species for each proposed postmine land use.
11. Section 6.9.1, page 108. In this section, Wharf needs to also address the requirements for a 40 percent live vegetative cover and a diverse and self-sustaining vegetative cover
12. Section 6.10.2.1, page 117. In the third paragraph of this section, Wharf states per SDCL 45-6B-91, a postclosure monitoring plan will be submitted to the department before closure. This statement is not correct as SDCL 45-6B-91 is a completeness item and a postclosure plan is required as part of the mine permit application.
13. Section 6.10.3, page 125. Wharf should also include in this section the cyanide spill bond is updated annually for inflation.

14. Appendix 5, Soils, page 7. In Table 2, should the units for Total Volume of Topsoil be acre-feet instead of feet?
15. Appendix 7, Surface Water, page C-1. In Appendix C, there is only a title page with no information of surface water sampling methods. Please submit the surface water sampling methods information.
16. Appendix 9, Vegetation, Addendum A. It would be helpful if the description of each vegetative community abbreviation was included in the vegetative communities map legend.
17. Appendix 10, Wildlife, page A1-1 to A1-11. It would be helpful if the applicable species in the table were also identified as federally-listed threatened, federally-listed endangered, state-listed threatened, or state-listed endangered as shown in the table key on page A1-11.
18. Appendix 13, Sound Level Study, page 2. On page 2, it states Figure 1 goes here, but there is no Figure 1 on the page. Is there supposed to be a Figure 1 on this page?

Should you have any questions concerning this letter, please do not hesitate to contact me. Please be aware the department is continuing its review of the application, and any additional comments or questions developed will be forwarded to you.

Sincerely,

\s/

Eric Holm
Natural Resources Project Engineer
Minerals and Mining Program
Telephone: (605) 773-4201
E-mail: eric.holm@state.sd.us

cc: Stan Michals, GFP Rapid City
Amber Vogt, Lawrence County Planning and Zoning