



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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August 16, 2022

Ken Nelson
Mine Manager
Wharf Resources (USA), Inc
10928 Wharf Rd
Lead, SD 57754

Dear Mr. Nelson,

We performed additional review of Wharf Resources' Large Scale Mine Permit application for the proposed Boston Expansion Project received June 13, 2022. Please take time to review the following procedural completeness and technical comments and make the necessary corrections to your mine permit application.

Procedural Completeness Comments

1. SDCL 45-6B-40 and ARSD 74:29:07:07(2, 3, 4, 6, 7, and 8): In the last paragraph of Section 3.2.1 on page 29 of the Introduction to Soils in the Baseline Section, it states that 28,383 cy of topsoil is salvageable from the Boston Expansion area which is based on an average salvage depth of 4.38 inches over the proposed 48.2-acre disturbed area. However, the Soil Survey in Appendix E states that 29,275 cy is salvageable which is based on filed and other results. It appears that the salvage estimate in the Soil Survey should be more accurate than the estimate in Section 3.2.1. Therefore, please clarify the actual amount of topsoil that is available for salvage.
2. SDCL 45-6B-39 and ARSD 74:29:07:06: Stan Michals of the Department of Game, Fish, and Parks reviewed the "timed meander" methodology on pages 63 and 64 of the 2021 Baseline Vegetation Assessment included as Appendix I in the mine permit application. He said that the Department of Game, Fish, and Parks requested Wharf to follow the protocols from Goff, Dawson, and Rochow to identify rare plant species occurrence in the Boston Expansion area. He added that the timed meander methodology was clearly presented in Goff et al., but Wharf or its consultant BKS did not ask him for clarification of the method. BKS does generally discuss the timed meander methodology on pages 63 and 64 of the Baseline Vegetation Assessment, but it does not discuss findings or include other timed meander species data. Also, there is no data/finding reference to the timed meander method. Specifically, a species effort curve and a species list prescribed by Goff et al. is absent from the assessment. The information requested by Mr. Michals is required before the Baseline Vegetation Assessment can be considered

complete. It also needs to be discussed in Section 3.6.3 of the Baseline section of the mine permit application.

3. SDCL 45-6B-92(9): In the third paragraph of Section 3.10.2, RESPEC lists dates (July 13, 20, and 28, 2021) when it used handheld instruments to monitor sound. Please provide a more detailed explanation on why these dates were chosen. This section was also not updated to include information from the May 3, 2022, monitoring event and any new information from the new monitoring station SND-07. Please include the information in this section. In addition, in Appendix A of the Baseline Sound Study, photos were included for all monitoring stations except SND-07. A photo of SND-07 must be included in the Appendix.

Also, Section 3.2 of the Baseline Sound Study in Appendix M indicates RESPEC conducted sound monitoring at each of its monitoring points for an approximate ten minute period during five monitoring events over four separate days. Since the ten minute monitoring time frame over a period of only four days seems like a very short time frame for a sound study, please provide justification regarding why this methodology accurately represents sound from various mining impacts such as back-up beepers, blasting, and mine traffic throughout the year. Also, please explain how those sounds may be impacted by various weather-related incidents such as fog, low-hanging clouds, and temperature and explain how the sound study can effectively account for these potential impacts.

Also, Section 3.10.2 of the Baseline Section and Section 3.1 of the Baseline Sound Study indicate that Wharf established two fully automated remote sound monitors and began collecting data on April 20, 2021. Data for the baseline study was collected from April 20, 2021, to July 27, 2021, and April 24, 2022, to May 8, 2022. Why did Wharf select these data periods and why wasn't any data analyzed in the fall and winter months?

Finally, in Section 5.0 of the Baseline Sound Study, impacts to receptors in the Lost Camp development need to be addressed.

4. ARSD 74:29:02:03: Please submit a map showing the names of all mining claims listed in Appendices C-1, C-2, and C-3.
5. ARSD 74:29:02:04(6): In the last paragraph on page 73 of Section 5.3.5, RESPEC states it reviewed and verified 105 data points for blasting operations in the Flossie, Sunshine, and Portland Pits according to industry standards. Please include additional information on industry standards and a reference for them.

Also, in the last paragraph on page 74 of this section, please address NOx concentrations in post-blast clouds.

6. ARSD 74:29:02:06: In the last sentence of the second paragraph of Section 3.9, Wharf mentions the summary of the regional ethnology that was included in the Request of Determination of Special, Exceptional, Critical, or Unique Lands. Since this summary was not considered confidential for the Request for Determination, it should be included in Appendix L, and the last sentence should be modified to reflect this.
7. ARSD 74:29:02:11(1) Section 3.5.5, Meteorological Stations, page 41 and Appendix H, Meteorology: In Section 3.5.5 (Meteorological Stations) and Appendix H, please include 2021 meteorological data in the baseline analysis. Also, please explain why data was only analyzed over a six-year period. Additional data from years prior to 2015 would provide a better baseline analysis of temperature, precipitation, and other meteorologic trends at the mine.
8. ARSD 74:29:07:02(3): In the second paragraph on page 57 of Section 3.11, Wharf needs to address visual impacts from Nevada Gulch Road. Also, in the third paragraph on page 2 of the Stantec report in Appendix N and the fourth paragraph on page 58 in Section 3.11.1 (Visual Stimulation), Stantec refers to an industry standard it used to evaluate visual impacts from public roads rather than private residences in the Lost Camp subdivision. Please include details on the industry standard and include any references to justify the statement. Since the Lost Camp subdivision is immediately south of the Boston Expansion area, please explain why more weight was not given to views from the residences shown in the photos in Appendix N and other residences closest to the mine instead of the public road in front of the residences.

The third paragraph on page 1 of the Stantec report in Appendix N states that vantage points were chosen collaboratively by Stantec, Wharf, and RESPEC. However, in the fourth paragraph on page 2 of the report, it states that Wharf took the photos from the selected vantage points. Since this was a collaborative effort, were Stantec officials present at the mine site when the photos were taken since the company did the visual analysis in Appendix N?

In addition, a post build and reclaimed analysis of the fence line and Lost Camp Subdivision photos taken on December 30, 2021 and January 20, 2022, needs to be conducted by Stantec.

Finally, Figures 1 through 11 in Appendix N need to be on 11 x 17 paper, or rotate them 90 degrees so they are larger and easier to view.

Technical Comments

1. Table 1-4, Introduction page 11: Under 'Total Expansion Acres' in Table 1-4, the acreage needs to be changed from 679.99 acres to 697.99 acres.

2. Section 3.1, General Geology and Depositional Environment, page 15: In the last sentence of the second paragraph of this section, the surface geology map and geologic cross sections are shown in Exhibits 6 through 10 in Appendix B, not Exhibits 6 through 8.
3. Section 3.1.4.3, Meteoric Water Mobility Test Results, page 21: Please include the drinking water standards for arsenic and fluoride in this section.
4. Section 3.1.4.7, Mitigation Plan for Acid Generating Potential Rock, pages 23 through 28: Since this section discusses more than an acid generating mitigation plan, such as ARD analysis, please expand the title of this section accordingly.
5. Section 3.2.2, Soils Discussion, page 30: In the sixth paragraph of this section, Wharf states that during exploration operations in the Boston Expansion area, topsoil was piled near the end of access trails or adjacent to trails and drill pads and not placed in a separate soil stockpile. As a result, Wharf believes that the topsoil volume calculations in the mine permit application are not impacted.

Please note that a similar practice was employed by Wharf under EXNI-433 at the Richmond Hill Mine. During a recent inspection, we noticed some topsoil eroding from the topsoil piles along the access trails. We also noted these piles were not seeded. In addition, during previous inspections of the exploration in the Boston Expansion area, Wharf indicated it added inorganic dirt and rocks to several existing topsoil piles when it established additional access routes. These piles were also not seeded. This could negatively impact the use of piled topsoil during final reclamation of the exploration area. Based on these inspections, Wharf needs to acknowledge that there is potential for some topsoil loss from erosion in the Boston Expansion area and address steps it is taking to mitigate topsoil erosion and impacts in exploration areas.

6. Section 5.3.4, Pit Development and Sequencing, page 72: In the second paragraph, Wharf states that the majority of the pre-strip waste will be hauled to the Green Mountain area for backfill material and for backfilling the far east end of the Boston Pit for final reclamation. Since it appears this refers to the previous sentence in which pre-stripping will be initiated in 2022, how can the far east end of the Boston Pit be reclaimed if it has not been mined yet? Should it be the east end of the Portland Pit that will be backfilled for final reclamation? Please clarify.
7. Section 6.2.1, General Reclamation Type Requirements, pages 81 and 82: This section does not address the requirements of ARSD 74:29:06:02 and only addresses the requirements of ARSD 74:29:07:02. As a result, the title of this section should be changed to "Minimizing Adverse Impacts of the Mining Operation". Also, in the previous comment letter, we told Wharf that none of the requirements of ARSD 74:29:06:02 have been addressed in the mine permit application. As a result, each subsection of this regulation must be addressed in a separate section. Also, in the first

paragraph on page 81 of this section, “ARSD 74:29:07—” must be changed to “ARSD 74:29:07:02”.

Also, in the second paragraph on page 81 of this section, Wharf states that SD DANR has already approved reclamation of significant acreages at the Golden Reward and Wharf Mines. Please clarify or rewrite this statement since DANR has not approved any reclamation at the Wharf Mine. The only reclamation acreage DANR has approved is the reclaimed acreage at the Golden Reward Mine that the Board of Mineral and Environment released Wharf from reclamation liability under Mine Permit 450 in 2009.

In addition, in the final sentence of the second paragraph of this section, Wharf states that concurrent, interim, and final reclamation are being performed at the Wharf and Golden Reward Mines and will continue. Please provide additional information or examples of concurrent, interim and final reclamation areas at the Wharf Mine and the status of interim and final reclamation at the Golden Reward Mine.

Finally, in the third paragraph on page 82 of this section, Wharf states that impacts to surface and ground water will be minimized since no spent ore will be placed as backfill in the Boston Pit. Wharf needs to also address any potential impacts the waste rock backfill may have on surface and ground water.

8. Section 6.2.1.2, Refuse Disposal, page 83: In the second paragraph of this section, Wharf states the expansion is not anticipated to directly result in petroleum, cyanide, or other contaminated soil. Wharf needs to acknowledge that petroleum products could possibly leak from heavy equipment in the Boston Pit and contaminate soils in the pit and needs to address how the contaminated soil will be removed from the pit.
9. Section 6.2.2, Specific Postmining Land-Use Types: In the third paragraph of this section, Wharf states that requirements for reclaiming the land to rangeland were developed in consultation with Cedar Creek Associates and the Lawrence County Conservation District. Please note that DANR was also consulted during the development of this plan. The plan was submitted as part of a technical revision which was approved on April 7, 2008. Please include this information in this paragraph.
10. Section 6.4.2, Seedbed Construction, page 87: In this section, Wharf states a typical farmland seedbed is not possible because of the natural debris present in the material (e.g., small brush and rocks). Since Wharf has committed to removing debris from topsoil prior to stockpiling, how large are the rocks and small brush in the topsoil and why can't they be removed prior to stockpiling?
11. Section 6.5.3, Woody Species Revegetation, pages 88 and 89: In this section, Wharf commits to voluntarily planting some trees and shrubs and transplanting tree pods to provide visual diversity. Please note that Wharf has committed to this concept in past mine permit applications. Although this is voluntary since there are no tree and shrub

planting requirements for rangeland, DANR has not noted any tree and shrub plantings or tree pod transplants in reclaimed areas over the last five to ten years. Please address this inconsistency.

12. Section 6.7.1, Pit Bench and Backfill Reclamation, page 91: If the Boston Pit will be regraded to a 3:1 (H:V) slope, why is there a discussion in this section on Wharf regrading slopes steeper than 3:1? DARN agrees reclamation of steep slopes can be very difficult, especially slopes steeper than 2.5:1. We have expressed concerns to Wharf in the past about regraded slopes being steeper than 2.5:1.
13. Table 6-4, page 97: In the table, the current reclamation bond amount needs to be changed from \$37,379,300 to \$58,246,100.
14. Section 6.10.3, Cyanide Bond, page 103: In this section, Wharf needs to include more details on the requirements for a cyanide bond. It was more than just a review of the heap leach mining industry in 1992. As part of a recommendation from the Cumulative Environmental Evaluation Task Force, the Board of Minerals and Environment in 1991 issued an order requiring each large scale gold mine that uses cyanide to identify scenarios and develop costs to respond to and remediate releases. In Wharf's case, a slow chronic release of cyanide was determined to be more costly than an accidental release. This should be mentioned in this section.

Also, the cyanide bond is adjusted for inflation on an annual basis, not as necessary as stated in this section.

15. Section 7.0, Proposed Technical Revision Permit Conditions: We have some additional comments on Wharf's proposed technical revision:
 - Remove "and offsite use of spent ore" from the phrase "Modifying compliance limits for chemical parameters as allowed within the mining laws and mine permit, including spent ore off-load criteria". Wharf is not authorized to use spent ore off site.
 - Remove "that are beyond basic operational efficiency measures" and change the remaining phrase to "Submitting and modifying plans and use specifications for permitted facilities". The removed phrase is too broad and is subject to a large range of interpretations on what a basic operational efficiency measure is.
 - Remove the phrase "beyond accepted best management practices" from the phrase "Modifying dust control methods". Again, the phrase is too broad.
 - Replace the phrase "when not within the active mine disturbance footprint" with "when not within the active mine pit areas" in the phrase "Modifying and relocating state, county, and private roads and haulage routes with the permit boundary." The phrase "active mine disturbance footprint" could be interpreted to mean any disturbance within the mine permit boundary.

- Remove the phrase “or unique site conditions” from the phrase “Modifying stocking guidelines and reclamation success standard to reflect climatic conditions”. The phrase is over broad and could be subject to a large range of interpretations.
16. Exhibit 31, Post Mine Land Use: Please show the approved postmine land uses for all portions of the Wharf Mine on Exhibit 31.
 17. Appendix F, Groundwater Characterization Study, Section 2.4: Please include an updated assessment of the spring survey conducted in 2022 in this section of the Groundwater Study. Also, please include a reference to the spring survey in the study.
 18. Appendix F, Groundwater Characterization Study, Figure 2-4 and Table 2-2: Please qualify water elevation results for MW-2A to clarify that water level elevations are not actively taken directly from MW-2A but from an adjacent well and determined through corrective calculations. Please include an explanation of the calculations. Also, please update the legend in Figure 2.4 to include all markings on the map.
 19. Appendix F, Groundwater Characterization Study, Section 3.4: Section 3.4 of the Groundwater Characterization Study indicates five years of data were included as part of the baseline analysis. However, in Section 2.5.1 of the study, it indicates water level data was used from 2000 through August 2017 with additional data reviewed through April 2020 to create the water table elevation map in Figure 2-4. Why are different time periods used for these two different sections of the report?
 20. Appendix F, Groundwater Characterization Study, Section 3.5.1: The report states, “The groundwater quality results at baseline sampling sites are similar to the results from other sampling sites and are representative for mineralized groundwater in the region.” Background wells are identified in Section 3.4 as being MW-19, MW-33, and MW-66. Only five years of data are being utilized in the analysis of these sites. Additional historical analysis of MW-19 would show that the water quality of this well is not representative of mineralized ground water, but instead representative of mine impacted ground water. The historical data utilized for analysis of the baseline sites needs to be adequate enough to correctly identify whether water quality is natural or impacted.
 21. Appendix F, Groundwater Characterization Study, Section 3.5.3: The report states, “Historical impacts to groundwater from previous mining activities are minor as evidenced in elevated occurrences of nitrate and arsenic in MW-19 and MW-66, respectively.” As noted above, this assessment is inaccurate when applied to MW-19.
 22. Appendix G, Surface Water Characterization Study, Table 2.2: Please include units for the parameters in the table. Also, since the value provided for E. Coli is not correct, please input the correct value.

23. Appendix G, Surface Water Characterization Study, Section 3.3: The first paragraph indicated comprehensive statistics were utilized as part of the baseline analysis. However, the listed methodology appears to conform with a standard ANOVA statistical analysis. Were any additional statistical processes utilized?
24. Appendix G, Surface Water Characterization Study, Section 3.5: The report states, “The water quality results at these eight baseline surface water sampling sites are generally typical for surface water quality in the region”. Please include supporting data and analysis to support this statement. Also, this section needs to include a discussion on sample sites that may show mine impacts (i.e. Annie Creek II) and how that water quality compares to other surface sites within the drainage. In Annie Creek II, there appears to be differences in water quality in arsenic, selenium, fluoride, nitrates, TDS, conductivity, and pH as seen in the various time-series graphs in Appendix F of this report.
25. Appendix G, Surface Water Characterization Study, Table E-1: Please confirm the calculations for “Percent Below MDL”. All data except gold are currently marked as zero; however, cadmium, copper, chromium, silver, and nickel all have reported concentrations below MDL.
26. Appendix G, Surface Water Characterization Study, Table E-6: Please confirm values reported for Dissolved Zinc in this table. There are 27 reported sample results in the result but there is no variance in results.
27. 2021 Baseline Vegetation Assessment, pages 11, 19, and 64: In the first paragraph under “Critical Habitat and Special Status Plant Species” on page 11 and “Critical Habitat Results” on page 64 of the 2021 Baseline Vegetation Assessment, Nevada Gulch is described as being west of the Boston Expansion area. Please note Nevada Gulch is southeast of the Boston Expansion area.

Also, please include a larger version of the Baseline Vegetative Map, such as on an 11 x 17 sheet of paper.
28. Coeur Wharf Boston Expansion Bat Minimization Plan: Please submit a final version of the ICF Bat Minimization Plan without the strikeouts and insertions in the draft version included in the Wildlife Survey. Also, results from the spring bat survey must be included with the final report.
29. Appendix P, Mine Operations, Spill Contingency Plan: The spill contingency plan has a most recent update of January 14, 2021, listed. Have there been changes to the plan since then, and if so, is there a more recent version of the plan that can replace the version in Appendix P?
30. Appendix Q, Weed Control Plan: All weed control information in this section was developed by MidDakota Vegetation management which no longer does weed control for Wharf. Is there any updated information available from Wharf’s new weed control

contractor Iron Horse? Also, the table in this section that list weeds and control methods needs to be updated.

31. Several times throughout the mine permit application, Wharf Resources (USA), Inc is referred to as Coeur Wharf. Since Wharf Resources (USA), Inc. is the official applicant, all references should be made to Wharf Resources (USA), Inc. and not Coeur Wharf.

Please note that the information requested in the July 13, 2022 letter and the information requested in this letter must be filed with the Lawrence County Register of Deeds office with the original mine permit application which is already on file for public review. Proof of filing, such as a letter from the register of deeds office, is required to be submitted. Also, this information should be sent to the review agencies which received a copy of the mine permit application.

The department is continuing to review the application and associated appendices and will provide additional comments to Wharf as they are developed.

If you have questions on the contents of this letter, please feel free to contact Eric Holm or myself at (605) 773-4201.

Sincerely,

\s/

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