



P.O. Box 326, Cañon City, CO 81215

angela@envalternatives.com

719-275-8951

Feb 9, 2022

Tim Cazier
CO Division of Reclamation Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Dawson Gold Mine, Permit No. M-2021-046

Dear Mr. Cazier,

On behalf of Mr. David Felderhof, please accept the following response to the Division's October 14, 2021 Preliminary Adequacy Review.

RULE 3.1 RECLAMATION PERFORMANCE STANDARDS

3.1.6 Water – General Requirements

1. The underground workings will be developed in rock similar to the development rock samples tested as part of the tailings characterization program. A schematic of the underground is shown below Figure 1. The unmodeled space is composed of granites. The brown feature in the hanging wall is the sulfide zone.

As can be seen in Figure 1, the majority of the workings are in the granitic host rock and do not expose the sulfide zone. The granitic rock, as described in the tailings characterization report, is non-potentially acid generating and metal content similar to the typical crustal abundance of granite.

The underground workings do pierce the sulfide zone in selected areas. These are shown in Figure 2. The area of exposed surface area in the sulfide zone is small relative to the exposed surface area within the granite. It is reasonable to expect the exposed sulfide zone to produce acidity locally, however, the lag period to do so is unknown at this time. The granitic host rock does provide carbonate neutralization that would neutralize acid production.

At closure, the mine will be allowed to flood, at which time anoxic conditions will be re-established and oxidation will essentially cease. For a period of time after flooding, secondary oxidation products will solubilize and diffuse into the groundwater until the inventory of secondary oxidation products is consumed. In the long term, it is expected groundwater quality within the mine workings will return to background levels.

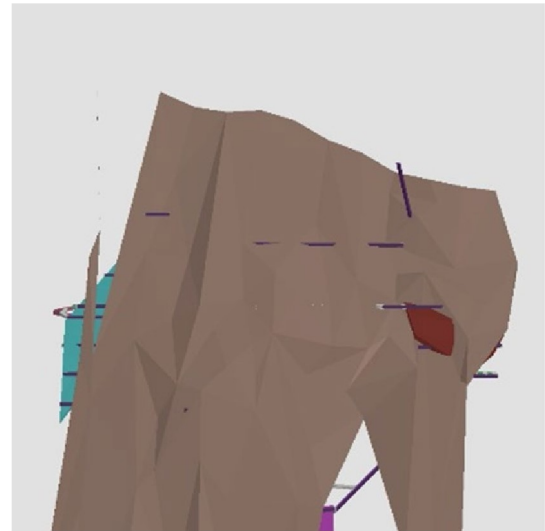
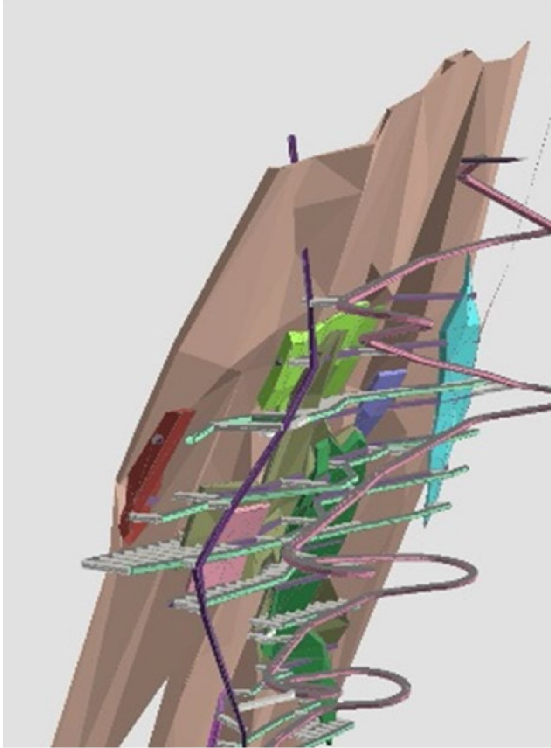


Figure 1: Schematic of Underground Workings.

Figure 2: Schematic of Sulfide Zone

2. The FTSF cover will have the storage capacity to hold and transmit infiltration water without contacting the tailings. During average rainfall events, the soil layer of the cover has the field capacity to absorb the precipitation until it is evaporated. During storm events when the field capacity of the soil layer is exceeded, precipitation will flow into the underlying sand and gravel layer where it will flow laterally to the contact pond. The water quality is expected to reflect rainwater that has percolated through soil. The cover is expected to accommodate the precipitation from a 1 in 1,000 year 24-hour storm event. No seepage from the bottom of the FTSF is expected; therefore, seepage treatment is not expected. Further discussion of the FTSF cover is provided in the report "Tailings Geochemistry Characterization & Seepage Quality Estimate – Final Report".
3. Application Section 2.7.6 has been revised to reflect the following: Water will be supplied from mine dewatering, the mill water recycling system and a groundwater well. It is anticipated that mine dewatering and the recycling system will supply a sufficient quantity to operate the mill since the recycling system is designed to recycle approximately 90% of the mill water or 180 acre-feet per year. Water may be needed from the groundwater well to initiate the mill process. After the mill's water recycling system is operating, very little water will be needed from the groundwater well, if any since dewatering will be an ongoing process.

3.1.9 Top soiling

5. Application Section 2.5.2 "Beneficial Use of Removed Trees" has been added to address the beneficial use of trees removed from the mill site.

3.1.10 Revegetation

6. Fremont County Weed Control Officer, Brittany Pierce, provided an Integrated Weed Management Plan. It is included in Exhibit E.

6.4 SPECIFIC EXHIBIT REQUIREMENTS – 112 RECLAMATION OPERATION

Exhibit A – Legal Description

7. The coordinates of the primary mine entrance are 38.39974 lat; -105.28726 long. These coordinates are the same as those provided in Section 10 of the Application Form and are included in Application Section 2.1.3 Mine Entrance Coordinates.

Exhibit C- Pre-mining and Mining Plan Maps of Affected Lands

8. Map exhibits are revised to include the preparer's signature, date prepared and correct Applicant's name.
9. Exhibit C is revised to present vegetation types expected on affected land.
10. Process water as presented in Exhibit C.3.2 does not refer to the water in the milling process. CDPHE WQCD considers "Process Water" to be any stormwater that comes in contact with industrial activities and discharges from the site. WQCD considers mining an industrial activity and includes any stockpiles, equipment, roads, and any other site structures or storage areas. The WQCD discharge permit will use the term "Process Water." The "Process Water Channel" on Exhibit C.3.2 is relabeled to "Onsite Stormwater Diversion Channel."
11. The "Overburden Storage Pile" has the potential to be 27 ft. high. This material is the "cut" material from grading and developing the site. Waste Rock mentioned in Exhibit U is rock produced during construction of the portal and ramp. It will be used to construct the dam side of the FTSF and it will be placed in 5 ft. lifts for a maximum height of 15 ft.
12. The FTSF and Contact Water Pond are appropriately labeled in Exhibit C.3.2.
13. During mill maintenance and repair, tailings in the mill circuit will be temporarily stored in the Tailings Filter Feed Stock Tank rather than an impoundment. The tank will be a 15,600-gallon tank and will be located outside the mill building in a berm that will contain 110% of the contents of the tank. The tank is in the milling process flow diagram.
14. a. Currently there are no buried utilities along Temple Canyon Road (CR 3) or within 200 feet of the affected area boundary and new access road.
b. Exhibit C.3.2 clearly differentiates between existing roads, substantially improved roads and new roads.

Exhibit D – Mining Plan

15. a. The water from dewatering will be contained in two 5000 gallon tanks near the mine portal at the surface. Section 2.4.3.2 is revised to more clearly describe underground pre-treatment i.e. settling and pumping the "clean" water or the water that has settled to the surface to the holding tanks. Tanks will be checked at the beginning of each shift for a sheen.
b. The surface settling pond previously mentioned is the sedimentation pond on Exhibit C.3.2. Pond descriptions are clarified on site plan exhibits and in this section.

16. According to EPA definition of injection wells, the well is used to place fluids underground. Waste rock is not a fluid thus does not require a UIC permit. Additionally, waste rock mentioned in Section 2.4.4.1 is rock that will not be brought to the surface but rather will backfill a mined out portion of the mine as the mine progress.
17. The Blasting Plan will be submitted in a subsequent response to the Division.
18. There is only one vent raise in the mine plan. The term “network” refers to the vent raise intersecting each level as the mine continues development down dip. Each intersection with a level is a vent raise for that section but overall, all vent raises sections continue to the surface as one continuous vent raise. The mine vent location is located on the site plan. It is located on the mill pad. Figure 2 in Appendix A includes a blue line beginning at the portal and extending underground represents the ventilation “network”.
19. Civil engineering of the mill building and secondary containment will proceed upon recommendation for approval of the mine permit by the Division. The details requested for the mill design and secondary containment will be provided to the Division upon receipt. In general terms, mill building ground floor will have berms separating various areas for the containment of spillages including reagents. Area sumps and pumps will be placed in these areas for pumping back of spillage to their appropriate locations. Zephyr commits to submitting the engineered plans via a Technical Revision as well as a written notice prior to construction of the EPF that will include an inspection schedule.
20. Zephyr accepts the requirement of a mill certification as described.
21. All exterior storage tanks will have individualized secondary containment with adequate capacity to contain 110% of the tank. The bermed area around each tank will include a sump and pump that will pump spillage to the appropriate tank or location in the mill. Details regarding tanks outside the mill building were added to Section 2.4.5.5. Civil engineering of the mill building and secondary containment will proceed upon recommendation for approval of the mine permit by the Division. The requested secondary containment detail for both the tanks and return lines will be included in the civil plans. The civil plans will include a QA/QC plan, construction schedule that will include incremental inspections during construction. The applicant commits to providing written notification to the Division prior to construction of the EPF.
22. Section 2.4.5.6 was revised to include delivery and storage detail. Reagent mixing will occur inside the mill building in the “reagents area” on the mill diagram in Appendix C. Civil engineering of the reagent system will proceed upon recommendation for approval of the mine permit by the Division. The civil plans will be submitted to the Division upon receipt. Surface exploration has become cost prohibitive due to the depth below ground surface of the GMR. The first underground task will be subsurface exploration, i.e. extracting core samples, to better characterize the geology including presence of sulfide mineralized zones. As Item 1 explains, the geology is granites rather than sulfide mineralized zones thus PAG is not likely. Core assay, however, includes sulfur content that will provide NAG vs. PAG material presence. Mine development currently avoids exposure of PAG material and subsequent hydrologic effects.
23. Appendix E: AMEC FTSF Design contains sub Appendix F “Technical Specifications and CQA Plans” that includes underdrain system construction.

24. Section 2.5.1 was revised to include commitment to salvage “topsoil” from all areas of the mill facility.
25. Zephyr reviewed the Division’s IMP closure specifications and commits to closing the portal and vent rise according to the specification.
26. Section 2.5.5 (formerly 2.5.4) was revised to clarify that the contact water pond and contact water pond discharge channel will remain until the FTSF cap is approved by the Division.
27. The seed mix table is correctly labeled as Table 2.5.6-1.

6.4.6 Exhibit F – Reclamation Plan map

28. The map title block, legend and drafting criteria are corrected.
29. The subject FTSF slope was reanalyzed for erosion control and is now benched every 28 vertical ft.
30. Contours are added and revised on FTSF for drainage.
31. Jesik: Drainage plan for erosion control structures. Culverts under the main road include the road goes east west. 32b is in the drainage report
32. a. Culverts and sizing are included in the Appendix N Jesik Surface Water Management Plan.
b. Appendix N Jesik Surface Water Management Plan includes justification for drainage structures in higher peak flow areas.
33. Exhibit F is revised to show new roads, improved existing roads and existing roads.
34. The contact water pond is appropriately contoured to represent final reclamation slopes. The pond liner will be removed during reclamation. The pond sides will be graded to blend with surrounding topo.
35. The formerly labeled “Process water channel” is appropriately labeled as “On site Stormwater Diversion Channel.”

6.4.7 Exhibit G – Water Information

36. a. Reference to the Department of the Interior is removed from the application narrative.
b. Section 2.7.5 is revised to reflect one sedimentation pond aka stormwater detention pond that is located at the north end of the overburden pile.
37. Figures 1 and 2 in Exhibit G and Figure 2.4.2-1 are updated to reflect mine boundary and mapped fractures.
38. The wells are not completed in the same material and it was intended that the monitoring wells would be completed in the two differing geologic units which are separated by faulting to allow for the investigation of conditions on both sides of the faulting.
39. Both the construction details for the wells and the lithology encountered by their boreholes are presented in the Well Construction and Test Report (GWS-31) on file with the DWR are included in Section 2.7.1. Discussion of the monitoring well lithology is added to Section 2.7.1.
40. Section 2.7.4 Monitoring Well Network is updated to provide more robust monitoring regime. Figure 3 in Exhibit G depicts the monitoring locations and compliance well.
41. Section 2.7.4.1 Point of Compliance Well(s) is added to Exhibit G.
42. The DGM Quality Assurance Program Plan (QAPP) is provided in Appendix M.
43. Table 2.7.4-1 reflects the most restricted values for groundwater data comparison.
44. Zephyr commits to commencing five consecutive quarters of baseline groundwater quality data upon the Division’s approval of the proposed monitoring well network provided in Section 2.7.4.

45. Permit No. 73772 is addressed in Section 2.7.1.4.
46. a. Mine pool water quality will be included in the Monitoring Well Network and in accordance with the QAPP provided in Appendix M.
b. When the mine ceases, mine pool water quality and level will continue to be monitored consistent with the Monitoring Well Network program.
47. Regardless of the relative elevation of the mine and the creek, there is potential for some theoretical stream depletions to impact Grape Creek streamflow, as discussed in Section 2.7.2, although we believe that any such impact will be minimal and unmeasurable.
48. Section 2.7.1 is revised to include discussion of the fracture system and effects of dewatering on the groundwater flow in the vicinity.

6.4.7 Exhibit H – Wildlife Information

49. The adits are not plugged and the exhibit narrative is corrected. The adits will be monitored for bats and those adits within ¼ mile of the mill will be sealed when the adits are free of bats.
50. The Applicant commits to performing annual raptor nest survey.

6.4.12 Exhibit L – Reclamation Costs

51. a. Task 001A is added to the reclamation cost estimate to construct the engineered cap. Vegetating the cap is added to Item 010.
b. Removal of the contact water pond liner is included in Task 002 with disposal in Task 011.
c. Reclamation of stormwater diversion channels or EPF are included in Item 001.

6.4.13 Exhibit M – Other Permits and Licenses

52. Section 2.13 is revised to include the need for a Substitute Water Supply Plan and proof of water.

6.4.14 Exhibit N – Source of Legal Right to Enter

53. The BLM GLO Records are removed from Appendix J and replaced with the January 2013 Warranty Deed showing ownership by Zephyr.
54. Parcel 3943000000021 is the Fremont Placer that was conveyed to Zephyr in the January 2013 Warranty Deed as Parcel 2 provided in Appendix J. The Fremont County Assessor website information is incorrect.
55. Parcel 1700040 is known as the Harris Tract and is included in the Mary Adamic agreements provided in Appendix J.

6.4.15 Exhibit O – Owner(s) of Record of Affected Land and Substance to be Mined

56. No response provided due to response to Item 55.

6.4.21 Exhibit U – Designated Mining Operation Environmental Protection Plan

57. The waste rock will be stockpiled in the NAG-PAG storage area and will be separated into the appropriate subareas depending on acid generating geochemistry.
58. No response is necessary since EPA jurisdiction is specifically for liquid treatment.

59. Section 2.4.5.6 and 6.4.21(5) and (6) describe handling of reagents during operations. During periods of cessation and commencement of closure, a third party chemical disposal contractor will be engaged to appropriate package, transport and dispose of any remaining reagents.
60. Zephyr commits to constructing secondary containment with a capacity of 110% of the all the storage containers within a given area.
61. Section 6.4.21(6) is revised to address discharge of groundwater encountered during mine development.
62. In order to prevent submission of an SPCC based on preliminary site design and operations (that will be reviewed by the public) with the potential of revision based on Division input, Zephyr commits to providing an SPCC plan upon approval of Exhibits C and D that will include temporary tanks during site development as well as mill operation tanks. The plan will be submitted prior to commencement of site development, well before mill operation.
63. The Summary is revised to reflect the use of designated chemicals.
64. Section 6.4.21(7) is revised to more adequately evaluate the proposed facility. Appendix F of the submission included the FTSF underdrain, buttresses and contact water pond. Appendix N is the Jesik Surface Water Management document that includes storm water control structures and surface water diversion channels. Zephyr commits to providing written notification prior to construction to establish construction schedule and incremental inspection points.
65. The FTSF Design report was prepared in 2016 when the Windy Point and Windy Gulch segments were being mined in addition to the Dawson segment. At that time geochemical characterization of Dawson and Windy Point tailings had not yet been undertaken and a Windy Gulch tailings sample was classified as uncertain with respect to potential acid generation. The author's comments regarding seepage treatment were made within that context of geochemical uncertainty. Since 2016, the mine plan has been modified to mining the Dawson segment only. A more comprehensive geochemical characterization program has been completed on the Dawson segment tailings providing clarity regarding seepage treatment requirements. Appendix B-GEM Services Report supersedes Appendix E-FTSF Design Report with respect to seepage quality and seepage treatment requirements. pH neutralization will not be required.
66. Section 8.0 Emergency Response Plan is revised.
67. Appendix N contains Jesik Consulting's Surface Water Management Plan.
68. Figure 1 in Section 6.4.21(8) is revised.
69. AMEC provided precipitation statistics in their design criteria for the pre-feasibility design of the FTSF. They used data from the NOAA Canon City Weather Station USC00051294 (1950-2016). The maximum monthly precipitation recorded within the 66-year record was 6.83 inches. The max annual precipitation is 22.63 inches. Perimeter channels around the FTSF were designed for the 10-year, 24-hour peak discharge during operations and for the 100-year, 24-hour peak discharge post-closure. These precipitation frequency estimates were obtained from NOAA Atlas 14, Vol 8, Ver. 2. The estimates are based on the mean of the annual maximums. The period of record used is from March 1893 to Oct 2011. In calculating the water holding capacity of the tailings cover, I used the 24-hour peak rainfall depths listed in AMEC's design criteria. In summary, yes the wettest year on record was taken into consideration in the

design of the tailings perimeter channels. However, the absolute value of the wettest year was not used, in accordance with accepted design practice.

- 70. Reference to an exfiltration pond was not found.
- 71. The detailed construction schedule will be provided upon receipt from the site development contractor and civil engineer. Civil engineering will commence upon approval of the application.
- 72. Section 6.4.21(16) is revised to include the mill and the required oversight statement.
- 73. Analysis of FTSF seepage in Section 6.4.21(14) indicates the contents of the contact water pond is anticipated to meet discharge standards. The contact water pond will be fenced.

4.0 Geotechnical Stability Exhibit (Division references Section 6.5 which isn't in the application)

- 74. FTSF Stability Evaluations are found in AMEC Section 9.3 beginning on page 33 of the report. The application does not have an Exhibit 6.5. The seismic report is Section 4.0 of the application.
- 75. The blasting plan is under development and will be submitted in a subsequent adequacy response.

Appendix A

- 76. Yes, Appendix A Figure 1 is correct showing one vertical ventilation raise. Yes, it is sufficient for this mine at the known maximum depth.
- 77. Yes, Appendix A Figure 2 is still appropriate since the underground mine plan has not changed with this engineering scheme.

Appendix B

- 78. Final report is provided in Appendix B.
- 79. Long term metal release, and in particular accelerated metal release, is associated with sulfides present in the rock oxidizing and an enrichment of metals relative to the crustal abundance of that particular lithology. This mechanism is present in both acidic and neutral metal drainage. Sulfide sulfur was less than the detection limit of 0.01 wt.% in four of the five development rock samples – metal release due to oxidation is not applicable to these samples. One sample contained 0.03 wt.% sulfide sulfur – a very low sulfide content. The metal content of the development rock samples were also compared to the crustal abundance of granite. There is a potential for metal leaching in excess of background when the metal content is greater than 10 times than crustal abundance, or a geochemical abundance index greater than 3. All development rock samples have metal contents similar to the crustal abundance in granites; therefore, the metal release from development rock will be similar to that from bedrock in the area.
- 80. All samples were obtained from core. Core locations are provided in the GEM report in Table 1: Geochemistry Sample Description.
- 81. FTSF seepage is not expected post-closure when the facility is covered with an evapotranspiration cover. During extreme rainfall events precipitation that infiltrates to the sand and gravel layer immediately below the soil layer will drain into the contact water pond without contacting the tailings. The water quality is expected to be similar to infiltration through soils in the region.

Appendix E

82. The AMEC FTSF Design Report appendices are provided herein with the exception of Appendix E Tailings Geochemistry which is superseded by the application Appendix B. Appendix I Surface Water Management was considered in development of Appendix N Jesik Surface Water Management. AMEC's Appendix G Seepage is replaced with GEM Services Appendix B. Other than the already incorporated narrative regarding omission of Windy Gulch, no additional irrelevant appendices are included and the mine assumptions and proposed operations are based on Dawson Mountain only.
83. AMEC Appendix F Technical Specifications and Construction Quality Assurance is included in Appendix E.
84. The FTSF underdrain system will discharge directly into the contact water pond. As shown in the Appendix N, FTSF stormwater diversion channels divert surface flow directly to the contact water pond.
85. Appendix G of the AMEC Report states the underground seepage is estimated to be 0.7 gpm. The drain diameter is 4 inches which has a carrying capacity of 70 gpm or 100 times more than the estimated flow.
86. The underdrain will extend to the edge of the FTSF.
87. The starter buttress will be constructed of waste rock generated during construction of the portal and initial slope into the target deposit. This material is granite. It is not tailings.
88. Gabion baskets will be used where the surface water structure is temporary; removed during final reclamation. Gabion baskets are replaced with grouted structures where the structure is required post-reclamation.
89. AMEC's Section 8.2 is superseded with Section 2.4.6.4. Tailings filter feed slurry will be supplied from a "filter feed tank 4020-TNK-009" with a nominal capacity of 59 m3 or 4 hours of operation. This surge capacity (in some cases up to 24 ours) is traditionally allowed for unplanned operational upsets that may occur upstream and/or downstream of this tank. Thus, if the tailings filter cake is too wet due to a filter related problem, then the mill personnel will have 2-4 hours minimum to fix it (a hole in the filter cloth, loss of filter vacuum, etc.) without interruptions to the rest of the operation. If the tailings moisture problem is not solved during this period, then the mill is shutdown until it is resolved. Contingency tailings storage is also available in Zone 2 of the FTSF.
90. Riprap gradation will follow CDOT Riprap Gradation Standard.
91. The FTSF performance assessment methods in AMEC's Section 10.4 will be formalized prior to commencement of construction of the FTSF.
92. AMEC's monitoring well locations considered and incorporated into the Bishop Brodgen monitoring well network presented in Exhibit G, Section 2.7.4. Section 2.7.4 supersedes AMEC's locations as Bishop Brodgen considered a larger geological area than AMEC.

Appendix K

Items 93-98: After meeting with the Division on site and virtually, Zephyr has come to accept that the existing monitoring well locations and analytical suite were geologically inadequate and analytically incomplete, respectively. Upon Division's approval of the monitoring well locations presented in Section 2.7.4, monitoring wells will be constructed and monitored in accordance with

the Appendix M QAPP. The data and methods adequacy items will not be addressed at this time but the inadequacy are noted and will be resolved and addressed in the new baseline study.

100. The public notice and owners of record with 200 ft. are provided herein.

101. Please find proof of placement with Fremont County Clerk and Recorder provided herein.

In addition, Proof of Notification is provided herein. Signature cards are provided for notification to the NRCS and County Commissioners along with adjoining property owners with 200 ft. The Public Notice affidavit is also included.

Please feel free to contact me directly with any questions.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Angela M. Bellantoni', with a stylized flourish at the end.

Angela M. Bellantoni Ph.D.

Cc: Loren Komperdo, Will Felderhof and David Felderhof

Enclosures Provided as Electronic Files:

- Adequacy Response – Application Revisions
- Appendix B: Tailings Geochemistry and Seepage Quality Estimate
- Appendix E: AMEC 2016 FTSF Design Sub Appendix F
- Appendix J: Property Owners and Right to Enter
- Appendix M: QAPP
- Appendix N: Surface Water Management