Item #	DRMS Adequacy Review #2 Comments		Aggregate Industries Response	
	AM07 exhibit	Comment	Rationale	AM07 Reference and Page Numbers
SECOND ADEQUACY REVIEW (AR) September 17, 2021				
AR1	Application	Please have authorized permittee representative acknowledge and properly initial “Responsibilities as a Permittee” statements on pages 5 and 6 of the application form.	Issue addressed in revised permit application form submission. Revised application form attached to transmittal email. Original is on route to DRMS.	Application Form, p. 5 -6
AR2	Application	The Applicant/Operator or Company Name provided on the signature page must match exactly with the Applicant/Operator or company name given on Item 1 of Page 1 of the application form.	Issue addressed in revised permit application form submission. Revised application form attached to transmittal email. Original is on route to DRMS.	Application Form, p. 1, 8.
AR3	Application	Signature Page of application form is required to be sealed by the Corporate Secretary or Equivalent.	Issue addressed in revised permit application form submission. Revised application form attached to transmittal email. Original is on route to DRMS.	Application Form, p. 8.
AR4	General Comment	Verify that all Exhibit Maps submitted comply with the above requirements of 6.2.1(2): Maps and Exhibits Maps, except the index map, must conform to the following criteria: (a) show name of Applicant; (b) must be prepared and signed by a registered land surveyor, professional engineer, or other qualified person; (c) give date prepared; (d) identify and outline the area which corresponds with the application; (e) with the exception of the map of the affected lands required in Section 34-32.5-112(2)(d), C.R.S. 1984, as amended, shall be prepared at a scale that is appropriate to clearly show all elements that are required to be delineated by the Act and these Rules. The acceptable range of map scales shall not be larger than 1 inch = 50 feet nor smaller than 1 inch = 660 feet. Also, that a map scale, appropriate legend, map title, date and a north arrow shall be included.	All revised Exhibit figures have been updated to meet 6.2.1(2) requirements.	Exhibit C.2, p. 11; Exhibit D.1-D2.c, p. 21 - 25; Exhibit F.1 - F.6, p. 42-50.

AR5	Exhibit C	Modify Exhibit C as needed when addressing comments for Exhibit D.	Exhibit C.1 and Exhibit C.3 unchanged. Exhibit C.2 updated to color code reclaimed areas in North, Central, and South Quarry; completed South Quarry West Wall and eastern facing benches are identified and color coded; road aggregate plant included Exhibit C.2 and Exhibit D.2. Exhibit C text updated to discuss color coding for Exhibit C.2.	Exhibit C, Exhibit C.2 - p. 9, 11. Exhibit D.2, p. 22.
AR6	Exhibit C	The contour line spacing on the provided Phase III mining plan map does not appear to change between the South and West Quarry areas, despite the proposed bench configuration changing from 40H-40V to 40H-80V. Please provide accurate contour data with appropriate contour intervals to accurately depict the proposed plan – This comment applies to reclamation maps as well...	Contour line spacing updated in Exhibit D.2 - Phase III Mining Plan. Three Cross sections, Exhibit D.2, D2a-D2c included to provide additional visual representation of completed and proposed bench configurations. In Exhibit F, South and West Quarry reclamation maps updated with text boxes to show different slope configurations. Exhibit F.3a - Exhibit F3.c were added to include cross sections to better show reclamation approach.	Exhibit D.2, D.2a - D.2c p. 22 - 25. Exhibit F3, F3a, F3b, F3c. p. 44-47.
AR7	Exhibit C	Please provide cross-sections of the proposed mining bench configuration(s) for Phase III through the Quarry areas.	Three cross sections provided in Exhibit D - Exhibit D.3a - D.3c. Figures include actual bench configurations for completed mining activities and future maximum bench configurations for unmined areas.	Exhibit D.3a - D.3c. p. 23-25
AR8	Exhibit D	In the mining (and reclamation) plans provided for AM07 discuss/highlight areas of the plan(s) where AM07 proposes changes from the currently approved plan(s), and what the changes consist of. This is especially critical for proposed mining slope configurations and final reclamation slope configurations.	Exhibit D - Mining Plan, General Mining Approach, and Exhibit D.2 updated to reflect where mining benches have been changed: - Actual bench configurations in the South Quarry western and eastern walls (colored in yellow). - Proposed 40H:60V maximum configuration in all areas below El. 7,000 that have not been mined. Note: West Quarry (above El. 7,000) bench configurations have not changed. Exhibit F - Reclamation Plan discussion and reclamation Figures (Exhibit F.3) have been updated to reflect revisions on the mine configuration.	Exhibit D - Mining Plan, Phase II Work Completed to Date, and General Phase III Mining Approach, p. 15-18 Exhibit F - Reclamation Plan. Table E-1, p. 30. Exhibit F.3, F.3a, F.3b, F.3c. p. 44-47.

AR9	Exhibit D	Due to its conceptual nature, DRMS will require that all reference to a future “Phase IV” be removed from this Amendment submittal and that AI simply commit to not exposing groundwater during mining activity. DRMS acknowledges that future mining may progress beyond Phase III into saturated material, when and if the appropriate “Phase IV” permit Amendment materials are submitted to, and approved by, DRMS. Until that time - no groundwater may be exposed by mining activity.	Phase IV discussion removed from Exhibit D and Exhibit D figures.	N/A
AR10	Exhibit D	The mining plan should specifically address how the operator will insure that groundwater is not exposed during Phase III activities.	Exhibit D - Mining Plan discussion updated to identify the Phase III bottom elevation to be determined by groundwater monitoring well information, other hydrogeologic data collected from concurrent investigations, and visual inspection. If groundwater is encountered, operations will cease and excavation will be backfilled.	Exhibit D - Mining Plan. Phase III Quarry Development Narrative, South Quarry development subsection. p. 18-19.
AR11	Exhibit D	The “temporary” processing plant and stockpiles currently located at the entrance to the South Quarry for the last several years has not been adequately addressed in either the existing conditions, mining plan, or reclamation plan – Please make the appropriate modifications to the mining and reclamations plans and reclamation estimates to account for it. Please also provide some detail as to what it’s function is and how long it will remain on site and in operation.	Information added to Exhibit C.2 - Current Conditions and Exhibit D.2 - Phase III Mining Map. Text added to Exhibit D - Mining Plan, Phase III Narrative to discuss location and purpose of plant.	Exhibit C.2, p.11. Exhibit D - Mining Plan, Phase III Quarry Development Narrative, p. 18. Exhibit D.2, p. 22.
AE12	Exhibit D	At what point will the drainage diversion from Unnamed Drainage (UD) #1 to UD #2 be installed?	Exhibit D - Mining Plan, Water Management Section, language added to clarify that drainage diversion will be installed concurrent with South Quarry West Wall upper bench reclamation and presents timeframe for installation.	Exhibit D - Mining Plan, Quarry Development Narrative, Water Management. p. 19-20.
AR13	Exhibit D	Please provide details regarding the “Observational Method” mentioned as it will be employed in the South/West Quarry mining and stability monitoring plan in this submittal. At a minimum please address the following: who will be conducting the observations and at what frequency; what will be the parameters/features/criteria to be observed and how will they be documented; what operational decisions will be made based on these observations and what are the criteria for the decision process.	Exhibit D - Mining Plan. Text updated to describe in what areas and how the observational approach will be employed (including decisions, frequency, and documentation) in the South Quarry. Exhibit D.3 provides revised observational approach figure.	Exhibit D - Mining Plan, General Phase III mining approach, p. 17-18. Exhibit D.3, p. 26.

AR14	Exhibit D	Will the bench configuration proposed/utilized for Phase III mining be based on the "Maximum Bench Configuration" figure provided in the GEI geotechnical stability exhibit? If so, this figure should also be made part of the mining plan. Future changes, if needed, to the proposed bench configurations approved in this amendment may be made through the Technical Revision process.	Maximum bench configurations in the Geotechnical Exhibit are no longer being pursued in AM07. Exhibit D - Mining Plan substantially revised to modify bench configurations. Bench configurations modified based on annual monitoring of South Quarry West Wall highwalls completed to date and elements of the 2020 Geotechnical Stability Exhibit. - Above El. 7,000, no change from AM05. - Between El. 7,000 and El. 6,600, bench configurations will be 40H:60V. - Below El, 6,600, bench configurations will be maximum 40H:60V if supported by a geotechnical stability evaluation. Mining will occur at these elevations until a 40H:40V configuration until justification is made. Deviations from the 60H:40V approach will be documented through the TR process. Mining Plan figure, Exhibit D.2 has been updated to reflect this revised configuration.	Exhibit D - Mining Plan. Phase III Work Completed to Date, General Phase III Mining Approach, and Phase III Development Narrative. P. 15-19. Exhibit D.2 - Phase III mining plan, p. 22.
AR15	Exhibit D	On page 16 of the provided adequacy response the statement is made that - 40H-40V benches will be utilized in areas of thick sillimanitic gneiss (less than 5 feet)… Do you mean more than 5 feet? Please clarify or correct as needed.	Language removed as mining approach as been modified.	N/A
AR16	Exhibit D	In the next statement, the proposed bench configuration of 2H:1V is also given as the maximum bench configuration in areas where foliations or fractures are steeply dipping into the excavation and strike is parallel to the bench face… Please provide all proposed bench configurations as "feet H- feet V"	Language removed as mining approach as been modified.	N/A
AR17	Exhibit D	Any deviations from the approved specifications for the West Quarry Haul Road provided in TR07 will need to be approved by DRMS prior to construction and use – please acknowledge.	Acknowledged. Final haul road design is included in Appendix 2.	Appendix 2
AR18	Exhibit E	As previously stated, the scope of this amendment should be limited to Phase III mining and reclamation as no exposure of groundwater is currently approved. As such, the Reclamation Plan provided should specifically address reclamation as if mining activity were to end with the completion of Phase III. This will need to include the design, specifications, and installation costs for the completion of a long-term drainage structure for the South Quarry. This drainage feature is mentioned only conceptually in the provided response.	This comment has not been addressed. A design has not been completed for the drainage feature and will remain conceptual until it is designed. Suggest a stipulation that the design is submitted before the long-term drainage structure is installed. Language added to Exhibit D - Mining Plan to identify that the structure will be designed and installed after mining is complete. No change to Exhibit E.	Exhibit D - Mining Plan, Phase III Quarry Development, Water Management. p. 19-20.

AR19	Exhibit E	What are the “specified densities” for the reclamation backfill as discussed in the second, third and fourth paragraphs of Section 8.0 and how will these be verified?	Exhibit E - Reclamation plan has been updated to discuss backfill densities and verification methods.	Exhibit E - Reclamation Plan, p. 32-33.
AR20	Exhibit E	Locations and density of tree and shrub plantings should be provided in detail within the text and/or reclamation map(s).	See revised Exhibit F.4. This will be a map of the whole quarry showing different polygons for different planting mixes (i.e. trees vs. trees/shrubs vs. shrubs). Also showing layout of proposed woody debris structures and rock piles along benches.	Exhibit F.4, p. 48.
AR21	Exhibit F	Contour information for all affected areas will need to be revised to sufficiently address 6.4.6(a). The expected physical appearance of the area of the affected land, correlated to the proposed mining and reclamation timetables. The map must show proposed topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of all reclaimed lands;	Two foot contours were not added. Instead, text boxes have been added to Exhibit F.1 - F.3 to show different slope configurations. Exhibit F.3a - Exhibit F3.c were added to include cross sections to better show reclamation approach. This approach was selected in a effort to provide sufficient detail while not making the figures busy/hard to read.	Exhibit F.3, F.3a - F.3b, p. 44-47.
AR22	Exhibit F	Figure F.1 states orange areas will be 30H-70V, but all other maps state 40H-80V for these areas – please correct as needed.	Figure F.1 modified to reflect 40:60V bench configuration.	Exhibit F.1 - p. 42.
AR23	Exhibit F	Insufficient information has been provided to determine how the figures presented on F.4 relate to the areas shown on F.1 and F.2. Also, scale and slope ratios for some of the items presented in F.4 appear to be incorrect. Please edit or revise as needed. Provide plan and cross section views to depict the final reclamation for areas of varying mined/final slopes.	Most details on F.4 have been removed except for "North Quarry Profile" and "Uppermost Highwalls". Figure F.3A, F.3B and F.3C added showing transect profiles of the west/south quarry similar to what was in the Geotech Stability report Figures 6-10.	Exhibit F3.a - F3.c, p. 45-47.
AR24	Exhibit F	Please provide a cross-section of the proposed final reclamation slope configuration through the Quarry areas and areas of differing mined bench configuration.	See response to AR23	Exhibit F3.a - F3.c, p. 45-47.
AR25	Exhibit F	DRMS has observed that it can be very difficult to reclaim 1:1 slopes sufficiently before erosion creates significant damage. This is especially true for slopes of extended length (over 100 feet). The reclamation plan provided appears to show significant areas of 1:1 backfilled reclamation sloping. How does AI intend to insure that the slopes proposed remain stable during and after reclamation, and prevent loss of growth medium to downslope erosion on extended areas of 1:1 slopes?	Agree that 1:1 slopes are difficult to reclaim and maintain. Aggregate used 1:1 as the maximum bench fill slope to conservatively estimate the amount of fill material needed for the upper benches. All 1:1 slopes have been revised to more gradual 2:1 fill slopes. Issue has been addressed within text and revised on figures.	Exhibit F - Reclamation Plan. Table E-1, p. 30. Exhibit F.1 - F.6, p. 42-50.
AR26	Exhibit F	The reclamation plan/maps do not appear to show any reclamation for areas impacted by the West Haul Road which lie outside the mined areas – please address.	Exhibit F.3 updated. Grey area added on north end of South Quarry to include ~3.3 acres of unmined area where a portion of the West Quarry Haul Road will remain.	Exhibit F.3. p. 44.